Sustainable and Equitable Urban Environments in Asia

by

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Submitted to the Department of Architecture in Partial Fulfillment of the
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Abstract
This study identifies some of the factors and conditions that can encourage the development of sustainable and equitable urban environments. It argues that cities will continue to grow and that it is not productive to view that growth as a crisis or a tragedy; instead it must be seen as a challenge for the future. The urban policies that have evolved over the last several decades have combined the role of government agencies, private-sector investment, and community involvement. Projects undertaken in developing countries are often supported by international development agencies seeking to promote cooperative ventures through pilot or demonstration projects. This study, however, suggests that it is time to move on and to incorporate the lessons learned from these demonstrations into full-scale local and national urban-management strategies.

Developing criteria for sustainable and equitable housing and urban services is the next goal. Among them, this study argues, is the need to reduce inequity in the way housing and urban services are planned and developed. To do this two interrelated approaches are suggested: one is to increase choices that the community is given and create conditions that promote community decision-making; the other is to optimize the role played by governments agencies, private-sector organizations, community groups, non-government agencies, and other local groups. Several projects in Asia and South Asia were evaluated to determine the process by which new housing programs are planned and developed, the kinds of decisions taken, and the roles played by the various participating groups. The role of non-government organizations and community organizations in settlement upgrading programs; the advantages and risks of private sector involvement; and the potential role of community groups, non-government organizations, private developers,
government agencies, and housing finance institutions in new housing projects, were also evaluated.

The study concludes by showing that housing and urban-services programs have a better chance of becoming sustainable and equitable if they are developed through consensus rather than confrontation, and when private-sector involvement is encouraged and promoted under conditions that are clearly understood and instituted. The study also concludes that community accountability and decision-making must be increased, local-management promoted, and program components in which the community has a larger implementing role introduced. Similarly, the role of small-scale building contractors must be enhanced; and the needs of the broadened client groups understood and reflected in planning and design. Finally, site design for urban developments has to be integrated into the larger community and respect the needs of its immediate surroundings.

Many of the suggestions and proposals offered here are not broad strategies, but suggestions for feasible ways of improving society's chances of solving its urban development problems. They are not blueprints, but simply ideas for generating new approaches that will deal more adequately with the immediate and increasingly severe housing shortage, and recommend actions for preventing difficulties that may otherwise arise in the future. Finally, the recommendations in this study are strategic, not project-oriented; in their implementation the locus of responsibility rests with the cities themselves.

Thesis Supervisor: William Lyman Porter
Title: Norman Leventhal Professor of Architecture and Planning
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Chapter 1. Promoting Sustainable and Equitable Environments

The rapid increase in the number and seriousness of environmental problems threatens all societies. Exploding population, the depletion of energy sources, and the wanton destruction of nature in the name of development are posing real and present dangers to the globe and have already taken a severe toll on our cities. In particular the migration of rural populations into already overcrowded cities is putting immense pressure on the urban infrastructure and resulting in uncontrolled growth. The relationship between man, culture, environment and technology is extremely complex, but it nonetheless needs to be addressed when one sets out to discuss future policies.

Urban planning in less developed countries must assume that population growth will continue for the foreseeable future. Instead of rejecting or resisting expansion, planning, design, and development strategies must allow for it. They must also take into consideration the aspirations and changing life-styles of populations. Their strategies must be oriented towards improving the quality of life while still reaching the condition of “environmental equilibrium” that Watt and his colleagues call the “dynamic steady state.”1 The ramifications of all these problems extend beyond the scope of this thesis, but they are the whole, of which the design of housing is a part. For that reason architects and planners are among the major actors in determining what the future will be like.

Urban growth has given rise to a variety of modes for producing the housing needed to shelter the population, but they all fall into two general categories. The first, usually labeled “formal,” refers to housing built by an organized system of
institutions, and governed by regulations and legal contracts. The second, usually referred to as "informal," produces housing on land where ownership or tenure is not officially recognized. The settlements that result are at least initially outside the system of rules and laws imposed by the government. For that reason the tenants are usually without services and amenities as well.\(^2\)

Another way of describing housing delivery is to distinguish between the "provider" approach—the most common approach in housing—built by government agencies or by private developers, and the "self-help" approach, which promotes the building of housing stock by the people themselves. When done effectively the self-help approach uses locally available resources, including labor skills, services, utilities, materials and money. These two approaches are often seen as incompatible, and they do present significantly different intellectual, physical, political, and economic fields of action for architects and planners.\(^3\) In the "provider" approach the key actors are government agencies, consultants, financiers, large contractors, and developers. In the "self-help" approach the key actors are the families, local developers, community groups, non-government organizations, small contractors, money lenders, and the local government agencies.

In both approaches, the government, the private sector, and community-based organizations all play a role. In the "provider" approach, however, the dominant institutions are government and the private sector: there is little opportunity for collaboration between the government and the community. The inability of the government to provide housing for the poor, combined with the hope seen in self-help-produced squatter settlements led some to argue that government should stop building housing for the poor and let the poor build their own. However, over the last decade, attitudes have shifted again, and the idea that partnerships between the
people, private investment, and the government can produce housing for poor people as well as for the rich in developing countries is taking hold and is bringing the state back into the equation through partnerships between the public and the private sectors. Government support under this most recent system includes assessing existing stock and managing land, and providing labor, services, utilities, material, and money. This approach assumes that the state does have a role to play in housing poor communities. The “support” approach has been manifested in solutions ranging from “sites-and-services” (which is the government’s way of involving the community) to “settlement upgrading” projects undertaken by the community itself with approval from the government and extensive assistance from non-government agencies.

The argument promoting “self-help” was, in essence, anti-state: it assumed that self-help constituted a threat to the government and therefore the government was unable and unwilling to do its part of the job. But, although there are obvious differences between how a state, private investment, and ordinary people function, these differences need not be in constant tension. The government and non-government organizations are not always in conflict; state intervention in housing is not always detrimental; and people’s own initiatives need not necessarily circumvent the market forces at every turn. A non-governmental effort has only to establish close connections with the government and elicit the support of government officials to be effective.

In the rural areas of the developing world, 90 percent of all houses are built by the dwellers themselves; in the urban areas, the proportion is about 50 percent. In both cases the proportion of houses that are designed by architects and built by developers and development agencies is small, mainly because they are unaffordable by the low- and low-middle-income groups who make up the vast
majority of the population. But that does not mean that the designer cannot play a
greater role than heretofore in the development of housing, whatever the approach.
The widespread disillusionment with the “good-houses-make-good-people” notion
that led to “slum-clearance” projects through the 1960s and ended in crime ridden
public housing, particularly in the United States, shows what happens when public
housing is badly designed and the community has no say in what is being built.
Housing where bedrooms and living and dining spaces were placed with no regard
for how people live or might wish to live; where there were too many unprotected
areas; where parks between towers became battleground for gangs, and where
parents found it impossible to supervise children from apartments high off the
ground are familiar products of the slum-clearance approach. The reaction,
however, has been to disregard the need for design altogether and to become project
and process oriented. Housing authorities have planned either too much or not at
all.8

Saad Eddin Ibrahim, a leading Egyptian sociologist, thinks that it is possible to
upgrade mass housing, but that with few exceptions, architects, bureaucrats, and
politicians are not likely to do so. They are unconcerned with cultural authenticity;
they only want to win commissions and complete projects. The challenge,
therefore, is how to influence the people in power into improving and stressing the
importance of design.9 In spite of Ibrahim’s pessimism the process has already
begun. Over the last decade governments, development agencies, and designers
have examined design in housing and have recognized that satisfactory housing is
not just a luxury for the affluent, but is essential for the future stability and well
being of the low- and middle-income groups. Some neighborhoods built over the
last decade have already begun to reflect this new attitude.10
Evolution of Urbanization Policies

Since the 1950s a number of policies and programs have been tried by governments in developing countries and promoted by international development agencies to cope with the housing shortage caused by rapid urbanization. Not all of these policies have worked, yet each suggest ways to improve policies already in place. Although the problems differ in size and seriousness from city to city and country to country, almost all governments face them to some extent. In the past, policies of governments and international development agencies sought to slow the pace of urbanization and control urban development, to improve urban management and finances, and to tackle the problems created by squatter settlements by providing publicly financed low-income shelter and services.11

Control of Migration

In the 1960s and 1970s many governments tried to slow the pace of urban growth by introducing programs to discourage migration to cities, most of which ended in failure because the economic pull to the city and the push of poverty from the countryside were too great. They also tried to re-channel migration by developing small and medium towns and undertaking rural development, but migration to cities only accelerated. Attempts to control migration were coercive and had finally to be abandoned. China’s “rustication program,” for example, sent many millions of people from the cities to rural areas between 1961 and 1976.12 It was resented by both the people being moved and by those who were living in the places they moved to and in any case it failed: available data indicate that the proportions of urban to rural population in China between 1960 and 1982 were not very different from those in other countries. China’s urban population grew from 18 percent in
1962 to 21 percent; India’s from 18 percent to 24 percent in the same period; in other low-income economy countries the urban population in 1982 was 20 percent.13

Other policies to discourage migration were to destroy squatter settlements and to send back new arrivals. A variation on this approach in Africa has been the periodic expulsion of unemployed migrants in the Congo, Niger, Tanzania and Zaire.14 Indonesian officials tried in the early 1970s to regulate migration to Jakarta by issuing temporary permits requiring new migrants to find housing and employment in six months or face deportation.15 This program too was largely ineffective and finally discontinued.

In South Korea, the measures to control the growth of Seoul were more successful and therefore merit attention. They used various administrative measures: special residents tax, construction permits, zoning regulations, green belts, discriminatory schools fees, and restricted expansion of higher educational facilities. The Capital Growth Management Law of 1982 combined these restrictive policies with financial incentives for relocation and new town development.16 Seoul’s growth rate of 9.4 percent in 1966-70 dropped to 2.9 percent in the period 1980-85.17 However, what is not clear is whether this drop was due to the restrictive policies that were introduced, or development of new towns and secondary cities, or both. What is clear is that some aspects of the South Korean experiment to control and manage the urban growth of the capital city have worked, suggesting that a multiple approach will be more successful than depending on a single strategy.

India, too, has followed a policy of restricting growth by denying new industrial licenses and discouraging direct investment in government enterprises in
the largest cities. However, it did not have the desired effect because manufacturing employment accounts for less than 10 percent of total employment and less than 30 percent of urban employment. Indian efforts to control or alter city size have been nowhere near as comprehensive or multi-faceted as the South-Korean program. While large-scale industries have been denied access into cities, medium- and small-scale industries have flourished, because there are no restrictions on them. Transportation and other infrastructure improvements have been encouraged in large cities; as a result, facilities there are sustained at a higher level than in surrounding areas, and they too encourage migration.

Developing Small, Medium, and New Towns

For programs that control development of industry in large cities to be effective a system of secondary cities with services, administrative capacity, and infrastructure that is adequate to support the new industries has to be developed. So far new towns and developing secondary cities have often had limited success, because there is no unified policy behind them. One policy governs secondary city development and another controls migration and they often work at cross-purposes. Policies in developing countries try to encourage selected cities to grow by investing in heavy manufacturing or industrial activities there. India, Malaysia, Pakistan, South Korea, and Thailand have all developed programs to encourage the growth of small and medium cities that would offer efficient and convenient locations for services, provide economies of scale, facilitate manufacture of a variety of basic household and consumer goods, and serve as regional marketing centers. In many cases these towns have prospered, mainly because of the marketing functions which they provide for agriculture and related activities in the hinterland.
The program, however, has not had a measurable impact on large-city growth. Often the cities chosen have not had sufficient physical infrastructure, services, or utilities for industries to locate there. The cost of transportation to major metropolitan areas or ports was high, and industries were not linked effectively to local labor and raw material markets. Besides not having adequate facilities, these towns also suffered from a lack of commitment on the part of the government. The level of funding allocated was inadequate; there was no comprehensive program to ensure a convergence of investment in related sectors, and these towns lacked proper management. As a result, they remained small economic enclaves that failed to stimulate regional growth and sometimes even drained resources from their region. Moreover, since much of the development along the corridors was close to a large metropolitan area, it merely increased congestion.

Developing new towns has been another approach. India has founded a hundred of them—steel towns, heavy industry towns, fertilizer towns, etc. From their inception, however, they were company towns, captive to one particular industry. Though opportunities existed for using many of these towns as nodes of growth, they were lost due to faulty planning. As of 1981 the total population in all of the new towns in India was less than 2 million and represented only 10 percent of the annual increase in the urban population.

Promoting Rural Development

Another strategy has been to promote rural development in order to raise agricultural productivity and persuade people to remain on their farms. These projects have been overly complex and lacking the necessary manpower for effective implementation. As a result they have not reached enough of the rural poor to halt migration.
One problem with rural development programs is that in fact governments favor urban development through their preferential treatment of cities because they favor industrial development. Pricing policies favor cities; infrastructure investment is also channeled to them as are social services and food subsidies. Some countries have also promoted land resettlement and rural colonization projects in frontier areas to create new employment for rural dwellers, but like the other rural programs they benefit too few to stop migration. Over the last decade, however, these policies have been changing. Recent development plans recognize that cities have links with rural areas and that urbanization is not necessarily a bad thing.

Strengthening Local Governments
In many countries functions long regarded as municipal responsibilities, such as water supply, sanitation, primary education, and primary health care, have been taken away from municipalities and entrusted to special-purpose organizations at the state or the national level. For example, most municipalities in South Asia continue to provide routine functions like refuse collection and maintenance of birth and death registers, but have no real authority. Large cities, because of their political power and comparative wealth, have been able either to resist such moves or to gain some measure of control over the functioning of the various authorities. Most towns, however, have become totally dependent on the central government for their day-to-day functioning.

Tax revenues at the municipal level are also shrinking in most countries and the fiscal powers of state and national governments on the increase. Property taxes amount to 20-30 percent of local government revenues; the per capita rate of property taxes, however, is very low—in Karachi, it is about $1.20 per year/plot, in Madras $2.40, in Ahmedabad $3.40, and in Bombay $5.30. In addition
to the low yield of property taxes, the share of municipal governments in terms of expenditure has also declined. In India, for instance, the municipal expenditure has been reduced by half, from 8 percent in 1960-61 to 4.5 percent in 1980-81, of the total central, state, and local government expenditure.\textsuperscript{32}

Organization and management responses to urban problems reflect all these developments. In response to large-scale projects that were being undertaken and encouraged by international and bilateral agencies, metropolitan-wide authorities like the Calcutta Metropolitan Development Authority and the Karachi Development Authority, for example were created in the 1960s and 1970s to head such projects which required the participation of several government agencies.\textsuperscript{33}

Setting up special-purpose authorities and improved levels of funding by state or national governments have not always resulted in improvements in service delivery, however. Many programs aimed at decentralizing financial and managerial authority have had only meager support from central governments, which while they seek to provide services, have not seriously grappled with the basic structure of urban administration.\textsuperscript{34} As a result questions of proximity, access, and accountability which are the rationale for local government involvement have largely been ignored. Yet innovative models of community participation have developed in the slums of Hyderabad, the settlements of Karachi, the bustees of Calcutta, the kampungs of Jakarta, and the barangays of Manila. The approaches introduced in these developments have been adopted by the government agencies for specific projects, showing that local municipalities, non-government agencies, and community based organizations can play a positive role in the administration of the city as a whole.
Providing Low-Cost Shelter and Urban Services

Population movements to cities has shifted the burden of poverty to the cities as well. In 1980, there were around 40 million urban households living in absolute poverty compared with 80 million rural households. By the year 2000 the number of urban households living in poverty is projected to increase by 76 percent to 72 million households, and that of poor rural households to fall by 29 percent to 56 million households. The response of developing countries to the problems has been mixed and lacks clear direction. Most governments have undertaken programs for the provision of low-cost shelter and public services to keep pace with a growing poor population. Since the 1950s, they have struggled to provide shelter and services, marginally to extend infrastructure, particularly the water supply, sanitation, and urban transport, and to undertake some modest improvements in municipal management.

The usual four stages in shelter provision--slum clearance and forced migration; building public low-income housing; infrastructure through sites-and-services, slum upgrading and core housing; and tenure and upgrading slum housing--have not been entirely linear. Even in India which pioneered the concept of bustee improvement and the provision of basic services on the “lines” similar to the kampung improvement program of Indonesia in the early 1970s, public action in various parts of the country has been mixed. Highly subsidized tenements are still being built, conferment of tenure rights are still being denied, and upgrading of slum housing is still limited to a few pilot projects. At the same time, however, politicization of slum inhabitants has also been rapid and to that extent enforced clearance of slums has receded.
Urbanization. (Above, Fig. 1.1) La Paz, Bolivia (1976). A common sight in rapidly urbanizing areas. Source: Urbanization Primer, p. 199. (Below, Fig. 1.2) New Delhi, India (1990). Squatter settlements adjacent to office buildings in central New Delhi.
Conventional Housing Approaches -- Have they Worked?

It is now clear that, barring a few successful examples, government agencies in developing countries have been unable to cope with the demand for housing. Singapore, Hong Kong and to some extent the Republic of Korea are the exceptions: they have increased the supply of multi-storey buildings so substantially that the living standards of the entire population have been greatly improved.37

Hong Kong and Singapore were successful for particular reasons: affordability, a scale of operation that affected the general level of rents throughout these two cities and thus created a successful trickle-down effect, relatively high per capita incomes, the necessary management and technical resources, and strong governments capable of implementing housing programs and enforcing the rules.38 Most public housing construction programs elsewhere do not have these capabilities and, unless significant changes are adopted, increasing government spending is not going to increase the housing stock or improve housing for the poor. The total expenditure by the government in most Asian countries is also small compared to Hong Kong and Singapore and the outlay outside the government system. For example in India, total funds from budgetary outlays, government agencies and financial institutions were about Rs 2,200 crores (Rs 22 billion) in 1987-88. The private sector in the same period had an outlay of about Rs 8,900 crores (Rs 89 billion).39

In Singapore success was due partly to a managed housing finance program. Household savings were mobilized, capital flow increased, interest rates held in check. Housing finance in most developing countries has been perceived in terms of budget outlays of the government rather than in terms of the housing finance in
the country available from household savings.\textsuperscript{40} Significant advances have been made in India, Korea, and Indonesia with relatively recently developed housing finance systems that increase the savings potential of households and channel it into housing. A new program initiated by the United Nations Development Programme (UNDP) focuses on expanding public/private partnership access to housing finance in Asia.\textsuperscript{41}

As long as there remains excess demand from the middle- and upper-income groups in virtually all major cities in Asia, there is going to be a constant struggle for the poor to find housing, and once they find it a constant struggle to retain it. Therefore there is a need generally to improve the urban land assembly and development process and improve the capabilities of the building industry, the building materials industries and housing finance systems. Although the primary responsibility of the public sector is to shelter low-income groups, their need for shelter cannot be reasonably satisfied as long as the demands from middle-income groups go unmet.

Another area of concern in mass housing has been the inability of most governments to implement its projects successfully. It is often assumed that once the projects are planned, they can be carried out by subordinate administrators and the intended results will be achieved in a nonpolitical and technically competent manner. The experiences with urban policies and projects in the past indicate that implementation is a dynamic and somewhat unpredictable process of political interaction. Environments, government policies, inter-organizational relationships, beneficiary organization and their participation, and capabilities and resources of implementing agencies all influence the outcome.\textsuperscript{42}
Conventional Housing. (Above, Fig. 1.3) Karachi (1991). Government Staff Quarters, walk-up apartments with undefined open-spaces separating them. (Below, Fig. 1.4) Karachi (1991). Apartments built by the private sector with a similar result.
Problems with Government Efforts

Government low-cost housing has not necessarily led to improvement in the quality of the residential urban environment for the poor. The low-cost housing built is structurally better than the temporary structures most of the urban poor live in, and standards of sanitation, electricity and water are better too, but the projects have been unable to provide shelter for the very poorest of families. Building standards are too high. Building codes in many Asian countries date back to colonial administrations which had often adapted them from those of the "mother country." They were inappropriate at the time they were written, and they are even more inappropriate today.43

Not all of these standards can be thrown away: those relating to quality of light, air, ventilation and sanitation did improve conditions, but others were clearly ill-suited for these countries. The wide streets planned to accommodate automobile traffic were without adequate shade required for pedestrian traffic, and their unnecessary width quickly made them refuse dumps in some cases. Walk-up apartment blocks were ill-suited to keeping poultry and small domestic animals, at times the inhabitants' only source of livelihood. Corridors and stairwells did not fit traditional notions of individual responsibility for communal space: their use led to tenant conflicts, were not maintained or kept clean, and eventually deteriorated.44

Another reason for excessive cost is that there were often rigid requirements for mutual aid. Mutual aid seems to work fairly well in squatter settlements where there is an established community of neighbors who are used to helping one another. In sites-and-services projects, however, it works poorly. There are always problems when governments require certain materials and construction techniques that the residents are not familiar with and where the local administrators
favor rapid production; the mutual aid process is not an efficient one, just an
expensive one. One must also realize that the very poor are preoccupied with
getting food on the table and getting to the next day without a catastrophe. This is
not the most conducive circumstance to get them to work on someone else's roof in
return for some future assistance on their own home.45

A third reason is that many projects restrict commercial uses. The poor require
money not only to live but to make their payments. For many of them their income
generating activity must take place within the community itself. This is particularly
true for women who must often combine domestic responsibilities with those of
making a living. The separation of residential and commercial uses is another
example of inappropriate Western-style zoning codes being superimposed on Asian
cities. Not only does such a land-use approach present barriers to the poor for
generating income, but it imposes unnecessary commuting, with costs both to the
city and the people, and increases congestion and pollution.46

Finally, there were frequent restrictions on the manner in which loans could be
used. Project administrators commonly would approve loans only for the purchase
of specified materials, and these were usually the most expensive ones. Corrugated
iron roofing materials, for example, did not qualify for loans.47

Cost recovery has been the most difficult of the problems, but it is often
associated with difficulties or delays in guaranteed tenure or with delays in
delivering services to the sites. This is where the collective experience of the
demonstration projects can be effectively applied, because the track record shows
that, where participants are carefully selected and prepared, where payment
schedules are convenient, where discounts are given for early payments and
penalties for late ones, where systems are set up to monitor the debt, and where the
community itself assists in collecting the payments, cost recovery is most effective. 48

Another major problem for local governments is the lack of affordable rental housing in many Asian cities. Bombay, Colombo, Karachi and Delhi have resorted to rent control, and there is little doubt that some residential neighborhoods have been retained for low-income occupancy using this mechanism. But it also appears that some affluent families pay much less than they can afford to pay because of the controls, that it subsidizes some businesses, and that it discourages property owners from improving their properties. Some argue that abolishing rent controls would actually increase the amount of housing for the poor and improve the existing low-income housing. Whatever the approach taken, the lack of adequate supplies of low-income rental housing in cities is a problem of the first magnitude and must be addressed in any comprehensive urban management program. 49

Self-Help in Squatter Settlements--Does it Work?

For a long time governments in the developing countries saw squatter settlements as a problem which had to be eradicated. They were viewed as the physical manifestations of social ills. Some urbanists and researchers saw hope in them, however. Charles Abrams, and latter, Mangin, Turner and Peattie, all of whom studied them, found that the squatters had managed to build shelters for themselves, and however modest, they were still housing. Turner established that people had produced 50,000 dwelling units in Lima, Peru, in a seven-year period (1949-1956), while in this same period the government had built only 5,476 units, none of them affordable by even an average family.

Seeing squatter settlements as part of the solution rather than as part of the problem led to the approach that came to be known as “self-help.” 50 It turned the focus of mass housing from “central provision” towards what Turner called “local
enablement," whereby the financial and other resources of the future dwellers were channeled into housing construction.

The self-help approach identified by Turner took advantage of the self-sufficiency, autonomy, and decentralization the squatter settlements represented. Self-help assumed that small communities could be sustained independent of larger economic and political institutions and might eventually join together in a self-governing network that would transform society from the bottom up. Turner therefore argued that governments should cease building and managing houses, which it does badly, and let the users develop their own. "Self-help" became the new panacea.

The user, or "grassroots," or "development from below" approach, as Bishwapriya Sanyal points out, meant that many inequalities could be rectified through new initiatives generated at the bottom of the social hierarchy, rather than, as previously executed, by the bureaucracy. The assumption was," says Sanyal, "that these activities would generate profit, savings and investment at the bottom, thereby eliminating the need for income to trickle down the social and spatial hierarchy." The revised approach was in favor of a participatory planning process where the future beneficiaries of the project would be involved from the very beginning. A number of non-profit and voluntary organizations sponsored building projects to promote these objectives.

The user approach regarded the non-government organizations (NGO) and private voluntary organizations as appropriate agents for fostering housing projects. Sanyal states five reasons to support this. First, the NGOs and private voluntary organizations were supported because they were small and therefore considered to be bureaucratically less unwieldy. Second, they were thought to be free of corruption and truly committed. Third, they were thought to be locally based and
therefore appropriate institutions to foster decentralized developments. Fourth, they were perceived as being more innovative than governments. Finally, they were viewed as particularly capable of fostering participation by the poor through the creation of community groups.\textsuperscript{54} However, NGOs have also acted as bridges between the low-income communities and the government. It was often in the interest of community groups to work with NGOs who were capable of dealing with government agencies and were able to understand often arcane government regulations.

\textit{Sites-and-Services}

The model that was eventually developed to achieve participation was not exactly a synthesis of the two earlier approaches, but at least it advocated a partnership of sorts. Under the sites-and-services system, the state provided serviced land and the actual house was constructed by or through the occupants. Variations on this theme were introduced, among them 'core' or 'shell' housing, which provided a serviced plot and a core, or serviced land and a room, to which other rooms could be added later by the owners as and when they could afford it. Horacio Caminos and Reinhard Goethert, in their pioneering work, developed elaborate models and tools for these sites-and-services projects, to help communities and local organizations to craft programs and housing projects themselves.\textsuperscript{55} They reduced housing to a set of quantifiable and comparable data and developed an elaborate and precise system of site evaluations in order to figure out the best and cheapest possible way in which to provide urban infrastructure and other services. Their objectives were clear: to subdivide land and provide services for the neediest. Techniques were provided for making decisions affecting policies as well as for designs. Politicians and administrators were given a method for analyzing what level of services was
needed. Designers were given techniques and indicators to ensure optimal use of
land and to provide guidelines for design.

The sites-and-services approach was readily adopted by the World Bank and
promoted in developing countries as a means of providing an appropriate level of
services and reducing costs. Alain and Marie-Agnes Bertaud developed the Bertaud
Model, a computational tool which makes it possible to identify very quickly and
cost-effectively the key physical and financial cost characteristics of a wide variety
of physical design alternatives for low-income settlement projects. It also correlates
expected costs to household incomes and expenditure patterns, making it possible
to identify the socioeconomic groups for which a particular alternative will be
affordable using specific assumptions about cost-recovery policies and financing
terms.56

A drawback to both Caminos's and the Bertauds' approach is that they do not
recognize cultural differences. Both models recognize physical and topographical
differences between various sites and allow for adjustments, but they do not build
in allowances for any cultural or social differences among countries and locations.
The methodology both models developed applies uniformly to all housing projects.
Accommodating cultural differences is left to local development authorities. This
may seem sufficient and desirable, but often development agency officials
themselves do not pay much attention to cultural differences; they are in most cases
working with established standards that are derived from imported models to
provide as many houses with infrastructure as possible at the cheapest cost and in
the quickest possible time. They are unwilling and unable to deal with the
intricacies of culturally specific design. The result is that the models are reduced to
a couple of optimal site layouts, land use, open spaces, circulation, and a plan that
allows for cheap infrastructure installation.
The plans on the top row represent one hectare of land (100m x 100m). The PATTERNs of land utilization are illustrated as follows:

**PUBLIC:** streets, walkways, open spaces

**SEMIPUBLIC:** open spaces

**PRIVATE:** lots
  dwellings

Site-and Services. (Above, Fig. 1.5) Example of quantitative analysis by Caminos and Goethert on land utilization. Source: *Urbanization Primer*, p. 95. (Below, Fig. 1.6) Airoli, New Bombay (1991). Typical World Bank financed site-and-services project.
Promoting Sustainable and Equitable Environments

PRICING ZONES AND AFFORDABLE LAND DEVELOPMENT PRICES

<table>
<thead>
<tr>
<th>Zone</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone 1</td>
<td>Dh. 160/Net m²</td>
</tr>
<tr>
<td>Zone 2</td>
<td>Dh. 280/Net m²</td>
</tr>
<tr>
<td>Zone 3</td>
<td>Dh. 320/Net m²</td>
</tr>
<tr>
<td>Commerces</td>
<td>Dh. 350/Net m²</td>
</tr>
</tbody>
</table>

Site-and-Services. (Fig. 1.7) Example of a typical site layout using the parameters set in the Bertaud Model. Source: A Model for the Preparation of Physical Development of Alternatives for Urban Settlement Projects. p. 122.
Another shortcoming is that both approaches are based on a conventional infrastructure layout--main sewer, street sewer, house sewer and backyard toilet. They cannot compute other systems which have since been introduced such as the "condominial system," where a main sewer and a house sewer are provided, and the lane sewer has been eliminated, or the single-chamber lane septic tank. Since more recent innovations to the infrastructure system cannot be used in sites-and-services projects they have to be developed outside the model. Most sites-and-services projects are funded by the World Bank which requires that any infrastructure layout meet the criteria established by the Bertaud model, thereby leading to similar infrastructure and site layout over the developing world.

Sites-and-services and self-help were also encouraged by "appropriate technology" advocates, because of the craft-oriented production that resulted. Large donors, such as the World Bank and United States Agency for International Development, found in these policies the ideological justifications that they needed to sponsor large-scale development projects, and their backing was crucial to governments. Soon economic and technical assistance was tied to these concepts.

Problems with Self-Help and Sites-and Services

Questions about the effectiveness of self-help were soon raised by those that believed that, on its own, it was not going to solve the urban housing problem. Though it reduced construction costs, created employment and skills training, and strengthened the community and individual identity, it also had pitfalls. For one thing, reducing construction costs by doing the work oneself proved not to be sufficient to bridge rent-income gap. Sites-and services and self-help projects remained dependent on heavy subsidies--albeit less heavy than other forms of housing--which are not forthcoming. Conceptually there is nothing wrong with
the sites-and-services theory that people will build what they can afford. However, the central concept of the serviced lot implies a monthly charge and frequently a down payment, which themselves are sufficient to raise the project cost above the economic threshold of a substantial proportion of the urban poor.\textsuperscript{59}

Secondly, the question of location is for the very poor much more critical than shelter itself. For those with no regular source of employment, each day is a new search for one’s daily bread. A prime requisite for survival is easy and continual access to the central pools of economic activity (i.e., the job market), which are normally located in the middle of the city. Due to the scale of sites-and-services projects, peripheral locations are favored, but they also make life more costly and difficult for their lowest income participants.\textsuperscript{60} In the way projects are planned and designed, the relationship to the rest of the city and linkages with other amenities in the city are never adequately established, and in most cases are completely ignored.

Studies show the link between settlements and areas of employment and the importance of proximity of housing to sources of work. Old settlements evolved over time and urban services grew around them, but new ones cannot wait for that to happen. Low-income settlements must be located in areas near employment, or at the least provided with heavily subsidized public transport or scattered along with dispersed employment locations throughout the city.\textsuperscript{61}

It is important to understand the link between economic opportunities and settlement patterns. In sites-and-services projects land is costly. That means that plots are small, making it difficult to undertake any small-manufacturing or light industry on them. Upper-floor expansion to rent or use it as a workshop is only possible after the owner has accumulated sufficient capital to build and upper floor.\textsuperscript{62}
Thirdly the community was never seen as being able to contribute anything; they were intended to occupy the site once the services were installed. No role involving the community in the development of the project itself or in the maintenance and management of it was envisaged. All aspects of the project were controlled by the development agencies and the international financing agencies that funded the project. Access for poor groups to decision making and the implementation process was largely curtailed. Large, highly centralized organizations, especially development authorities, were counterproductive in that they tended to restrict the influence of local associations and did not mobilize the settling groups.

**Present Policies and Programs for Housing and Urban Services**

More than a decade and a half ago the Habitat Conference identified the provision of housing as one of the key issues facing developing countries urban settlements.

The overriding objectives of settlements policies should be to make shelter, infrastructure and services available to those who need them, in the sequence in which they are needed and at a monetary or social cost they can afford. Social justice depends on the way in which these facilities are distributed among the population and the extent to which they are made available.  

Since that time the general shelter conditions of the world’s poor have worsened, particularly during the 1980s when world economic recession strapped governments and resulted in a decline in investment in housing.

Nevertheless, there is reason for optimism for future decades in the widespread change in attitudes and approaches to housing which has taken place. By now nearly everyone is conscious of the evolution of government positions toward slums and squatter settlements from one of unconcern, to one of hostility and
eviction, to one in which attempts to provide low-cost public housing were constructed, to one where slums and squatter settlements became tolerated and even accepted, and aided self-help housing schemes were supported, and finally to one in which assisted sites and service or slum upgrading projects were adopted. 64

Experience with the more than 150 sites-and-services and squatter settlement upgrading projects built so far in the developing world has been a mixture of failure and promise. Important lessons have been learned but they are in danger of being lost because the governments of developing countries were only willing to support the efforts when international assistance backed the projects. These projects were in the form of pilots or demonstrations and it is now time to reassess the experience and move on to incorporate the lessons into national and local urban management strategies.

The Study
This study examines some of the ways sustainable and equitable housing can be provided and how planners, designers, private agencies and the communities themselves can most effectively contribute to that goal. It does so by analyzing those projects in South Asia and Southeast Asia that have shown in process or product approaches or solutions to housing a large number of people that appear to have promise. One feature common to effective planning and designing is that it relates well to its surroundings. The integration of housing with other activities to allow for a stimulating interchange among those who live and work in these communities is also important. The processes that achieves this can vary widely. Here, I investigate some of them and evaluate in what ways they were successful: the ingredients that made the collaboration work and the precise nature of the
partnership between the architect/designer, policy-maker, developer and community.

Some lessons drawn from these residential communities are apparent in the process used and in the product itself. Others show how the communities are best formed and how compatibility between people and the houses and spaces designed can be best achieved. They can provide information on the benefits of the design used and how the process was adopted to a particular group of people.

Involvement encourages people to exercise political and economic power, exert control over their own lives, and act effectively as a community. The study identifies and builds upon the set of relationships that are established among neighbors and those in the surrounding neighborhoods. These relationships show whether the project fits into its surroundings or not. Carelessly introduced social programs can destroy already existing informal structures within the community and in the long run be detrimental to its development.

Evaluation also highlights the gaps between intentions and reality. How well did the architects or project designers perceive the problem? how successful were they in implementing it? how did other forces such as politics, economics, and societal influences affect design decisions and shape the community? and how do the people who live in it perceive it? The questions were answered in terms of the roles of the different actors involved, i.e., the interaction between the private and public sectors, or between the voluntary and non-governmental organization, and the community. It is hoped that the new understanding that results may lead to the discovery of better ways of designing that will incorporate community requirements through careful evaluation, not only of needs, but of how those needs might change.
By evaluating projects that are completed and in use, one can also analyze changes that are taking place to provide a better picture of how residential communities fit within the overall fabric of the city. The results suggest the importance of such research in order to understand how housing is used and how it will be changed once it is built and occupied. How does what exist differ from what was intended?

Evidence that combinations of government support, private investment, and community initiative are successful is difficult to find, but it is found in some aspects of the projects described here. On the basis of that evidence this study proposes small but important changes in the approach to housing design and community involvement. It identifies what can be done by project planners and designers and what could be left for the community to undertake. It proposes no broad strategies, though it does describe several factors and programmatic conditions as a series of steps that can lead to a more comprehensive strategy—to create a level playing field that sustains creative and equitable partnership between the state, private investment, and community involvement.
Notes to Chapter 1.


7. Ibid.


10. Ibid.


14. Ibid.

15. Ibid.

16. Ibid.

18. Ibid., p. 38.
19. Ibid.
20. Ibid.
23. Ibid.
24. Ibid.
27. Ibid.
29. Ibid.
30. Ibid.
31. Ibid.
32. Ibid.
34. Ibid.
39. Ibid.

40. In India it is estimated that national housing savings average about 20% of income.


43. For a comprehensive discussion on building standards see Ibid., pp. 109-130.


45. Cheema, Urban Shelter and Services, p. 129.


47. Ibid.

48. Ibid.


50. William Mangin, “Latin American Squatter Settlements: A Problem and a Solution,” Latin American Research Review, 1967, was perhaps the first person actually to call these settlements a “solution” even with their problems.


53. Ibid., p. 68.

54. Ibid., p. 68-70.


57. The condominial system is the brainchild of Jose Carlos de Melo, a socially committed engineer from Recife, Brazil. In this system the block of houses are treated like a horizontal
apartment building -- or condominiais, in Portuguese. The layout is radically different from
the conventional system, with a shorter grid of smaller and shallower “feeder” sewers running
through backyards and with the effects of shallower connections to the mains rippling through
the system. These innovations cut the construction costs to between 20 to 30 percent of
those of a conventional system. The condominial system is now providing service to
hundreds of thousands of urban people in northeast Brazil. The danger is that clever
engineering may be seen as “the system.” However, the system is depended on strong
community and organizational aspects. Where it has been missing, the technology has


59. Lisa Peattie, “Some Second Thoughts on Site-and-Services,” Habitat International 6, 1/2

60. Ibid., p. 135.


62. Solomon Benjamin, an architect and planner from India, takes a look at the transformation of
raw farmland into a bustling colony of homes, factories, commerce, and services on the
outskirts of Delhi. His study provides an example of how urban development and economic
activities are intricately tied and concludes that if new housing areas are to survive, incentives
for economic development are crucial. Jobs, Land and Urban Development: The Economic
Success of Small Scale Manufacturers in East Delhi, India (Cambridge, Mass: Lincoln

Conference on Human Settlements E. 76. IV. 7 (Vancouver: UNCHS, 1976), Chapter II.

44.
Chapter 2. Reducing Inequity for Sustainable and Equitable Developments

Over the last two decades, policies, position papers, and approaches for urban development programs have all tried to reduce the role of central planning in urban development programs. For a long time central planning and administration were considered necessary to guide and control the economy and to integrate and unify nations that were emerging from long periods of colonial rule. They were also required by the international assistance agencies that were providing large amounts of capital in the 1950s and 1960s, through their insistence that borrowers have comprehensive and long-term plans for the investment of external capital. Since the 1970s, however, it has became evident that centralized government, with a few exceptions, has neither brought prosperity nor alleviated poverty. Given the present state of the urban environment it is clear that central planning and administration had not worked in the cities either.

Decentralization of government control or no government control at all are now seen as part of the solution, and development theorists have set about finding ways to minimize the role of the central government. Greater equity in the distribution of income and wealth, many development theorists argue, requires wider participation in the economic, social, and political processes through which wealth is generated and distributed. To reduce the emphasis on national planning and devise an administrative structure that would permit decentralization and local autonomy in planning, designing and implementing development programs require changes, particularly a transfer of power from groups who dominate the center to those who have local control. Local empowerment is not, however, a solution in itself; it is
only one way to achieve sustainable and equitable development. Poor people in the developing countries have not been able to house themselves with support from non-government organizations (NGO), partly because NGOs, to be successful, require strategic linkages to institutions at the top—that is, they need the same contacts with government bureaucrats that any interest group needs, whether central or local. Survival and self-interest also discourage cooperation among NGOs, because more often than not they are competing for funds from the same organizations. To attract funding each NGO must show that it alone has been generating and implementing innovative ideas, although in fact successful projects usually result from cooperative efforts between NGOs, private investors, and the government. That is why recent efforts have concentrated on getting communities to work together through NGOs and community-based organizations. The rate of success of projects organized in this way is increasing, even though the number of partnerships between the state, private investment, and the people fluctuates because they are subject to the ups and downs of economic, political, and social trends.

These partnerships are very different from earlier strategies. Sites-and-services were essentially government projects, which gained popularity because they were promoted by international lending agencies. These new approaches develop programs that links several institutions together.

Owning a house represents savings and investment; it has symbolic value; it has cultural significance; and it is thought to affect family relationships. A single approach to producing it cannot fulfill all of these considerations for everyone. Now self-help and community participation are in danger precisely of becoming the only housing policy, in part because they provide an excuse for governments to abdicate their responsibility to provide housing for their people. But the
relationship between the state, private investment, and ordinary people seems to hold promise as it can accommodate changing economic, political and social circumstances in situations where vested interests are always in conflict.

A number of projects have already experimented with these partnerships. In some places, squatter land has been divided between the owners and the squatters. In others private land is provided with services and infrastructure by the state in return for part of the land, which is then used for low-income housing. In incremental development schemes the state provides unserviced land to beneficiaries for a very low entry cost, and services are installed by the state as soon as the community can afford to pay for them. In all these projects emphasis is on providing land and services through cooperation between the state, the private sector, and the community affected.

**A New Vision for a Sustainable and Equitable Housing Program**

For the first time in human history, the world is close to creating a single, unified global system. The Preparatory Committee of the United Nations Conference for Economic Development (UNCED) developed “Agenda 21”—which includes sections on human settlements, and calls for protection of the interests of the world’s poor in the face of rapid economic globalization.

How is the interest of the world’s poor protected and what policy instruments need to be developed, so that protecting the poor’s interest is not another prescriptive solution where, planners and policy formulators tell the poor what is in their best interest? The real challenge is to develop programs by which the poor themselves are able to make choices regarding their well-being and also are able to change these choices when the need arises. This does not preclude other
participants in the urban development process, but defines new partnerships between the various actors.

What does become clear is that this new vision calls for the widening of choices not only for the current generation but also for future generations. It implies a new concept for development—-one that provides fairness and opportunity for all of the world’s people and not a privileged few, without destroying the world’s finite natural resources and carrying capacity.

Reducing inequity among the poor and increasing their ability to participate and make decisions for themselves is the focus of the study. Reducing inequity can be addressed at two levels. At the regional or interregional level the new strategy aims at reducing disparity, increasing per capita income, reducing urban poverty, and understanding how coordination and integration in policies for the development of urban areas need to be undertaken. However, the principle of reducing equity is often in conflict with the goals of economic growth and development, and nowhere has this been more evident than in the urban policies of many developing countries. Today though, within cities themselves the issue of equitable distribution of wealth is being addressed more seriously. The major reason is that the urban poor are gradually becoming more cohesive as a political force.

At the second, more specific level, problems still exist in developing policies that will encourage all sectors of civil society to participate in the decision-making process that affects their lives and livelihood. How to reduce inequity at this level is one subject of this study. Some of the mechanisms are: (a) optimizing the contribution of groups and sub-groups in society who do, can, or might contribute to housing and urban services programs; and (b) maximizing people’s choices in how, where, and what kind of housing and urban services are developed and implemented.
One major step that has to be taken before any of the other measures can be successful is to recognize that the needs of various sub-groups that have traditionally been viewed as "disadvantaged" are different from the rest of us and that they too have a role to play in urban development programs. Among the poor, the disadvantaged are even worse off and they include women, the aged, youth, physically and mentally handicapped and other specially disadvantaged persons. Once this has been recognized, two conclusions follow:

1) The role of each organization that is involved and those that may be involved in urban development programs have to be optimized. These include central planning agencies, local institutions, private-sector organizations, community groups, and special sub-groups. The relationships that are formed between the private-sector, government, and the community before programs are initiated also needs to be evaluated in terms of their advantages and drawbacks.

2) How local municipalities, NGOs, and community organizations can best assume control over decision making in urban development programs needs to be determined: are they to improve or build housing and infrastructure, or to are they to undertake city level improvement programs. The nature of the relationships that need to be formed and whether such partnerships are always advantageous needs also to be determined. At the local level decisions might include choice of location, type of construction, level of self-help, and types of houses. These choices would be influenced by wealth, religious affiliation, social standing and family composition, and will change over time.

Choices should ensure that all sectors of society contribute something, and, to facilitate their contribution, that local communities have control over their own resources. Unless local communities participate in urban development, the models
available will be limited. Eventually they will simply become project oriented, and will languish, without any possibility of replicability or continuity.

Decentralization and Partnership Programs
Although “decentralization” and “partnership” are currently touted as the solution by donor and development agencies, studies on decentralization show that in most cases they falter in implementation. Local administrative organizations have been given broad powers in some countries to plan and manage development, but often not the financial resources and qualified personnel to carry those plans out.\(^7\) Decentralization needs the involvement of groups other than the central government and local development agencies. The groups who need to be involved include, in addition to the central government, local institutions, private-sector investment, the community, and specific sub-groups such as women, youth and the elderly.

The government’s approach to urban services lacks balance and adaptability. National development plans prescribe standard urban investment priorities for all cities. In Indonesia, for example providing piped water was emphasized even where drainage or solid waste management required more urgent attention. The result was problems with financing and maintaining unnecessary services and difficulties in financing necessary ones.\(^8\)

Local government agencies have rarely been much more effective. Studies of towns in the region surrounding New Delhi, India, for example, show that water, sewerage and other basic services are minimal. They also show that government agencies recover as little as one-fourth of the costs of providing and distributing water because 30 percent to 40 percent of the revenues are lost in leakage, theft, and waste. Cost recovery rates for public transportation services in many Indian cities are as low as 40 percent.\(^9\)
Central government agencies in many countries also give little priority to new construction and low priority to maintenance. Other problems arise because people regard services and infrastructure as "free" and something to which they are entitled rather than as local resources they should provide for themselves and for which they should pay. Scarce central government resources are drained off from other uses to support services that could be provided and paid for locally. 10

Some researchers have argued, based on the track record of various governments in providing shelter and urban services, that central governments should withdraw from municipal services and allow the communities to do what they do best, i.e., provide housing and services for themselves. However, in most countries any involvement of the private-sector, community organizations, non-government organizations, and local municipalities depends on the central government's being allowed to play some key role. Political ideology, resource constraints, socio-cultural traditions and most voluntary organizations, at least, in Asia, were created by the central government, and ministry officials often hold dominant positions in them, making central government participation or approval a requirement in most partnership programs. 11

The case-studies that follow show how relationships with the central government can be developed. Most successful projects which involve community, NGO, and private participation do not run parallel to government efforts, but rather are linked to the central government at key junctures. These linkages can change from project to project and from country to country, but some sort of government connection is necessary for success.
The Role of Local Institutions in Urban Development Programs

Urban management and development policies are today enabling the poor to do more towards providing their own improved housing and urban services than they once did. But if residents of slums and squatter settlements and those in need of shelter are expected to deliver and maintain their own facilities, then policies are required that will help them to decide when, where, how and at what level services are needed. There are still powerful political forces in place that seek to prevent the direct involvement of the poor, not the least of them the barriers posed by bureaucracies. Many small and insulated decision making structures must be opened up one by one. Until that happens, the true involvement of NGOs and community groups in urban management and development decisions will remain minimal, although a number of countries have pronounced a policy of official cooperation with non-government organizations.12

Local governments were set up to manage and maintain an urban system, not to develop a new one. They apply existing laws and regulations to the routine maintenance, operation, and incremental extension of urban services, and control and regulate certain activities within the city.13 Hierarchical bureaucratic systems work quite well for these purposes. Urban development programs need to resolve problems on the spot, to reduce inequity, and to increase participation. This calls for an organization that is non-hierarchial, open to a variety of participants, and not burdened by regulations. It also calls for different technical and managerial skills than one normally finds in bureaucracies.14

How to allow for two different kinds of local government organizations--one to manage and maintain services and the other to undertake new programs--to co-exist, how to coordinate their activities, how to develop a clear understanding of
their roles and responsibilities and how to identify and train a new kind of manager remain to be seen.

The Advantages and Risks of Private Sector Involvement

During the past decade, privatization policies have been adopted by governments in most developing countries. Evidence suggests that under proper conditions private enterprises and non-government organizations can--and indeed, in many countries already do--play a crucial role in improving and expanding urban services, infrastructure and shelter. Governments in developing countries have been experimenting with privatization for a variety of reasons. Leading lending institutions such as the World Bank and the Asian Development Bank have been pressuring governments to privatize as part of the overall structural adjustment reforms. But these pressures have also been reinforced by domestic economic, demographic and social changes.

In India, for example, various federal and state governments agencies are encouraging private companies to become more heavily involved in land development and low-cost housing construction. In Ahmedabad, for example, the Parshwanath Group, a private construction and housing finance company, plays an active role in providing low-cost housing with support from local regulatory authorities. This private company assembles land for housing projects, obtains approvals from the Ahmedabad Urban Development Authority, helps organize cooperative societies that hold title to land and perform maintenance functions after the project is completed, and obtains mortgage financing for beneficiaries from the Housing and Urban Development Corporation (HUDCO). With government assistance and encouragement, the company has been able to construct more than 17,000 low-cost housing units in and around the city of Ahmedabad.
Parshwanath Group is able to make profits by efficiently integrating its supply systems, constructing the projects quickly to minimize the adverse impact of price increases for building materials, and investing efficiently in large tracts of land on the periphery of the city.\textsuperscript{18}

Governments in some countries are transferring service delivery functions to non-government organizations or simply leaving the provision of some types of urban development to private enterprise. In Asia, cooperative organizations, trade unions, women’s and youth clubs, and religious groups are all involved in some aspects of urban service provision.\textsuperscript{19}

Government agencies in developing countries are also offering guarantees or fiscal incentives to induce private organizations to provide shelter and services and loans or subsidies to individuals or groups to purchase services or housing from the private sector. In India, for example, the National Housing Bank has provided equity capital to some private housing finance companies that offer mortgages to individuals buying privately constructed houses. HUDCO has used government funds to re-lend to private organizations providing low-cost shelter.\textsuperscript{20} Although many countries are experimenting with these and other forms of privatization, the proper role of the private sector in providing what has traditionally been considered “public services” is still being debated.

Experience thus far with private corporations, non-government organizations and even informal sector enterprises indicates that all of them have advantages over government agencies in providing some types of service. These include the ability of private companies operating in competitive markets to offer lower production and delivery costs; increase efficiency in service delivery; improve access to the latest technology; and provide greater capacity to obtain and maintain capital equipment, choice and flexibility in service provision; and they are efficient in decision-making.
They can also reduce the financial burdens on government for wages, operating costs, debt servicing and investment and lower restrictions in work and hiring practices. Finally they are more flexible in adjusting types and levels of services to changing needs.21

In Asia, mini-bus services are now provided in a number of cities by private contractors. The service is convenient and flexible and serves the slums and squatter settlements that the public bus systems do not cater to. In some cities public parking lots are operated by private companies. In others, the inter-city rail lines which were operating at a loss when run by government agencies turned a profit under private operators.22 Housing construction is a another function best done privately. Despite the fact that many governments have had large public housing programs, most of the shelter built in developing countries is still constructed by small informal sector enterprises and individual builders.23

Opposition to privatization nevertheless remains strong. Among the most frequent obstacles to privatization are: inadequate organization within government for eliciting the participation of the private sector; political opposition from civil service unions or powerful interest groups; fears of political leaders that control over public enterprises will be lost to unpopular ethnic, religious, political or regional groups; opposition by leaders of non-government organizations who fear that the poor will be excluded from services or will not have the income to pay for adequate services at market prices; inability of private companies to provide needed services and infrastructure at affordable prices; insufficient private sector management skills to provide services efficiently and effectively; opposition from those who fear that privatization will allow governments to ignore serious social problems that cannot be addressed adequately by private organizations; and public suspicion of or hostility to private sector participation in service provision.24
These obstacles nevertheless are surmountable and the case-studies show how some of these have been overcome. What is important is that private sector involvement be encouraged, for the contribution of shelter to the gross national product, savings, investment, and income, turns out to be much greater than most economists and central government planners have realized. Economists are beginning to recognize that investment in housing with private sector investment makes particular sense in developing countries, because it reduces the drain on scarce items such as skilled labor, capital, and foreign exchange, and replaces them with relatively low-technology production. Finally the evaluation also shows that private sector participation is not an isolated attempt but has to become an integral part of a larger system, otherwise it is bound to fail.

Opportunities and Constraints of Community Involvement

“Community participation” is defined for the purposes of housing and urban services programs as the residents’ involvement in collective activities aimed at improving their standards of living, including houses in which they dwell. This definition can be further elaborated to include those activities that the community involves itself in to produce housing and urban services, and they include establishing community-development committees, fulfilling demands on behalf of the community, identifying and implementing local development projects, mobilizing community resources, and disseminating information concerning improved hygiene and nutritional practices.

Three views on the nature and the possible role of the community in the provision of housing and basic urban services have been put forth in the recent literature. According to the first, deficiencies in shelter and basic urban services and subsequently the need for community participation and local action are the
symptoms of the exploitation of the poor by the rich.\textsuperscript{29} According to the second, community participation is shaped more by governmental constraints and needs than by local needs or settlement conditions.\textsuperscript{30} According to the third, promoted particularly by John Turner, active participation of communities in collective actions further the provision of shelter and basic urban services and should thus be promoted and strengthened.\textsuperscript{31}

Each of these favor different approaches and is based on different assumptions. When people assume the burden of providing shelter for themselves, they reduce pressure on the government to make up through policies or subsidies the failures of the private market. It has been argued by O’Connor that in a capitalist system the state is caught between two basic and often mutually contradictory functions—trying to maintain or create the conditions in which profitable capital accumulation is possible, and trying to maintain or create conditions of social harmony by looking after the interests of the poor.\textsuperscript{32}

One of the strongest critics of community participation as advocated by Turner is Rod Burgess. In Turner’s view, a viable housing policy would be based on the principle of self-government in housing and the use of small-scale technological and managerial tools. The principle of self-government implies the replacement of centrally administrative systems with a “multiplicity of locally self-governing sub-systems.”

Burgess examined Turner’s conception of the nature of housing, the relationship between popular government and the private sector, the role of the state and the planner, and his policy recommendations, and argues that the housing problems in the developing countries can be best understood as products of the general conditions of capitalist development rather than the product of particular technological or organizational systems, as Turner suggests.\textsuperscript{33} He goes on to argue
that, with the exception of a few token schemes, the self-help housing policies suggested by Turner are unlikely to be implemented; the establishment of a “department of self-help” in each government housing agency would not significantly increase the access of the poor to low-income housing; and that the suggested measures “can be seen as a technical attempt to level out the symptoms of a structural malaise and to maintain the status quo.” He added that even if policies proposed by Turner were implemented, it would lead to massive diversion of investments away from the middle class, an increase in prices of basic building materials, a dramatic effect on land values, and an increased burden for providing infrastructure. The positions advocated by both Turner and Burgess are extreme, however.

It may be much more useful to review the importance of community involvement by examining several interrelated “myths” that were pointed out by Angel and Benjamin. They argue that middle-class and “elite” attitudes towards the poor are impediments to squatter-settlement improvement and that without considerable change in these attitudes, the squatter problem cannot be solved. They go on to argue that contrary to common belief housing built through community involvement tend to be better kept and enables for traditional family structures to be maintained. They add that the urban poor build their dwellings incrementally and therefore require different financing systems, and that squatters usually occupy unused or under-utilized land held by private speculators or by government agencies; and that decisions about land use are made to favor landowning interests that dominate local and national politics. Several additional reasons could be advanced in favor of and against community involvement. Some of these are summarized below.
Reduction of Cost. One of the main reasons why some government development agencies and international funding agencies promote community participation in urban projects is because it can save money. The argument is that the government's financial and human resources contribution can be reduced if the community undertakes some of the tasks otherwise performed by government agents. Furthermore, the organizational or technical solutions adopted by local participants are usually both cheaper and more appropriate than those that might be imposed from above by the government. This is substantiated by experiences in Asian countries discussed in the case studies in chapter 4, 5 and 6.

Extensions of Services to All Communities. Community participation facilitates the dissemination of needed services to more recipients, often faster than it is possible through conventional government services agencies. However, communities have differences among them which can lead to factionalism and conflict.

Mobilization of Community Resources. Communities are more likely to contribute funds, labor, or management in situations where the people are actively involved in decisions concerning project locations, the choice of implementing agencies and individuals, the choice of community leaders for the project, the selection of beneficiaries, and the allocation of project resources within the community. However, many cannot or will not want to participate due to lack of motivation, time and technical knowledge. Also many will not be able to raise funds either from its own members or from government agencies.

The Community's Identification with the Project. Where the community has been actively involved in the development activities, it feels more responsible for the project and is more inclined to maintain and preserve community services and facilities. However, the sense of community responsibility is a necessary but not
sufficient condition to sustain interest. In addition, not all will have the ability to manage and sustain the community's interest over a long period of time that may be necessary to achieve results.

**Identification of Community Needs.** Community participation ensures an accurate assessment of needs and requirements. Without it the community's response to government initiatives is that of a passive recipient. Local expertise in building and construction can be used, making the results easier to maintain and repair and less dependent on outside skilled manpower. There are, however, limits to the use of indigenous knowledge and expertise. Depending on scale and complexity, design, planning, or management might better be undertaken by professionals. The community's involvement also increases its ability to undertake programs affecting its physical and social well being, which reduces dependency on government agencies.

**Constraints to Community Involvement.** There are some fundamental contradictions inherent in the incorporation of community participation in housing. Governments are wary of community participation, even though they may support it for political expediency, and they have a real fear that grass-roots organization will allow too much power to fall into the hands of local communities. Funding agencies want to support and are increasingly supporting--community participation, but because they have to control costs and maintain schedules, they are unable to do so extensively, nor do they incorporate community participation into the decision making and design stages of projects. There is a lack of adequate experience and a paternalistic attitude on part of government officials and professionals that stems from their training in conventional housing techniques. Evaluations that overemphasize completion of tasks and targets set by government officials or international-donor agencies can impede success, as can the rigidity of bureaucratic
structures and procedures, since flexibility is needed for community participation. Government officials will often not even wish to encourage it, because the will to instruct the bureaucracy in how to work with the community is lacking. NGO experience in community participation often tends to be limited to the local, rather than the national, level for both economic and political reasons. Therefore such projects tend to remain modest in scale. Finally, communities are not homogeneous in composition, and the gap between the degree of community homogeneity required to develop effective local organization and the economic, political, and social heterogeneity that actually exists in communities is fairly wide.\(^40\)

Community participation is time-consuming; it requires the formation of an organization which will be responsible for negotiating an agreement with either the government or the private developer and for carrying out the various tasks involved, such as the allocation of plots, the determination of plot sizes, the subdivision of the site, the implementation of site development and individual house building, the financing of both land purchase and house building, and the management and maintenance of the project. It is not necessary for the community to be responsible for all of these things. Depending on the organization’s strength and commitment, it can assume responsibility for all or only a few of them.

The identification of clear aims and gains has to be undertaken and understood by all involved if participation is to be successfully initiated and sustained. Yet with all its pitfalls, community involvement holds promise if government development agencies, NGOs, and private developers are willing to embrace it.
Role of Sub-Groups in Urban Development

Women, the aged, and youth have often been relegated to the shadows in development activities. But of late, women are playing a major role in the improvement and maintenance of the residential environment. Still missing, however, are programs aimed at the youth, the aged, the physically or mentally impaired and others whose poverty is equally enduring, equally pervasive and equally oppressive.

In most developing countries women are usually the decision makers in family as well as societal matters, and this allows them to play an important role in improving their family's welfare. Studies done on existing settlements show that the female labor force has been increasing steadily for over two decades in every country in Asia and has been accompanied by higher proportions of women in the rural-to-urban migration stream. Defining an equitable economic role for women is clearly an urban-management issue of major importance.

Very few poor women can afford to sit home. They supplement the household income as maids, vendors, daily-wages laborers, artisans, and casual laborers such as rag-pickers. Some economic programs to help women start their own businesses and promote development projects for women have already been initiated. For example, in Ahmedabad, the Self-Employed Women's Association assists women in small-scale enterprise. In Bangladesh, the Grameen Bank gives low-interest loans to women and provides assistance in building shelters for them. In Jamaica, the Women's Construction Collective is an example of a skills and employment project for women. Another area in which women can contribute is general municipal upkeep, which they most often do, even in a limited manner, already. However, if jobs such as street sweeping are created by government
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agencies or as part of a community cleaning program they would encourage their activities and provide income as well.

Garbage disposal, the maintenance of sewers and drainage lines, and family hygiene are the obvious areas where women can and do play a role, and if given the opportunity can effectively contribute even more. Saving energy is an area that is not so obvious. Most cooking is done by women, and in poor houses, it is usually done on a wood-burning or kerosene stove. Both are potential fire hazards and cause pollution. With education about energy uses and their consequences, improvement can be achieved.

Landscaping and kitchen gardening are other areas where women can function effectively. Community tree planting can be started in settlements to combat the high rate of deforestation, and can improve life in cities. Women can also help control noise pollution made by home industries and refuse pollution caused by their own habits of garbage disposal.

As most other involvement programs, these functions have potential but are not a panacea. Illiteracy and social pressures against women participating in such activities are barriers. Men’s attitude towards women’s role in society and existing social norms also mitigate against their participation. It will help if their roles are integrated into other community involvement programs and not limited to female participation only.

Maximizing Choices

Increasing people’s choices in urban development programs can be addressed at two levels. At the general policy level choices can be increased by decentralizing central government and promoting partnerships between the state, private sector investment, and community-based organizations. Second, choice can also be
maximized at the local implementation level where its effects are immediate and affect a much larger group. This includes maximizing specific choices that deal with location, construction, level of participation, neighborhood organization, house type, changing family values, social and religious affiliations, and individual or familial preferences.

*Can Maximizing Choice Through Design Participation Work?*

Interesting and successful examples of housing built with community participation already exist in Western countries. Yet even in the West scholars and professionals are still trying to formulate a design process which would allow the community to be involved in an equitable and sustainable manner. The complexity of community involvement planning and design is even greater in less-developed countries, where diversity in social and cultural background often makes participation a fairly difficult process. The issues related to design and community involvement and the boundaries in terms of what should be designed by professionals and what should be left for the community to undertake needs to be explored.

In developing countries, a question that becomes important is how does the planner, designer and implementor determine who the members of the community are that will participate in the design and planning process? Can all parties participate in all aspects of the design and development process? If not, what kinds of design decisions can be left open for discussion, and how will the input affect the overall design? When one talks about 5,000 or 10,000 housing units, the process of information that needs to pass from the constituency that one wishes to house to the people who are responsible for the project is fairly substantial. The process gets complicated and time consuming. When the choice is between staying within budget, getting the project completed in a timely fashion, and providing the
people with an opportunity to express their opinions, the community invariably loses. This gets back to the larger question of how does one organize communities so that their needs are articulated in an organic and structured manner in a language which people can respond to? That is perhaps one of the most delicate issues in housing programs in developing countries because communities are not necessarily organized and they are not necessarily articulate.45

In the industrialized world, the process of community involvement has to be structured within the overall political decision-making process. Towns and communities are independent of central authority and have the flexibility to make their own decisions. People are also aware of how town participatory processes work, and there is a continuing tradition of activism that helps others become aware of issues relating to their problems. In developing countries, the enormity of economic and social problems mitigate against participation. In many societies there is a tradition of deference to elders and those in power to make decisions; therefore people may be intimidated or uneasy about voicing their true opinion and will allow either the elders or the community leaders to make decisions for them. Community involvement in developing countries may require innovative approaches that are flexible in the way they allow people to voice their opinions and less deterministic about the kinds of involvement envisaged.

It may not be possible for all housing or urban services programs to allow the community maximum choice, or even participation in the process. Where that is the case, how can their needs be better served? Designers, developers and housing agencies usually know the income of the target group for whom the housing is being developed, but not its socio-cultural background. They therefore tend to base their design decisions solely on factors thought to be related to income and tied to the ability of the person to afford that particular type of house or apartment. To get
a better understanding of community structure and preferences the selection process of beneficiaries may have to be revised from the present random selection of plot or house type to one which is inclusive, where the people can have a say in selecting where they want to live and the type of house that is best suited for their requirement, based on family size, need, work and affordability. The present process of housing programs which is to plan, design, implement, select, allocate and finally occupy may also need to reevaluated and revised to allow maximization of choices and community involvement.

**Changing Family Lifestyles**

The role of changing lifestyles in housing, particularly the changing position of women, has been under debate for over a century in the West, and several models have been proposed to address these changes. Since female-headed households, including single-mothers, widows and the elderly, are disproportionately represented among the poorest people—in the developing world as in the West—this is an important consideration in project planning. The literature which surveys these changes is limited, but in some of the low-income sites-and-services and self-help projects it is apparent that they are taking place. Working women are on the increase and so are their child-care needs. In a number of developing countries, child-care facilities for women working on construction sites are provided by mobile creches. However, affordable child-care facilities in housing projects need to be developed so that they are accessible to poor working women who require them in other spheres as well.

In developing countries, the fastest growing age groups in society are those over 60 and those under 15. By the turn of the century, for example, there will be 76 million people in India over the age of 60. In the past decade alone, the increase
in the oldest population was a little over 38 percent; the rest went up by only 19 percent. Until now approaches to institutional housing were based on the assumption that men would do the work and earn the money, but amongst the poor, women and children work too. The physical and space requirements of women, youth, and the elderly need to be understood and their energies harnessed if a comprehensive housing program with individualized approaches is to be developed.

*Physical Implications Related to Changing Family Lifestyles*

In the West a number of innovative housing projects have been proposed that take into account changing household dynamics. The Danish collective housing model is one such innovation which is being adapted in the United States and other European countries. These communities of about thirty or forty families supplement complete individual dwellings with a “common house” that contains a common kitchen, a dinning/living area, and various other shared spaces and facilities. The common space in clustered housing is not in itself so unusual; several condominium type developments have a club house or community center. A common house differs from a club house, however, in the way the space is used and in its extensiveness. In the Danish “co-housing” the common house is perceived as an extension of the private residences and is used by the residents on a daily basis and considered as an essential part of community life. The common-house concept is based on sharing household responsibilities, where meals, child care, and household duties are shared among family members. Significantly these communities are planned and designed with the residents, and they are also managed by residents themselves. One of the main objectives of “co-housing” has been to design “child-friendly environments” that give children many different opportunities for playing and interacting.
In developing countries small communities where some common facilities are shared could be developed for those families who otherwise may have no social ties: migrant families, the elderly who have been disowned by their children, and young single parents who are shunned by the community at large. In “co-housing” it could now be shared among people who have come together because of specific needs. Rather than housing the elderly in old-folks homes and forcing single parents to move from relative to relative in search of temporary shelter or housing them in transitional homes, co-houses would integrate them into the community and provide for their needs at the same time. “Co-housing” may not be a commune or a religiously motivated community, but it has ideological implications, as it does presuppose that people want to live in a prescribed manner. Therefore such a solution may not be applicable in all cases. However, it does present an alternative which considers changing family lifestyles and needs.

Ideological and religiously motivated developments are another area that influence what is planned, designed and built. The standards used, the community involvement achieved and management of the development undertaken may be very different and in such cases may not be replicable for other projects. Communes based on religious or ideological beliefs operate under a different set of rules. Here community involvement can be more effective because the community is already formed, their belief systems clearly articulated, and the community leadership is in place. Secondly, the design can be more particularly focused as community preferences can be more readily translated into built form. The rules of living and day to day conduct are structured and therefore can be translated into design. Such developments are quite prevalent in India, and they have been based on traditional residential patterns. However, it may not be possible to apply the plans and design
for these developments to other developments where religious or ethnic backgrounds are not considered as a prerequisite for participation.

Finally, the recognition of changing family lifestyles has implications in the way housing for the poor is designed and planned. Those involved in advocacy, management, and community development work find that process, advocacy and management are important but equally important are planning and design. Without planning and design a comprehensive framework that incorporates changing family needs and requirements as well as locational needs and preferences may not get sufficient consideration. People tend to prefer houses that are pre-built because they assume that finished homes are better designed and built to a much higher standard than what they could hope to build by themselves, though they might wish to have a say in what is built and some control over its production. But pre-built homes are not necessarily better, as we have learned. Yet there is a large segment of the population that may not be able to design and build houses and certainly are unable to plan and design for the total community. Their needs also have to be met.

**Implications for New Development Programs**

The focus of our housing policies for the poor are shifting from housing construction and sites-and-services alone to one of active participation in community development. Local governments and NGOs are beginning to understand the importance of land development processes and are recognizing the economic potential of land. Over-reliance on "do-gooder" attitudes prevents governments from looking for solutions based on managing the land as effectively as possible and participating in the land market as effectively as developers do. Most land is owned by governments in most countries; yet government cannot effectively manage and maintain it. An effective and equitable method of increasing land for
housing and for the homeless is to make it a condition of negotiation between governments and developers in major projects, along the lines of plans now used in San Francisco and Boston, where permission to build in the most profitable areas of the city is tied to providing either low-cost housing elsewhere or providing public space in the project itself.\textsuperscript{50} Housing community groups have entered joint-venture agreements with private investors. The Massachusetts Housing Partnership, State Housing Assistance for Rental Production Program and the Home ownership Opportunity Program provide state support to promote joint ventures between the community and private developers, a strategy that should be investigated for its applicability in the developing world.\textsuperscript{51}

One kind of joint venture, called "land readjustment," permits the recovery of costs for the installation of infrastructure through an exchange of land rather than cash. It is used in Japan, South Korea, and Taiwan, and it may be worth experimenting with in other countries. It converts outlying undeveloped land to urban land in return for creating a consortium of owners and the servicing of the land. Government or development agencies take a proportion of the land, usually about 30\%, as payment.\textsuperscript{52} The payment is offset by increased value that serviced land commands and often results in full cost recovery. Land gained by the development agency can then be released at below market rates as a direct subsidy or used for cross-subsidies. Since land readjustment adds to the stock of urban land it can also reduce its overall price.

Land-sharing and incremental development are two approaches that try to incorporate private investment, government actions, and community involvement. In land-sharing, land occupied by squatters is negotiated between the original owner and the squatters. In incremental development unserviced land is provided to the poor. Services are brought in incrementally when the community can afford it with
the help of local developers. Both options offer benefits and pitfalls that need to be explored in individual circumstances to understand how, where and why it could be used. The Citra Niaga project in Samarinda, Indonesia, and the Khuda-ki-basti project in Hyderabad, Pakistan, have been evaluated to highlight the potentials and risks of such undertakings.

Some of the newer approaches and projects seem to point to a heightened appreciation of the subtle differences in the way people live. The interdependency of community, private, and public-sector institutions and the increasingly pluralistic character of the political climate in most countries point to new government, community, and private partnerships that simply did not exist earlier. Four projects evaluated in this study—Orangi Pilot Project in Karachi, and Khuda-ki-basti in Hyderabad, both in Pakistan, and Yamuna Apartments and Madipur Housing in New Delhi, India, show how such projects have been undertaken and where the problems lie.

Planners of housing projects, however, still need to develop a better understanding of the roles which each of the various actors, including project designers, planners, implementors, financiers, and beneficiaries, need to play in order to create communities that offer an environment of reasonable quality to all their occupants. The Aranya Township in Indore, India, a mixed-use sites-and-services project highlights the complexity of new housing projects, and the issues of planning and design in it.

Increasing choices for people and increasing their participation also has its pitfalls. Private interests can manipulate community interest in the guise of improvement and development opportunities. Excessive community involvement can impede and hamper the development process by putting undue restrictions and controls. Specific communities or other special interest groups can get together and
block projects that do not specifically contribute to their well-being even though these programs may benefit the larger community. The key question remains whether maximizing peoples choices and optimizing participation will be used as a control mechanism or as a tool for efficient planning. The danger in any such efforts is that they may become prescriptive, where key development agency officials, planners and designers start patronizing the poor and provide them a controlled opportunity for participation, instead of maximizing their choices and optimizing their involvement.

To claim a direct link between physical space and patterns of behavior is difficult. In spite of considerable research into the subject, it is difficult to establish the exact connections between environments and behavior and impute causal relationships to them. There is a wide degree of flexibility in the way people use space. They either adapt their lifestyles to the environments, change the environment, or do a little of both. The case studies described here illustrate some of the issues that need to be addressed. By providing a wide range of choices and, where possible, involving the community in its housing projects, it is hoped that positive attitudes will themselves result in improved living conditions.
Notes to Chapter 2.


2. Ibid., p. 13.


12. Ibid.


15. Rondinelli and Kasarda, "Privatization of Urban Services, Shelter and Infrastructure in Developing Countries: An Overview of Experience," p. i.

16. Ibid.


18. Ibid.


22. Ibid, p. 31-33.


26. Ibid., p. 7.


28. Ibid.


31. This is the major focus of the book by John Turner Housing by People: Towards Autonomy in Building Environments (London: Marion Boyars, 1976).

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34. Ibid., p. 1126.

35. Ibid., p. 1130.


37. Ibid.


40. Ibid., p. 127.


42. Ibid.

43. Ibid., p. 172.


48. Shlomo Angel, et al., *Land for Housing the Poor* (Singapore: Select Books, 1988), in their work on land-sharing projects in Bangkok have shown that even in upgrading slum houses, the residents tend to some extent to opt for contractor-built houses, as was the case in the Soi-Sengki and Managkasila land-sharing projects. But in Klong Toey, another project in Bangkok, the residents built their own homes.


51. Responding to a statewide need for affordable housing, the MHP provides state support and coordinates other public and private resources for local housing. SHARP is a shallow rental subsidy which promotes mixed-income housing and HOP combines low-interest mortgage rate financing with various state and local contributions in order to produce sufficient incentives to for-profit and non-profit developers to construct mixed-income home ownership developments. For a detailed study, see Rachel Bratt, *Rebuilding a Low-Income Housing Policy* (Philadelphia: Temple University Press, 1989).

Chapter 3. **Role of Design in Mixed-Income, Sites-and-Services Project at Aranya Township, Indore**

The city of Indore is the commercial center of the state of Madhya Pradesh in Central India with a population in 1981 of over 827,000; by now it has risen to over a million. Aranya Township is a large-scale project in Indore designed to provide low-cost dwellings for the poor. It was designed by B.V. Doshi, director of the Vastu Shilpa Foundation for Environmental Design and Research (VSF), which was hired by the Indore Development Authority (IDA) for the purpose. In it Vastu Shilpa redefined the conventional sites-and-services approach to include models for future dwellers, house types, suggested materials and steps for implementation, while at the same time remaining flexible. It has about 6,500 housing units in various income categories--but predominantly for the poorest people categorized by the government as the economical weaker section (EWS)--facilities for social welfare, and infrastructure. All told the project amounts to setting up a new town for 40,000 people, looking for a middle ground between the sites-and-services at one extreme and totally built housing on the other.

**Project History**

In 1982, an estimated 60,000 households in Indore lived in informal settlements with no adequate facilities: 41.4% of the households lived in one room in a tenement, and 74.12% households lived in rented quarters. Housing in Indore is the responsibility of two government agencies--the Indore Development Authority (IDA) and the Madhya Pradesh Housing Board (MPHB). To deal with the shortage various schemes were undertaken by the Indore Development Authority
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(IDA) as part of its development plan along the Bombay-Delhi National Highway. Its first phase was towards Delhi to the north of the city, where the master-plan called for a new residential sector. A new city center was also planned there for a projected population of 500,000. Given the housing demand for the whole city, IDA decided to develop a large area for residential use, a mixed-income development with plots ranging from low to upper income. A large part of the proposed site had already been acquired by the Indore Development Authority as part of a master plan developed by the Town and Country Planning Organization (TCPO) in Bhopal, the provincial capital, about 200 km. to the northeast. In Indore, land is leased for thirty years and the lease can be extended twice, for a maximum of 90 years.

In 1981-82 the Indore Development Authority embarked on what became known as the Aranya Township. The program required evolving a master plan for a community of 6,500 families with individual plot sizes ranging from 35 m² for the EWS to 500 m² for the middle and higher income groups. The project was tendered, and construction work commenced in 1984-85; it was completed in 1989, largely as it was conceived and designed. The site measures 220 acres and has been designed to provide 3,985 EWS plots of the 6,500 total. The EWS scheme was designed as a sites-and-services project; the rest of the site as serviced plots. Of the 3,985 EWS plots only 171 have been occupied as of the end of July 1991, but more houses are under construction. The total of 220 houses represents only a 4.29% occupancy rate for the entire project and a population over a 1,000. These figures are so small for a number of reasons, of which allocation and unavailability of services are only two of the most important.

The money for this and other urban development projects came directly from the Government of India and indirectly from the World Bank, and from the Housing
and Urban Development Corporation (HUDCO). This is common in such schemes, for which the money comes from an international financing agency to the government of India as part of a larger development package. The central government then approaches a state authority, and between them an allocation agreement is reached. The state authority in turn asks local development authorities to prepare the project.

The first plan was developed in 1981 by IDA for the Aranya township. It was a typical plotted development, with areas allocated for roads and other services. Fifty-five percent of the land use was utilized by the IDA in this plan.3 The project was then sent to the technical committee at the state level where representatives of the World Bank and HUDCO reviewed it. The technical committee, including its World Bank members, thought the design inappropriate and unaffordable and suggested that the project be revised. The plans were twice revised before Ashoke Das, the then chief executive officer of IDA, decided to bring in a consultant to prepare the plan and do the design work. Mr. Doshi was asked to visit Indore along with other architects.4 After Doshi saw the site, he expressed interest in designing the project, and as Doshi said, “normally no architect is interested in doing sites-and-services projects,”5 the authorities eventually agreed that Doshi could design the project instead of IDA. S. K. Sharma,6 then the Secretary of Housing and Urban Development at the Madhya Pradesh Urban Development Corporation, was also enthusiastic.

The World Bank suggested that Doshi do only the plan, but he insisted on doing the total project, including the services, and an agreement was entered into with IDA and HUDCO to that effect. The final agreement was made with the Vastu Shilpa Foundation, and Stein, Doshi, Bhalla (SDB), Doshi’s architectural firm. The World Bank and HUDCO signed the letter of appointment.
Project Financing

The project had been budgeted at Rs 97.5 million, of which 70 million was spent on construction and civil works, 15 million on electricity and power, 3.7 million on land acquisition and 1.8 million on consultants; the balance on other development and overhead costs.7 To date the IDA has paid back 38 million in interest on the loan. The project has also recovered Rs 45 million from the beneficiaries through the sale of plots.

A surplus of Rs 11.7 million has been generated against the investment of Rs 97.5 million based on 1982 prices. This has been achieved by judiciously locating the upper-income plots and the commercial facilities in the areas which would fetch the maximum prices. The surplus generated has provided seed capital for further EWS schemes.

The sale price to the poorest is also subsidized to the tune of about 35% on average, again from the sale of upper income plots. The revenue in terms of the investment is therefore, quite substantial. This was the first scheme in India where the World Bank has financed a mixed income housing project.

The World Bank and HUDCO were joint financiers of the project, each with a 50% commitment. World Bank charged 12% interest on its loans but gave generous subsidies to the government in terms of its repayment plan which is extended over twenty years. HUDCO funded the project with a variable interest rate ranging from 4% for the EWS plots, 6% for low-income plots, 8% for middle-income plots, and 12% for the higher-income plots.
Site Context

The site, 6 km. north of the city center, on the Delhi-Bombay highway is well linked to the city, and is near employment: both existing and proposed industrial areas are within a radius of 2 km. Suburban growth has almost reached the southern boundary, but toward the east and north the site is surrounding by agricultural land earmarked for future growth.⁸

Of the net area of the site (88.6 ha.) 1.85 ha. has been set aside for light industries on the highway along the eastern boundary. The square site measures about 1 km by 1 km. A commercial cum industrial complex for the eastern boundary will be for large-scale commerce and warehousing (mandis). Another major commercial, educational, and administrative center is proposed about 1 km. south of the site towards the city. A 30-meter-wide city road flanks the northern, southern, and western boundaries. The site is flat, with no notable features; a natural rainwater channel runs diagonally across from the east to northwest.⁹

Vastu Shilpa's Approach

The VSF, through research work already undertaken in other areas, had discovered that low-cost urban housing schemes often generated unpleasant and unbalanced environments resulting from disregard for the traditional lifestyles of the people, uncomfortable and ill-thought-out use of spaces, uneconomical and disorganized use of land, costly or inadequate infrastructure, poorly designed housing, and lack of community, recreational and commercial support. There was seldom any provision for flexibility and elasticity of spaces, particularly in the poorest pockets, where dwelling densities were highest.
Site Location. (Left, Fig. 3.1) Location of the site in Indore city. (Above, Fig. 3.2) Location of the site and the land-use surrounding it. Source for both: Aranya: An Approach to Settlement Design. p. 11.
Aranya Township. (Above, Fig. 3.3) Land-use Distribution. (Below, Fig. 3.4) Aranya Township Model. Source for both: Aranya: An Approach to Settlement Design. pp. 26-27.
The studies that the VSF had already undertaken also found that contiguous linear open spaces work much more efficiently when big areas of open space are also included. This led to their decision to use a linear cluster instead of a regular cluster model. Other studies on squatter settlements in India were also undertaken to study how poor people use and live in these spaces.

Doshi's own experience over the last twenty years, both in the housing projects that he had designed and the studies undertaken at the School of Architecture and Planning and at the VSF, was fundamental in developing the design.

The guiding force in the design of the township was the development of the "linear cluster," which represented a change in the development of the cluster. The linear cluster as the name suggests is long and narrow in plan much like a dead-end street. In most culs-de-sac, the houses are set back from the street. However, here the houses edge the road, which is narrower. Unlike a cluster model which is a closed system, where according to Doshi "services terminate, traffic terminates and maybe even life terminates, the spaces become very individual and personal." The "linear cluster" being more like a street brings low-cost infrastructure to the house as efficiently as possible. It also borrows heavily from the traditional Indian street in providing an outdoor living room for the community. Unlike a usual cluster model where the outdoor living room is in the shape of a courtyard, the linear cluster space is like a street without a central focus.

Unlike the models proposed by Horacio Caminos, where the street is a service channel, the street here is treated with beauty and character, and open spaces instead of being large squares are in the form of linear areas.

At the township level, the population ranging from 30,000 to 60,000 is subdivided into populations of 5,000 to 15,000 to be served by shops, public institutions, educational institutions, parks and local shops, primary schools and
playgrounds. Social communities of 500 to 1,500 are formed into areas akin to the *pols* or *mohallas* found in traditional Indian settlements. The street or cluster level, with a population range of 50 to 250 people, a size conducive to neighborly interaction. At the bottom of the hierarchy is the individual dwelling unit.

**Planning and Design**

As water supply and sanitation constitute the major cost components of any sites-and-services scheme, the design of the service core and the supporting infrastructure become the critical elements of the design. Individual toilets and wash facilities were provided for each dwelling, and placed at the rear of the dwelling unit to isolate them from other household activities. Pit and borehole latrines were avoided due to soil conditions. Service lines from the core to the service plots were short; manholes and main supply lines were reduced to one per nine or ten dwellings, and the main service lines were halved to one every other street. These numbers are much lower than usual and resulted in cost reduction. For maximizing common walls and minimizing foundations, the service cores were generally grouped into fours over suspended platforms. Simple, repetitive, pre-cast components were used to encourage the ‘self-build’ spirit. When assembled, this system also overcomes many of the problems of excessive ground shrinkage caused by the local soil conditions.

The linear cluster model allowed 18 houses to be connected to a single manhole. Service pipes from nine houses on either side of the street are brought into a service plot which has been left open and provides another entry into the houses. The service plots can also function as open spaces for children to play in and for other outdoor activities.
Linear Clusters. (Above, Fig. 3.5 and 3.6) Typical linear cluster with areas for small shops and work platforms. Source: Aranya. p. 59. (Below, Fig. 3.7) View of a linear cluster with a small cluster square in the foreground.
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1. Link maximum service cores to a single manhole to reduce cost.
2. Remove minimum number of EWS plots to accommodate service access alleys.
3. Combine four service cores on a single rectangular platform as often as possible to reduce cost of foundations, especially in black cotton soil.
4. Size of service alleys should be such that it can be put to alternate uses such as play areas, informal economic activities, goat grazing, etc. Thus service lane must not become a narrow lane collecting rubbish.
5. Plan service alleys so as to give maximum rear access to all plots if possible.
6. Not more than own + one other dwelling's service lines should cross through any one plot.
7. Spaces for service lanes should fit the house plan module so that they can be altered or omitted at a later date without disturbing the overall sectoral plans.

Study - Conventional Systems

Development

Alternative-1

Alternative-2

Alternative-3

Alternative-4 (Adopted)

Design Criteria Evaluation

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Service Core. (Fig. 3.8) Design criteria for EWS services. Source: Aranya. p. 77.
Service Core. (Fig. 3.9) Proposed layout in a typical EWS cluster. Source: Aranya. p. 78.
**EWS Dwelling**

The planned dwellings have traditional features such as *ottas* (front porches), verandas, courtyards and roof terraces. Variations of these elements combined with various plot size makes each house different. Entrances and balconies are staggered to avoid views into opposite houses across streets. Every unit has adequate light and ventilation. The basic core can be easily absorbed into any future ground-floor extension. Maisonette type row houses optimize built up areas in relation to plot areas and plinth perimeters. The common party walls and their shared foundations are also maximized. Deep plots (12' x 30') reduce service lengths. The internal subdivision of each dwelling is simplified to give maximum efficiency for the net usable area with minimum circulation space.

Three type of core plots are available for the EWS: type E 1 has a water closet only and plinth for bath; type E 2 has a WC and bath and plinth for one room; and type E 3 has a WC, bath and one room, and complete plinth.

**Planning at the Street/Cluster Level**

To help families reestablish social contacts, the dwellings are arranged around short streets and cul-de-sacs. The courtyards form clusters of manageable size to foster group activities. Good use has been made of public squares, landmarks, and variations in widths of streets and in house elevations. The *ottas* help the inhabitants to set up income generating activities to supplement incomes. All the essential utilities--water supply, sewerage, surfaced roads, storm water drainage, electricity lines, and street lighting--are provided. Every dwelling has direct access by a surfaced road. Though initially the construction will be limited to the service cores, a demonstration cluster to influence future development has been built.
EWS Development. (Above, Fig. 3.10) Study of evolution of house form. (Below, Fig. 3.11) Evaluation of house form. Source: *Aranya*. pp. 63-64.
EWS Phases of Development. (Fig. 3.12) Typical EWS plan and section showing the phases of development from Phase 1 (W.C. Core), Phase 2 (W.C. + Wash Core), Phase 3 (Service Core + Room), Phase 4 (Full Ground Floor), to Phase 5 (Ground + First Floor). Source: Aranya. p. 64.
EWS Phases of Development. (Fig. 3.13) Sequence of drawings showing the progressive growth of a typical dwelling, starting with the site core unit (and one cow) and evolving into a two storey house. Source: Aranya. p. 65.
Planning at the Sector Level

The town as a whole has been planned so that the sectors function as intertwined ‘villages’, a characteristic of traditional Indian settlements. In each sector a relationship is established between the dwellings, clusters and streets to maintain contact with the land at all levels. To avoid segregation caused by income differences, while at the same time maintaining the value and marketability of the upper income plots that help subsidize the economically weaker sector housing, plots are laid out in concentric rings of diminishing sizes. The outer rings have the largest and most expensive plots and the best vehicular access. Behind them are the lowest income core units which can be built over time. These inner lower income-plots cluster around open spaces with the emphasis on pedestrian and slow moving vehicular traffic. No direct vehicular road links all the different income levels areas, however links between the various income areas is reinforced with pedestrian linkages.

The project has been divided into six sectors, called “slices” by IDA in order not to confuse them with the sectors at the city level. Each slice is designed and developed as a self-sufficient community. Lower income and EWS plots are distributed among all but one of them; slice 6 is reserved exclusively for the highest income. All the other five slices have a mix of income groups in established proportions. The highest proportion is for the EWS.

To avoid friction income groups were not mixed. That meant that the allocation of plots had to be done with care and subtlety. As one goes towards the interior the plots grow smaller, but so gradually that one does not perceive the change as one moves from one group to the other. From the highest-income plots located closest to the highway and opposite the State Bank colony in sector 54, one moves to the
Distribution of Residential Areas. (Left, Fig. 3.14) Concept plan showing distribution of plots. (Above, Fig. 3.15) Plan showing plot distribution with plots arranged in concentric rings of diminishing sizes. Source: Aranya. p. 35.
middle-income plots in slices 5 and 3, and then to the lower-income. The lower-income plots are in front of each main cluster fronting the wider roads, and, finally, the EWS plots are located behind the low-income plots and in the interior. Most of the type E3 plots are located at the edges of the cluster adjacent to the lower-income plots, the E2 and E1 plots are in the interior of the cluster.

Schools, dispensaries, and open markets combine or overlap with gardens, play areas, and other recreational facilities. By planning the green areas as usable and not merely ornamental spaces, as well as by assigning large spaces to welfare activities, the open spaces have better chances of being maintained and remaining free of encroachments.

Complementing the formal vehicular network is the pedestrian network which links all the service buildings and the central commercial zone. Small shops are located within clusters based on the number of families located around it, so that they do not have to go to the central market for all purchases. A five-minute walk from any dwelling to a community facility has been set as the design target. This has been done by allowing the pedestrian tracks to short circuit formal road patterns.

Planning at the Township Level

Though Aranya had to fit into the urban fabric of Indore, it was designed so that it would acquire its own identity as a township in which social and economic activities could flourish. The multi-storey commercial, residential and community complex rises above the low-rise housing to accentuate the physical as well as the functional center of the town. The main sports field is integrated with the center to emphasize its importance to the whole community.
Planning at Sector Level. (Above, Fig. 3.16) Sector wise distribution of plots. (Below, Fig. 3.17) Detail of slice 3. Source: Aranya. pp. 40-41.
Planning at Township Level. (Fig. 3.18) Plan showing the built-form of the town center. Source: Aranya. p. 37.
The vehicular and pedestrian networks converge into the town center binding the different sectors with the town center. The central facilities such as the cinema hall, community hall, restaurants, etc., are surrounded on three sides by EWS housing and are directly connected to the highest-income housing by a spine road, allowing easy access to the low-income communities and securing the patronage of the upper income families who will provide the essential income for the survival of the city center. For safety, the major traffic intersections are “Y” and “T” junctions and the sector roads are staggered to control vehicular speeds.

The 60 m and 30 m wide highways are on the periphery with separate access lanes for the boundary plots. A 15 m wide central spine has bus stops and car parking; 12 m wide sector roads which flow into the spine road from the site boundaries. Nine meter wide collector roads are for vehicular traffic; 7.5 m and 6.1 m wide access roads lead to upper-income dwellings. The 7.5 m width is also used for the primary roads in the EWS areas. The 4.5 m-wide EWS internal roads are, largely for pedestrians and bicycles, but they are wide enough for emergency vehicles. There are 3.56 m wide (average) pedestrian links that have no carriageway.

**Open Spaces**

The underlying principle in the design of the town’s open spaces was to provide for the various activities that take place in any Indian community. The first task was to distinguish between activities for earning money in the organized or formal sector and in the informal sector, which is also in its way organized, but whose owners are not formally registered and therefore are not paying taxes. The designers determined the kinds of spaces required by each sector and designed spaces to accommodate both activities. For example, in the informal sector hawkers, tailors,
Road Network. (Above, Fig. 3.19) Hierarchy of road network. (Below, Fig. 3.20) Detail of typical road junctions. Source: Aranya, p. 33.
Open Space System. (Above, Fig. 3.21) Conceptual sketch showing the open space system. Source: Aranya. p. 42. (Below, Fig. 3.22) View of township showing the central open space.
design in mixed-income, sites-and-services projects

Dhobi (laundrymen), cobblers etc., usually work outside, so VSF provided spaces for these kinds of work including spaces required to keep, store and maintain the tools.

Service lots where manholes are located were also designed to accommodate informal-sector activities. In some of these, trees were planted and in others a concrete platform was built where small-scale economic activities could take place. In addition to the service lots within each cluster, there is an open area at the crossroads of the street clusters where small shops are located. These spaces could house a cigarette shop (panwalla), a newspaper stall, a barber shop, milk booth, or even small building-material storage areas. It was expected that building material areas would also provide employment and training to local people for house construction. In addition to these small squares is the main large area of open land connecting for the town. Planned for this space are small dairy cooperatives, primary, middle and secondary schools (with the school children utilizing the open space as play area), an orchard and vegetable gardens, and a playing field and football ground.

The town center and commercial facilities for the city at large were planned to act as a magnet to the commercial zone. The town center is meant to serve a much larger population than just the township itself and people from surrounding communities are also meant to use it. This will provide a viable economic base and avoid the area's being stigmatized as belonging to "poor people."

The primary road into the center will link up to a city-level main road so that buses and other transportation will be able to come to the center to help provide a lively and cohesive environment for the residents.
Open Space System. (Above, Fig. 3.23) Plan showing the pedestrian and vehicular systems. Source: Aranya, p. 45. (Below, Fig. 3.24) View showing the central open space from a cluster.
The problem in designing these large open spaces was how to control activities like grazing and other forms of encroachment. The designers believed that control would be exercised by the community once a use for these public spaces was established. In a community of 40,000 people these spaces will be used, and community maintenance of open spaces is well documented. A recent example in India which inspired the designers was the work done by P.S. Athavlay, a contemporary reformer, who inspired the planting thousands of trees in villages by explaining to the people that planting trees was their offering to their God. The approach was very successful, and the people who planted the trees are now maintaining them.

The issue of social organization and community development is very important in the design of a number of public spaces. Unfortunately neither social organization nor community development happens overnight. To initiate community development and to bring unknown people together for a common cause is a difficult process, and to sustain it over a period of time is even more difficult. Outside assistance to organize and to act as catalyst is important. Designers most often use successful examples of social organization and community development as a means of justifying the design of their projects and showing how these spaces can be effectively used. However, the most important aspect of forming community organizations is neglected. Both designing and implementing agencies are unsure of whose responsibility it is and the majority are unaware of how to bring about community organization. Lack of a community organization has also been a problem with this project.
Commercial and Economic Activities

According to studies undertaken by VSF, there is a shortage of commercial facilities in India. Planning norms call for about 2% of the land to be reserved for commercial activities. However, surveys of existing towns show commercial activities take up around 4-5% of land. In Aranya 3.5% of the land has been allocated to commercial activities, spread over the whole area, from the individual cluster level to the main commercial center.\(^{14}\)

A wide variety of uses have been planned for the commercial center but VSF was not involved in designing the buildings for it. They were only responsible for assigning spaces and allocating uses. They felt that if this were left to the market forces, non-profitable uses such as libraries and community centers would be left out.

In the central commercial area land for both the formal and informal sector has been allocated. Spaces have been provided for business ranging all the way from fancy boutiques to street vendors and repair shops. In the commercial sector hotels, apartments, and office buildings will be developed. Institutional buildings such as schools, health centers, police station, and post office have been provided. Exclusive shops will be located in five-storey buildings, together with car showrooms. Nearby will be semi-permanent buildings for weekly markets, and next to those sheds and finally platforms.

The commercial/economic activities have been located so that the maximum walking distance from a house to a particular activity ranges from 1 minute to 15 minutes. Street vendors, tea stalls, etc., are expected to develop in convenient nooks in the street profile and can be reached in less than a minute from each house. Small-scale shops and workshops for building materials, hardware, carpenters,
Commercial Facilities. (Above, Fig. 3.25) Location of commercial and community facilities. Source: Aranya, p. 31. (Below, Fig. 3.26) View of government built shop in a typical cluster.
Commercial Facilities. (Above, Fig. 3.27) View of platform for work and commerce. (Below, Fig. 3.28) View of shop opened in the front room of a house in sector 2.
mainly in the EWS squares between clusters can be reached by foot in 3 minutes. Small informal markets in the pedestrian greens take under 5 minutes. Formal linear shopping along the greens and on the main street corners providing for the daily needs of the community, groceries and provisions can also be walked to in 5 minutes. The central commercial complex will have, in addition to facilities such as those described above departmental stores and municipal and private offices, reached in under 7 minutes. Existing light industry proposed by the master plan and located at the site boundaries can be walked to in under 15 minutes.

*Population Density and Land-Use*

The gross township area is about 100 ha., including open spaces and peripheral roads. It is designed for an initial population of about 40,000 which is anticipated to eventually rise to 65,000. The gross density is, therefore, 400 persons per ha. rising with time to 650 persons per ha. This compares favorably with densities in the inner cities of India of over 1,000 persons per ha. Studies have shown that housing and infrastructure costs are optimal at densities of between 300 and 600 persons per ha.¹⁵ Of this area, 21% will be used for roads; pedestrian walkways and squares will take another 1.5% of the net planning area. About 8% of the planning area will be left open, which falls within the planning norms in India of between 8% and 10%. By linking the open spaces together, the feeling of spaciousness seems greater than actual percentages. In Indian towns, commercial areas of between 2% and 4% can be sustained. Against this the Indore scheme measures well with an area of about 3.5%, distributed along a wide spectrum of activity. The overall marketable area is over 68%, as compared with the normal marketable area of 60%. This was achieved by optimizing the road networks and encouraging multiple uses.
Cross-Subsidy and Affordability

Cross-subsidy was successfully achieved in this project. By cross-subsidizing the services with the upper-income housing, standards for the economically weaker sector were not cut: on the contrary, they are made cheap enough to be affordable. Cross-subsidy is also expected to raise revenue through commercial development which is expected be sold at a profit and developing residential areas for upper and middle incomes. It is expected these people will eventually pay for much of the development. Without cross-subsidy, most of the standards would have been compromised, as the lower-income-groups would have had to pay for the services by themselves, and this would have made them prohibitive.

The costs of the EWS plots have been worked out to achieve monthly repayments of Rs 45 for the families in type E 1 up to Rs 125 per month for families living in type E 3. VSF studies suggest that the monthly incomes of the EWS groups are underestimated in the national statistics, as they do not take into account income generated from the informal sector. The practice of subletting parts of dwellings to augment income is one such unreported income source. All these factors can speed the growth of the dwellings from the basic core to the final built form.

EWS Demonstration Project

The goal of the township at Aranya is to provide decent housing, infrastructure and work opportunities to the EWS. Although the sites-and-services approach ensures that a large number of people with very limited resources can be reached, it has the drawback that the built form which eventually defines the character of the development cannot be controlled. As a result, many a sites-and-services scheme in
the past has turned into a slum because there was not enough emphasis on built form and the way people live.¹⁷ It was to avoid this that demonstration clusters of EWS houses were proposed. The idea was discussed with World Bank representatives in June 1983. It was agreed that constructing of demonstration houses was imperative if the success of the township was to be ensured.

The objectives of the demonstration house were to show the different stages of growth from basic sanitary cores to final two-storey houses; to show the variation of form attainable within simple, repetitive house layouts; to provide control of quality and workmanship for other construction to follow; to set a planning control model for the growth of other EWS houses in the future. Written regulations are much less likely to work than the built examples which people can emulate. They would also demonstrate precasting and other technologies to encourage the use of self-build elements; set a pattern for landscaping and street furniture in the EWS streets; examine the possibilities of setting up material banks and other services to channel the available resources more effectively; provide an opportunity to architectural and engineering students to study such developments through participation; and provide a nucleus of a well-established community around which the immigrant population can settle.
Demonstration Houses. (Above, Fig. 3.29) Ground floor plan of demonstration houses. Source: *Aranya*. p. 147. (Below, Fig. 3.30) View of demonstration houses.
Demonstration Houses. (Above, Fig. 3.31) View of demonstration houses showing different growth potential. (Below, Fig. 3.32) Alternate proposal for demonstration houses showing wider street frontage by McGill University. Source: Aranya. p. 76.
Analyses of Demonstration Project

It was agreed that 100 demonstration houses would be built with an average built-up on an area of 30 m² per dwelling. Some units would be completely built, and others only partially to show various stages of growth. Altogether they were expected to cost the IDA Rs 10 million, which would be recovered from the sale of these houses. During the course of design and implementation, the number of houses was increased from 100 to 200.

An attempt was made to draw the National Building Organization to the project so that they could build some of the demonstration houses using the low-cost technology they had developed. Unfortunately this did not materialize, so IDA decided to go ahead with all 200 houses themselves. The houses, according to Doshi, all followed a single design. He expects that not everyone will use the same colors or style, that staircases will be changed, that roofs will vary. His hope is that they can all build a house for under 100 Rs a sq. ft. He wanted to demonstrate low-cost housing can be built through a private agency or a contractor and sold to people at a price otherwise not possible in the market. In this the demonstration project was successful.

After the National Building Organization (NBO) backed out of building the demonstration houses, the IDA invited another group to design the remaining houses. The Center for Minimum Cost Housing from McGill University was asked to do this. Vikram Bhatt and his students from McGill were already in Indore doing studies of the slums there. They were critical of Doshi’s approach and questioned its viability. When the NBO backed out of its experiment, Doshi asked IDA to let the McGill group try. The McGill group developed a scheme that kept the plot area the same, but increased the frontage of each plot. Based on their
studies of Indore slums, they felt that low-income people needed more frontage because of their use of the street. Orienting more of the house to the street also makes it appear much larger. The house itself was otherwise essentially the same as Doshi’s, but the cost may be higher because the common wall between the houses is shorter also the cost of installing the services increased as more manholes had to be introduced. The same efficiency as in Doshi’s layout, could not be replicated.

The McGill group did not really experiment. They fell back on typical sites-and-services projects with a small variation of the standard 6 m².-plot size, to get their longer frontage. Because the room is not deep, more of the house has natural light and ventilation.

This part of the demonstration has not been completed, and the McGill group has not returned to follow up on the project. Only the plinth has been laid out. It will be interesting to compare the two solutions, once the McGill part has been developed to determine, which layout is more functional.

A number of the ideas used in the demonstration houses have not worked, but in any case the beneficiaries now building in Aranya have used only a few of them. No attempt has been made to assist people to draw lessons or ideas from the demonstration project. For IDA it is primarily as a source of revenue, though the houses have not yet been allocated, probably because IDA is under pressure from various vested organizations to have the houses allocated to them. During the survey, the demonstration project was visited on a number of occasions by politicians, senior police officers, and so forth, who expressed interest in them. IDA’s asking price is quite high; it ranges from 160 to 220 Rs per sq. foot.
Role of Financial Institutions, the Implementing Agency and the Consultants in the Design Process

The project is jointly financed by the World Bank and HUDCO and the development and implementing agency is the Indore Development Authority. The roles that each played defined the way the project was designed and eventually implemented. The World Bank played the leading role in the decision making at all levels. HUDCO, though it was a co-financier, played a supporting role and did not contribute significantly to any aspect of the project. IDA played a cooperative role and was responsible for some of the major changes in the plan.

The World Bank

Although the World Bank imposed a number of constraints on the project, which it did not fully comprehend, it proved to be open to reason and suggestions. In most of the project discussions with the designers the bank was very concerned about the level of efficiency being achieved, and they always treated the project as something that could be pre-packaged, constructed, and delivered. They were concerned with building and selling a product. The designers, on the other hand, were much more concerned with the process, something that they felt the World Bank did not understand at all. They wanted, for example, to take time over phasing the project. According to the director of VSF and of the project Himanshu Parikh, they were not concerned about the project stretching out a little longer, if it had to. However, the World Bank was mainly concerned with cost and therefore insisted that the project must be finished within a certain period of time and year by year show certain amount of progress. If the project were delayed by a year or two the bank would have seen it as two years of inflation added to the cost. They could never
understand that the designers were talking about process and the bank were taking about a product.\textsuperscript{18}

There were a number of reasons for this difference in approach between VSF and the World Bank. First, Bank personnel come from different countries and often different environments; second, they could not comprehend the scale of the work--that they were dealing with a township for about 40,000 people and not just a housing project. Their approach was largely based on a model developed by Bertaud, a World Bank consultant who represented the Bank at meetings.\textsuperscript{19} Using these models the Bank consultants could not understand the need to build very large open spaces into the design. They thought the spaces around the houses were too large with respect to the house. They could never understand that the designers were taking about a very large settlement and that they were designing spaces for a range of uses.

The township was designed as a series of open spaces beginning with the courtyard tucked away somewhere within the house, then to a small front-yard, then to a space shared between four to five houses, to a space shared by a street, to a space shared by a larger community, to a space program which includes a central space, large playgrounds and so forth. Though the scheme did not fit the norms set by Bertaud’s model, but Alain Bertaud could not readily disagree with Doshi, because of Doshi’s reputation both nationally and internationally and also because the VSF was willing to work out the various calculations to show that their design was equally efficient if not more efficient than his.

After some initial resistance the World Bank eventually let the designers go ahead with their plans. According to Doshi, their criticism was also helpful in the eventual shaping of the design. One recommendation by Alain Bertaud, to increase the size of the veranda to 6 feet from the 5 feet planned by the designers, was
adopted because it meant that a bed could be fit in and the room used as another sleeping space. They also adopted the Bank’s idea of limiting street width to 11-12 feet, so that the temptation to encroach would be controlled.

The Bank was very rigid in applying its affordability criterion. People eligible for EWS housing had to be earning less than Rs 750 per month, because according to their studies these people could afford 9% of their income on housing, for a Rs 65 a month payment. This meant that they could afford Rs 6,500 as a loan. The Bank could not appreciate the advantages of flexibility in the way people live and behave. People might have other resources to call upon; they might barter or have other sources of support. This inflexibility constrained the designers to some extent, and they believed that, had the World Bank been a little more relaxed, it would not have increased costs very much.

**Housing and Urban Development Corporation (HUDCO)**

A very different kind of role was played by HUDCO. Although its goal is to bring quality to housing, the designers found that in practice it acted as a bank would and showed no interest in project development. It displayed no interest in quality nor did it monitor any aspect of the project. Representatives visited the site three times and participated in the discussions, but made no significant contribution. They were interested only in dispensing money and obtaining guarantees from the state government for the recovery of loans to make sure that their money would come back.

HUDCO was set up to improve the quality of housing. It is also very much involved in setting up low-cost building-technology centers, and in the Delhi center it has developed low-cost house prototypes. Nonetheless it provided no technical information on low-cost building in Aranya, and although it has been interested in
setting up a building research center in Indore it has been delayed. Unlike what has 
been attempted in the housing project in the Orangi Pilot Project, the approach of 
HUDCO in providing technological support is very institutionalized.

**Indore Development Authority (IDA)**

The Indore Development Authority has cooperated in the search for new approaches 
to the design of low-income housing. It took the initiative in bringing in 
consultants to do the work, which in India, is unusual, since development 
authorities and municipal corporations resist outside influence. However, the main 
problem with IDA is that it sees its basic role as that of developer. It wants to 
complete the project as quickly as possible, dispose of it, and go on to the next. It 
does not see itself as a social organizer, nor as an agency developing programs to 
assist the community.

On the whole IDA’s contribution to the project was more than what would 
otherwise be expected from a public agency. It contributed few design decisions, 
but did insist that plinths be provided for all EWS houses, which was not in the 
terms of reference, and the designers had not thought of it. The site has peculiar 
soil conditions and comprises of soft, expansive clay with some amount of organic 
content. It is a very unreliable bearing material, as it is highly adhesive, soft, 
expands in volume when wet and shrinks considerably when dry. Under seasonal 
cycles, the soil can cause large movement to buildings, therefore special care has to 
be taken for structures built on this type of soil. Because of the sold characteristics 
IDA felt that a plinth would provide a proper foundation.

Building the plinths added to the cost of the plot and the structure, however, 
and this did not fit within World Bank norms. Since IDA had gone ahead and built 
the plinth for type E3 houses, the Bank stopped the loan, arguing that it was
beyond the scope of the project agreement, and IDA had done something that the World Bank had not approved or agreed to. In response it was argued that the plinth was needed because then the owners could start building as soon as they moved in and that, if the plinths, were not provided people could not be expected to build their own and even if they did, they would not be up to standard. For an individual to build a plinth would be expensive, and ensuring quality control would be impossible. Eventually severe problems would result because one plinth would not be aligned to the other, causing uneven displacement of walls and uneven construction. After much discussion and threats from the IDA that they would seek funding from the private sector, the World Bank agreed to the plinth and released the funds.

Vastu Shilpa Foundation (VSF)

The role of Vastu Shilpa Foundation in the design process is very clear. IDA was concerned that the project was lagging behind schedule and urged VSF to open a site office to oversee the project and to stop the slippage. No site office was ever opened.

VSF, in spite of its concern and sensitivity in approaching the project, was only able to deal with the physical aspects of the work. They were not able to recognize the importance of the process of people moving into the site and living there. The phases that would follow in which people moved in and the township matured was not ignored but it was also not dealt with as an important issue and therefore not planned in the design of the project.
Summary

The role of the four institutions involved in the project throws light on a number of issues. The international agency, though receptive to ideas and new approaches, showed built-in inflexibility. They simply were not able to comprehend all of the local conditions. However their clout as a leading international financing agency allowed them to have their way.

The attitude towards the project was very clear in all these agencies. They were all keen to have it completed as soon as possible and within the given budget. This attitude helped neither the designers nor the overall design. The designers were keen to have a group that would have a long term commitment to the project. Even regarding the maintenance of the township, IDA seemed only too keen to hand over responsibility to the municipal corporation as soon as possible. They were ready to do so in July 1991. Even though most of the houses were not yet built, all services were not there and people not yet moved in.

To ensure the quality of the environment and future projects one of two things will have to be done. Either the development authority has to become more flexible or another agency or non-government organization, or a community-based organization which need not be a government agency will have to be brought in to work with the development authority and look after organization. The non-government organizations or community-based organizations must have the clout to influence the authorities to the extent required—for instance, to affect allocation or force the authority to hold on to maintenance a little longer and involve the community in it.
The Process

When Vastu-Shilpa Foundation started work on the project they had no clear picture of the complexities of sites-and-services projects and the process of development involved. They undertook the design in order to learn it and they learned as they went along. They were very fortunate that the development authority permitted them to do this and gave them time to study the situation and survey the site. They were also able to make spot surveys of land prices, the social and economic composition of the families that were going to inhabit the township, the income mixing that was proposed by the IDA, and the various alternatives and options available. VSF was not familiar with the territory. They had never worked in Indore before, so they chose to concentrate on their strengths and learn what the problems were through the process of designing and implementation.

VSF held certain ideas right from the beginning. They discussed hierarchies and they understood the complexities of the design and the various scales involved. They also knew the budget would be tight. Given these limitations they concentrated on their strengths in architectural design and built form. Urban form was crucial; the premise was that there has to be some kind of built form which could dictate the overall physical shape of the community.

Their approach was to break down the project into its various components, which included surveying, design, and engineering design. They also developed a work sequence of design, design proposal, client and financing agency assessment and approval, preparing execution drawings, producing quantities, preparing tender documents and finally overseeing execution.

However, they were unfamiliar with the group they were designing for, nor did they know what their space requirements really were or how fast the town was
going to grow. As far as the sites-and-services idea was concerned, they were given no choice; that path had already been agreed on when VSF was hired.

To overcome some of these drawbacks, VSF studied a number of slums—their built form, street sizes and use, and the spaces within the community. According to Himanshu Parikh: (fig. showing IDA Proposal and VSF initial proposal)

[W]e in our design were imitating the existing urban patterns from slums and traditional urban areas. We started to superimpose our idea of scale and hierarchy on these physical patterns. Sense of scale and time was not appreciated at the beginning. Allocation process was totally fictitious when we started. When the work had progressed sufficiently and we had some idea of the overall structure of the project, then the idea of phasing was introduced. Even then phasing was introduced for the agencies convenience not in terms of people taking time to move in slowly.

Implementation
The scheme was divided into six "slices," not so much to phase the work as to divide it into manageable areas so that if for some reason there was a problem with a single contractor, the entire project would not be held up. Each of these six "slices" of the site were tendered to a different construction agency. Each contractor was to provide complete services for site work, road work, underground sewerage connections and electricity connections.

The designers expected that work would not be done simultaneously, but phased, so that problems that arose during construction could be rectified. IDA, however, insisted the work on all sectors proceed simultaneously, so that services could be connected without problems. A small water drain and storm water drain
Implementation. (Fig. 3.33) Site plans showing the development of the scheme from the Indore Development Authority’s initial proposal to Vastu Shilpa’s final plan. The phasing of the project into six slices has been retained from the earlier proposal to allow several contractors to work simultaneously and finish the project on time. Source: *Aranya*, p. 32.
ran through the site as well. According to Mr. M. L. Bhatt, chief engineer and head of planning IDA, "because of the site complexities it was very difficult to do one slice at a time. If the site had been a more normal piece of land it may have been possible." But the designers attribute the lack of phasing to pressure from the financing agencies and the state government, who wanted the project completed as soon as possible. Correspondence from IDA to VSF argued that the project should be further split into even smaller pieces to facilitate work on the scheme and to reduce the cost of each slice so that it did not exceed Rs 4 million. IDA was reluctant to spend any more time on the project than necessary.

On the face of it, the proposal to split the project up into further slices made sense, since it meant having more contractors working on it and finishing sooner. VSF, however, refused to split the project into more slices than the six already planned for, arguing that further division of the project would render coordination impossible and would increase costs. They urged IDA to retain the six slices and, if necessary, place house construction, the public buildings, landscaping, and construction of the water reservoir and oxidation pond into separate tenders to reduce the cost of the individual slices.

VSF's approach reflects the reality of construction work being done in India. To achieve what IDA was suggesting, a group of contractors who would work well together would have to be found and their work would have to be coordinated and somehow phased. Generally in public projects most lack planning; in many cases it is almost non-existent. For a public agency to have 10-12 contractors working on a project simultaneously would have involved making sure that all aspects of the scheme dovetailed into each other.

Lack of this kind of expertise in managing projects led VSF to insist that the project be handled in larger chunks, where at least there is some integrity of the
whole and there is some scope for compartmentalization. In the six-slice arrangement it is possible for a single contractor to work on one slice at a time, the civil and other works in the entire slice could be integrated and that the contractor could complete almost the entire package. The degree of overlap with the next slice in terms of connections was limited and could be controlled between the six different contractors without great difficulty.

It would also have been possible to divide the project in a number of the different ways. It could have been divided either in terms of different work allocated to different agencies, where one agency does the water supply, the other does the sewerage, and another does roads, etc., but that approach only works well if a project is well coordinated. Disputes between agencies because one has to wait for the other to finish its work are common. To undertake a project of this scale with using this approach, IDA would have had to bring in a professional project management team. A project of such scale and complexity requires professionals to control, oversee coordination, and organize all the activities that are required over a period of time.

Given all its shortcomings, IDA, on the whole managed the project quite efficiently and completed the scheme within its budget and within the specified time. To this extent the project has been a success. The Public Work Department people are often said to be corrupt, but, although VSF had no control over which construction agencies were chosen and the same government people and the same government agencies executed and supervised the project, it was still finished within budget and within the specified time.

Although generally in EWS schemes the standards and the level of services that are provided are minimal, VSF designed underground systems for both services and electrical wiring. They argued that because of high population density, above-
ground connections would be a potential hazard. In addition to safety, aesthetics, shortage of land, flexibility for further expansion of dwelling, narrow streets, and high dwelling densities argued for the decision. These design decisions caused friction with the implementing agency, they also highlight the complexities of such project, and point to the problems projects continue to face even after they are completed and occupied.

Wet services were finally taken below ground when VSF’s cost analysis showed that it would not be expensive; cost cutting was achieved by eliminating extra manholes through an innovation in design.

Running electricity cables below ground posed problems: the electric system, the power system, the street lighting system were designed by VSF and their placement was planned in the normal way and was to be executed in each slice by the contractor doing the job. However, the Madhya Pradesh Electricity Board (MPEB) which provides the electricity was adamant that wiring be done by themselves. VSF had to allow the MPEB to install the electricity, and this increased the cost of the total project, because MPEB had to come in separately to lay the cables. Neither VSF or IDA could do anything about it. IDA understood that either MPEB did the work or they would refuse to touch it afterwards. If IDA could not arrange for maintenance IDA would have a problem. IDA had also already deposited the money for electrification with MPEB.

The second problem arose after MPEB took over electrification because it was not used to installing electrification underground and insisted on open wires and overhead cables. VSF compromised with a mixed system. At the periphery where the density is low and houses are high-income, overhead wiring was used; in the EWS areas and in areas where the densities were high and maintenance seen as a problem, it was placed underground, which proved much more economical. With
the underground system more connections were possible, eliminating expensive overhead junction boxes.

At times MPEB almost washed its hands of the project. It was pressured to complete the work on schedule because both the IDA and VSF were worried that if it did not stick to schedule, other works could not be completed. They did not want to finish only to have MPEB come and dig everything up all over again, an everyday occurrence in most projects. The road work is done and then the cables are laid, leaving roads all dug up most of the time.

MPEB has yet to complete of its work. Today street lights are still not working in all slices, and there are places where roads have been dug up and not filled in, a hazard at night for people who are living there. Street lights should have been installed together with drainage and sewerage. MPEB is operating at its own speed, and work is slow.

Allocation Process
The allocation process in any housing scheme is important, but in low-income schemes it takes on additional importance and complexity. IDA first issued a call for applications in 1989, after the project had been completed to the point at which it stands today. Applications were invited through advertising in local papers. Various categories of applicants were based on income group. Three levels of EWS plots were available ranging from 200 Rs per month to 400 Rs per month (the type E3 was eventually raised to 750 Rs per month). To be eligible, applicants could not own other property. After the announcement, 40,000 applications were received, of which 20,000 were found eligible. Of the 20,000 eligible, income was verified for each through the local administration. After verifying the eligibility, the final selection was done through a computer.
Once the beneficiaries were selected, a list of houses according to slices was then prepared. Based on beneficiary eligibility in terms of house type (E 1, 2 or 3), names were matched to plot. No other criterion was established for plot allocation, nor was there any choice of location given to the beneficiary beyond a choice of slice. The process was random. The winners were named and another 10% put on a waiting list. No complaints were made about the lottery, and the allocations have been registered with the IDA, but IDA faced many problems. They were not geared to deal with so many applications, there were computer problems along the way. There were also problems in the lottery and final handing over of possession. People have been given possession only in the last 6 to 9 months.

The lottery for low-income plots has also been held. The middle-income and high-income plots were to be sold at market rate but the high-income sale has not yet started. Over a hundred middle-income plots have been sold. In this project 22% of the plots were reserved for various groups: politicians, 2%, IDA staff, 2%, “backward classes,” 15%, IDA corporation members, 2%, and the chairman of IDA quota system, 2%.

The demonstration project will be allocated separately. Any individual can apply. People put in a bid and the highest bidder is given the house. Various categories of the house have been sold at prices ranging from 160 to 200 Rs. per sq. foot.

The allocation process was not well thought out. The lottery system is fair, but when it comes to forming communities it does not work well. People were given no choice of location or preference of neighbors. In India there are a fairly large number of socio-religious groups, and people prefer to live with a group they belong to. Today changing values and family lifestyle means that there are different
needs that have to be provided for. A straight lottery does not provide these choices.

Some way of forming a community has to be established and the allocation made more refined than the one adopted by IDA in Aranya, so that a sense of community will be fostered According to Himanshu Parikh:

As the work started progressing it became clear to us that if we were developing a community and therefore we should try to bring in communities as groups if possible rather than select randomly. This was one area where the implementing agency was not flexible, knowingly inflexible, because they felt that if they let the door open for any kind of negotiation, there would be other political forces and special interest groups asking for special consideration and the process would become unmanageable.

**Land Speculation**

To keep speculation out of the scheme also proved very difficult. Keeping out speculators is virtually impossible in any housing scheme as the demand for housing is so great that speculators eventually will come up with a method of getting around the rules set by any development agency. However, IDA's attempts to control speculation have had some amount of success. When a beneficiary took possession it was verified that it was the same individual or family who had applied and gotten the allocation. Each applicant had to submit a photograph, which was checked before the plot was handed over. These checks may ensure that the plot is given to the rightful beneficiary. However, it does not stop the beneficiary from selling the property shortly afterwards.25

Once the beneficiary had been selected and verified, the plot was handed over and restrictions on selling and transferring property were imposed. Nobody is allowed to sell the plot; it has to be returned to IDA. However, when the house has
been built there are no restrictions on selling the plot and house; only the sale of empty plots is illegal. In the survey one of the type E 3 plots has since been sold for Rs 14,500, a profit of Rs 2,000. In this case it was legal because type E 3 plots already have a built room. Mr. Bhatt said that legislation avoiding this would never be passed. He also felt that if a beneficiary had built a house they had the right to sell it. sale does involve the IDA and certain transfer fees. The new owner can be anyone from any income group. It would in any case be difficult to ensure and verify income at this stage, nor could an EWS afford to buy a completed house.

IDA did not look into other patterns of ownership such as collective or community ownership, whereby, people buy into a cluster and have a right to live there, sometimes for 40 years, sometimes forever. Change or transfer of property is otherwise handled by the cluster community. Projects using community or collective ownership schemes have managed to reduce speculation, but they are no panacea, they work better in some places then in others. In Thailand for instance the Thais prefer mediation to confrontation; in such situations this approach has worked. In India, too, there are community and cooperative housing programs, but they were formed to finance and develop housing, not to restrict ownership transfer.26

Even though it is a good idea to control land speculation and for this reason community ownership should be encouraged where ever possible, in cities like Bombay and Delhi where pressure on land is extremely high and prices on serviced land increase immediately, the poor have more incentive to dispose of land for a good profit then they do to keep it. In these situations ownership patterns such as cooperatives can not solve the problem. Fundamental changes in property ownership must occur. All other approaches are only stop-gap measures, which eventually will be overcome by the pressure of development.
In Aranya not much “filtering” is taking place. All but five, of the houses surveyed were occupied by beneficiaries. However, controls are minimal, so the chances of beneficiaries selling out to speculators once the property value increases significantly and once all the services are in place, is high, especially, since the title is in the name of the beneficiary and not in the name of a cooperative or other institution.27

Only 171 families are living in the project a year after the beneficiaries were able to move in. There are a number of reasons for this. The perceived shortage of housing in Indore was miscalculated, not all services are yet available at the site, and the beneficiaries have been given two years to move in are all three of them. According to the law, IDA cannot revoke the allocation or take any action, unless after the two years, beneficiaries still have not moved in. Then they will have to pay penalties, but their claim over the plot cannot be revoked. This law could only be changed in the legislative assembly, which would be very difficult to do, but M. L. Bhatt would like to see the time reduced to one year. To construct a house is an expensive undertaking, however, and even though the plot is cheap and subsidized, the cost of constructing the house must be collected.28

*Plot Cost and Payment Process*

The cost of each type of EWS plot and the installment payment is as follows:

<table>
<thead>
<tr>
<th>Type</th>
<th>Cost</th>
<th>Installment</th>
</tr>
</thead>
<tbody>
<tr>
<td>E 1</td>
<td>4,595 Rs</td>
<td>45 Rs/m installment</td>
</tr>
<tr>
<td>E 2</td>
<td>5,670 Rs</td>
<td>56 Rs/m installment</td>
</tr>
<tr>
<td>E 3</td>
<td>12,565 Rs</td>
<td>125 Rs/m installment</td>
</tr>
</tbody>
</table>

Loans for the serviced plots are paid in monthly installments. According to IDA, beneficiaries are paying regularly and are not defaulting on the loan. Building loans of up to Rs 10,000, are also available from IDA towards home construction,
but the World Bank requires the beneficiary to construct part of the house, the wall up to a certain height, or the flooring, with their own funds before the IDA loan can be released. This stipulation has not worked. The IDA has been unable to give out many loans and utilize the fund properly, so the World Bank agreed last April to allow IDA to process loans without the stipulation.

Project Maintenance

Maintenance of the project is IDA's responsibility, and already a certain amount of dilapidation is apparent. The green areas have been fenced off and are not maintained, the street lighting does not work, and road surfaces are developing cracks. According to IDA, they have invested nothing in maintenance since the little they do is recovered from the owners, especially low-income and middle-income holders who are paying for maintenance whether they live there or not. Ultimately maintenance will be handed over to the local municipal body.

Once control is turned over to the municipal corporation, this area will become part of the city network and will be served and maintained as any other area. IDA is much too eager to reach this stage. Surveys of both residents and the consultant show that without an adequate community structure in place, the project will be at the mercy of the municipal corporation and the MPEB, both fairly unreliable organizations. In view of the conditions in other low-income areas, it is apparent that, without a larger community base, future maintenance and upkeep of the project is in jeopardy.
Values

A survey of 27 EWS houses, several from each slice, was undertaken to evaluate the project. Two houses under construction in the middle-income area and two schools, one secondary and the other middle level, were also visited. The survey evaluated change taking place within the township, the profile of the people living there, how they build, how they raise money, the facilities available for them in the township, and their opinion of the township as a place to live.

Of the 27 houses studied, 9 were type E1, 6 E2 and 12 were E3. Twenty-two houses are still occupied by the original allottee and 5 have changed ownership. Fifteen houses are built to the level expected according to type. Eight are partially constructed and 4 are minimal or of temporary construction. Of those surveyed 16 families have income level above the Rs 750 per month threshold and 11 have incomes at or below the threshold.

Of the slices that were occupied, slice 4 and 2 had the most people living in them; slice 1 and 3 had the fewest. In slice 5, part of the demonstration project has been built, but only 2 of the houses were occupied, both by people working for the IDA. One of them was the security guard for the site.

Family Size, Composition and Social Groupings

The average size of the family in the houses surveyed was 5-6 people, usually a couple and their 2-3 children, but sometimes one or both parents of the couple. In one house a sister of the wife was living with the family. Most of the families had young children either going to a kindergarten or in school outside the township. Only one elderly couple was living there.
Since the allocation had taken place only a year earlier the residents have been living there for less than a year. From the total of 171, 15 families had moved there in the beginning from Arjun Singh Nagar, a slum in the city, and all were from the same mohalla. They had been allocated plots under a special category because their houses had been condemned by slum improvement projects and were in low-lying areas prone to flooding.

Among these 15 families a certain social bonding and sense of community was evident that was absent in the other clusters. A large number of the houses were built as temporary structures, even though they have lived there for a year. They are wooden frames packed with earth and tin roofs. Some have internal partitions; some do not. Some are being converted into more permanent structures using brick walls and internal partitions. The 5 interviewed were all earning Rs 700 a month. Four of them worked as tailors in garment factories. Some inhabitants worked as laborers outside. They had to walk to Vijay Nagar about 15 to 20 minute walk, to take tempo (a three-wheeler van) ride into the city. Most of the wives did not work at all or did only occasional work.

In this cluster one unoccupied type E 3 plot which had a built room was being used by some of these families to store their belongings they were making the best use of the available resources. In other clusters people were more likely to live within the boundaries of their own plot; spaces outside were very rarely used, aside from open spaces for playing and sitting. Not knowing one's neighbors within the cluster and in most cases not having a neighbor living next door led a lack of community cohesion.
EWS Houses. (Fig. 3.34 and 3.35) View of two houses in slice 4 built with recycled temporary materials. The occupants of this one cluster were all moved here from one slum.
Income of People and Occupations

Most people living in the township are regularly employed in some factory, shop or mill. Of those who are employed, income varies from under Rs 600 per month to over Rs 2,000 per month. In most cases wives do not work, or are involved in some cottage industry like making incense stick or stitching clothes. But because the township is away from the city center and there is as yet no market for these goods in the community, most women are idle. In two of the houses surveyed, shops selling groceries and other small items had been opened on the front veranda. One is run by a 12-year-old boy and another by an elderly couple. The couple only earns about 100-150 rupees a month; the boy earns between Rs 5-10 a day. A shop selling building material has opened in slice 2.

The shops built as part of the design at cluster corners for small household goods have not yet been sold. The IDA is still holding on to all commercial properties.

Social and Community Facilities in Aranya

To date four kindergartens are operating from houses; all are privately run. They charge about Rs 25 per child. All four kindergartens are run by individuals who do not live in Aranya. One kindergarten in slice 2 is run by a lady teacher who lives outside the township and bought the house from a mullah who lived in it first.

There are at present three schools in Aranya; a secondary school, a middle school, and a private school in slice 5. However, most children in Aranya go to school outside the township, because the schools do not give preference to children living in Aranya and admissions is based on merit. If a child fails, then he or she must continue with the same school and cannot transfer to a school in Aranya.
EWS Houses. (Above, Fig. 3.36) View of cluster shop in slice 4 being occupied by a family while their house is being built nearby. (Below, Fig. 3.37) A young boy has opened a shop in the front veranda of his house in slice 2.
Often this means a long commute. But principals of the Aranya schools are keen to maintain standards in their schools and do not want children who have failed. There is a shortage of schools in this area, which guarantees enough children from the surrounding community. No children from Aranya attend the private school; the fees are far too expensive.

No other services are available: there are no doctors yet, and the health clinic has been built, but not opened because of a shortage of government nurses. No postal service has come to Aranya, so people receive no mail. One inhabitant complained that his electricity bill could not be delivered and had therefore not been paid. The MPEB had threatened to cut off his electricity because of it.

**Construction Quality and Financing**

In the houses that have been finished, most of the work is quite well done. Floors are made either of terrazzo tiles or of cement. The walls are brick, and the roof is flat and made of stone tiles. Houses have doors and glazed windows. Most houses are also white washed inside, and some are painted outside.

Permanent construction in Aranya is done mainly by masons. However, in most houses the family does provide some labor. The survey showed that in 90% of the houses, the occupants had played some role in the construction of the house, ranging from unskilled labor to doing part of the work on their own such as finishes and flooring. In most cases the owner also acts as the contractor and supervises the masons and the work done.

From the houses surveyed one can make the following generalizations: A completed house costs Rs 40,000, and includes a front room, covered veranda, a kitchen, toilet and bath, and a courtyard. The cost of constructing a staircase is additional. However, in two of the houses the staircase and the house was built for
House Construction. (Above, Fig. 3.38) A typical house with a front room, covered veranda, a kitchen, toilet and bath, and a courtyard. (Below, Fig. 3.39) Interior of the house with built in storage spaces.
under Rs 40-45,000. However both houses do not have any interior or exterior wall finishes, nor do they have tiles in the kitchen. In both cases part of the work on the house was done by the owners.

A partial house on an average costs Rs 18,000; the house has only one room, kitchen, and toilet and bath. The house has minimal external and internal finishes and it did not have a staircase or courtyard walls. Some storage space was built in.

A minimal house costs about Rs 3,000. It has mud-brick walls and a semi-permanent roof. The interior of one of the houses was neatly finished, using mud as a finishing material.

The most expensive was a one-storey house costing 85,000 Rs on a type E 3 plot. It has a covered veranda, a front room, a kitchen area, a bath and toilet, an enclosed courtyard, a staircase, and a finished terrace upstairs. A similar two storey house would cost at least Rs 30,000 more. At the low end, houses made out of temporary materials cost about Rs 2,000.

Houses are constructed by borrowing money from outside sources: place of employment, relatives, and money-lenders. Some also sold their jewelry to raise some of the funds. In two cases the family received gifts either from relatives or from elsewhere. One was a gift from its occupant’s father upon his marriage. The other was built by the church for its occupants, who are Catholics. About 8 such houses were built by the church at a cost about 40,000 Rs each.

A small number of people actually took out IDA loans, but only received Rs 3,000. People are more comfortable taking loans from the employers or through their pension funds. Only those with no other resource have taken out IDA loans. Loans are also available from the National Housing Bank (NHB), but no occupant had one.
House Construction. (Above, Fig 3.40) View of a well finished house on plot type E 3 having an enclosed veranda and a staircase leading to the upper terrace. (Below, Fig. 3.41) House constructed on plot type E 1 using temporary and recycled materials at a minimal cost.
Another form of assistance or loan for constructing the house is through material on loan either from relatives who may be in the construction industry or from building-material shops. In Aranya there is only one building-material shop, however, and most people do not use it, in contrast to the Orangi Pilot Project. In Aranya there is no consolidated building industry in the township, and the IDA has not encouraged local building material suppliers to set up their outlets there.\(^ {30} \)

The houses discussed above were completely built by masons and the owners moved in after the house was completely finished. Of the other 40 houses that are in construction stage, most are being constructed by masons and supervised by contractors. In these cases the occupants will move in only after the house is complete.

**Water and Electricity Connections**

Of the houses surveyed, the majority did not have legal electricity connections. Wires were run from street light posts or through junction boxes. They have resorted to these illegal methods because the electricity board has not given them a legal connection. Electricity and a meter do cost money, however, so it may be that the people are unwilling to pay the fee if they can get it free.

Most people do have water connections, but almost everyone complained of low water pressure. A few had no water at all, even though they had been living there for six months. Most people have to go to the main overhead water tank located in each slice to supplement their water supply.

Water is supplied during certain times of day. The water comes through a looped system and because the number of people living in the township is so small, to preserve water pressure certain areas are not given water at all. IDA claims that if they release water in pipes where there are few houses the pipes may spring leaks.
But the water supply is also not adequate in the township. When the main Narmada River canal is completed, the water supply should improve. For now water is being drawn through tube wells and then pumped into overhead storage tanks.\textsuperscript{31}

Transformations

Observation of the people living in Aranya can provide clues to the quality of the environment. The design and implementation supplied amenities such as the underground sewerage system, water connections, and underground electricity to each and every house. The service-lot concept has led to a reduction in cost of the services and also provided ‘breathing spaces’ within the cluster. The location and provision of various commercial activities and large and generous open spaces distributed evenly among the site are things one rarely sees in low-cost housing and sites-and-services schemes. The linear cluster is a design decision that will ensure a good environment.

Given all these salient and important features developed in this project, the important question then is, how do people respond to this environment and how do they use the spaces? Shanker Rao a resident of slice 1 summarizes the occupants evaluation of the project best.

In this project all facilities have been planned for. There are schools, electricity, water, underground sewerage, community hall, parks, nursery. However we are seeing that those that are responsible for its maintenance are not involved in its maintenance and upkeep.

We feel that IDA is not paying any attention to this project. Holes that are dug in the roads for any purpose are never filled up, even if a person or child might fall into it at night. Even if there is an accident or there is a complaint, there is no one to complain to.

The street lights do not work, water is not enough. Like this are many other problems
and inconveniences here. When all of these problems are addressed and solved, then I think that this will be a good colony for low income people to live in.

Shanker Rao’s complaints are frequently heard in the township. There is a tremendous gap between what was proposed and what has been built. By no stretch of imagination is this environment worse than a slum or squatter settlement, but the full potential that the design had to offer has not been realized. The chasm between project implementation and project occupancy management is very wide.

Linear Clusters and Open Spaces
The linear clusters were designed to have attractive spaces, but even Doshi admits that he does not expect the clusters, once occupied, to look as he envisioned. The open spaces designed for common use, particularly the service lots, are not regarded by residents as common spaces to be used by all cluster residents. The 15 families who moved from one settlement and located in slice 4 do not understand the idea of common space. They believe that it should be used by the residents of those houses that are adjacent to it, that living adjacent to the open spaces gives them user rights. Residents have in fact already started to appropriate these spaces for their own use. In slice 2, one of the residents has erected a small wire fence around part of the open space directly adjacent to her rear courtyard, which she uses as a kitchen garden.

The designers expected that groups once they formed a sense of community would control their open spaces. However, this same group is unclear about the use of common areas, even though they came from slums where it is generally thought sharing of spaces is common, this is simply not the case; in slums there is actually a much higher notion of territoriality and this emphasis on individual spaces is reflected in Aranya.32
Cluster Open Space. (Above, Fig. 3.42) Appropriation of a part of the cluster open space by a family for growing vegetables. (Below, Fig. 3.43) Work platform in cluster.
The space provided are certainly useful; all communities need “breathing space,” however, the issue here is that whether the space will be used by the community or misused by a few. To stop the misuse or ensure communal use, an organization that sets forth the uses of these spaces and enforces those rules has to be formed.

Among the EWS there are great disparities of income earnings as more prosperous families move in. Without control, these newcomers will be even more likely to appropriate open spaces whose use is not entirely clear. The concrete platforms in the clusters were designed by the consultants to be used as work platforms and as places where small shops or hawkers could set up their stalls for selling goods, but it is unlikely that they ever will be used for this purpose. There is no shade over them for people to sit under, and most residents in a cluster who would want to sell anything would either do it from their house or go to the commercial center where the most customers are. These platforms might be used by hawkers for selling fruits and vegetables. However, they too could as easily wait in front of a house to attract the same group of people. Most likely they will be used by children to play on.

The point here is that such spaces might be both attractive and useful, but unless some collective understanding of their use is established, the residents cannot reach that conclusion on their own. Models that are successful because of already established social order will not be successful without that order, and order does not just miraculously appear, the link between social issues and those of design is not always apparent. Manuel Castells said it best: “although spatial forms may accentuate or deflect certain systems of behavior, through the interaction of the social elements that constitute them, they have no independent effect, and consequently, there is no systematic link between different urban contexts and ways
of life. Whenever a link of this order is observed, it is the starting point for research rather than explanatory argument." Under the present conditions, it is difficult for any individual living in Aranya to figure out for themselves what the overall structure and use of open spaces were meant to be. At present they are not maintained and are fenced off. Snakes and scorpions breed in the vast open fields.

Commercial Spaces

No commercial spaces have yet been allocated. The design envisaged a central commercial area as the spine to the city, but it ignores a major site condition, namely, that the site is adjacent to a national highway which is a prime location for commercial and other development. In the new master plan, a new ring road will be built, and the national highway will move further out, but will still remain a main spine. Because Doshi and VSF wanted a commercial center in the township, they deprived the township of a commercial location adjacent to the highway that would have served the community much better.

Office buildings, large shopping areas, small-scale industries could have been located on the highway without compromising the integrity of the scheme. Small and medium size commercial facilities could still have been located inside the scheme, along with institutional buildings such as schools, health centers, a library, police station, and the post office. The town center could have been split into two areas, one connected to the city and the other serving the immediate population. It was not necessary to locate all of these facilities in the town center.
The House

The EWS house plan leaves very few ways to build. Basically it is a series of rooms, one behind the other with an inside or outside staircase. Most houses have been constructed in this way. Variety is achieved through the incremental nature of the building and the stages each house has reached: whether it has an upper storey or not, how the facade and parapet has been treated, and where the staircase has been located. The staircase is either open-to-sky or covered, either in the front of the house or in the rear courtyard. If it is in the front it is either outside the front room where a veranda would be or inside the house as part of a covered veranda.

Most residents are not aware of the importance of locating elements of a house. Building a staircase in the rear courtyard makes it difficult for the owner to rent the upstairs space, unless the house has access to the service court and a separate rear entry. A staircase located in the front and outside the veranda allows use without entry into the lower floor. If the staircase is in the front but within the covered veranda space it can also be used separately without entering the main living space, but it shares the veranda with those living upstairs. This arrangement may be attractive when the house grows to accommodate a family.

Inside the house, the courtyard offers some variation possibilities. In one of the houses surveyed, the courtyard had been covered and converted into a kitchen and the kitchen partition wall had been moved to form two equal rooms. The drawback was that covering the back courtyard blocked ventilation into the back rooms. Since the house adjoins the service plot, it had been possible to make a window in the side wall to bring light into the small connecting space.

People should be advised to leave the courtyard open. They may not understand the advantages of the courtyard and, for short term gain, may loose out
on future expansion possibilities or create a internal environment that lacks both light and ventilation.

Project Occupancy
Some 40,000 families responded to the scheme when the allotment was announced, but only a few actually live there. One reason given by IDA is the lack of adequate transportation. This is not the only reason, however. The distance from the city center is about 6 km, easily reachable by bicycle, or by private transport in form of a shared tempo (three-wheeler van) which is available nearby. On the southern periphery of the township high-income bungalows and detached houses have been occupied and the surrounding neighborhoods have people living in them, therefore the township is not as isolated as it seems. Given the assumed shortage of housing in Indore yet people are not moving in here at the pace one would expect.

True, the allotment was done only a year ago, and it takes time for settlements to populate, but 200 inhabitants out of 20,000 found eligible is still extreme. One reason may be that the housing situation in Indore is not really as acute as assumed. A large number of people live in sub-standard conditions, but few are homeless.

The survey shows that all the people who have moved in did so because they had no other choice: eviction from their previous location was imminent, or they were unhappy with their landlords, or they came from other locations. Unlike Bombay, Delhi or Calcutta, the homeless are few and the scheme does not in any case necessarily cater to the destitute. Most people who have moved there have some form of steady employment; even though they may be earning less than others their income is constant, and they are therefore able to make their payments and build their houses once they move in. Most people living in slums have patwas (right of possession given to them) and cannot be evicted.
The lack of real need is also evidenced by the fact that more people have not moved in and built temporary structures until they could afford to build permanent one. This suggests that the conditions under which they live are better than those available at Aranya. The physical conditions might not be superior, but they have other amenities including social and other community services lacking in the township.

This is of course a classic chicken-and-the-egg dilemma. If people would move in, services will be provided, but people will not move in unless services are there. In this case, however, the situation cannot be rationalized so easily, because the township was developed to provide a better environment for people and if the environment is not better than why should people move? This is a major concern, because the potential for a quality environment does exist in Aranya, and unless people are encouraged to move there, the project will fail.

Community organizations and NGO's can play a positive role in helping people move and provide a safety net until all the major services are in place, and they can assist the community to grow. They can also play a mediating role between IDA and the community. IDA's eagerness to hand over the responsibility for maintenance to the municipal corporation will complicate things and even further slow down the process of occupation.

**Implications for Design**

The Aranya project comes close to the social, physical, and aesthetic goals laid down by the VSF within the severe financial constraints of low-cost housing. New norms and methods had to be evolved for settlement planning and design that was relevant to and in tune with the needs of the urban poor. Cultural, social and
economic needs had to be taken into account in the design process to realize its objectives.

This project makes it clear that, in a sites-and-services project, land and infrastructure become the critical cost components making efficient site planning essential. A fresh approach to infrastructure design was evolved to enhance the economic viability and performance by using new materials, design methods, and computer aided models.

This scheme has both a fully designed dwelling component and also one that can grow incrementally over time, and the settlement design attempts to bring together a community. As the settlement grows incrementally, new networks are bound to develop, which will help build the settlement. As of now, the one demonstration cluster of housing built to give an idea of what the urban fabric will look like. The stress that has been laid on flexibility and elasticity at all levels of planning should ensure that it can respond dynamically to any feedback received during construction and even after occupation. The settlement design methods that have been developed here can be used and improved upon to help resolve the problems of housing the poor.

Aranya in both its success and its failure presents lessons fundamental to the development of any low-cost housing scheme, whether or not one choose to use the models or housing-delivery systems.

First, it has shown that to create a quality environment the role of the designer is fundamental, as is a comprehensive site plan that learns from existing housing and understands the modern urban township. The development of a mixed use pattern, the careful planning of open spaces, the linear cluster and finally the provision of urban services are all important developments that will be used as models for future housing developments.
Second, a careful design should be complemented by a careful technical and financial analysis. Projects both large and small scale operate under tight fiscal control, but even in low-cost housing through judicious design and fiscal control, a quality environment can be made to serve the low-income population.

Third and tied to the first two, Aranya has shown that through both judicious design and fiscal control, improved standards can be provided and that standards, though dependent on the design and finance, need not be sacrificed to them.

Fourth, the evaluation of product, process, and values in Aranya township has thrown light on the various intricate connections that exist between the financing, implementing and designing agency. A clear and positive manipulation of these linkages goes a long way toward guaranteeing an effective project.

Aranya has also provided us with important lessons in its shortcomings. First, the city center and commercial design of the project were seen to be equally important by the designers; however, the idea of creating a township center and hoping to bring the city to it was flawed at best. This does not mean that large townships need not have their own commercial and institutional centers. It means that one should consider how the township center will meet the city and explore all possible linkages.

Second, the commercial potential of the township was not explored to the maximum. The Indore Development Authority held on to the commercial properties in the hope that selling them after the site develops would bring top prices. They are only now beginning to dispose of the commercial properties and the price of the land has in fact gone up some two to two and a half times. However, it has been at the expense of township development. In retrospect, having identified the commercial areas, it may have been much more opportune to sell them quickly. It would have gotten the settlement going and lessened the demand for resources. A
large loan from HUDCO, of which land acquisition is only a tiny proportion, would not have been necessary. If they had sold the commercial land in 1982, the project would have cost half as much. They would have carried a smaller loan and saved on interest.

However the reasons for selling the commercial land are not just financial. By selling it off earlier they would have gotten a five-year head start on the entire development process. A trade-off between prices and starting activities would have been to sell at least half of it earlier.

IDA's holding on to the commercial property waiting for the prices to rise also defeated VSF's plan to provide spaces of various kinds that would be affordable by various groups. The commercial spaces to support small traders or hawkers are today too expensive for them. People are instead opening shops and other services in their own houses.

Third, the effectiveness of the demonstration project was diluted by its not providing an adequate system for showing it to the people. It was a source of satisfaction only for the designers, the implementing agency, and the politicians. The lessons that ought to have been learned were completely lost on the occupants. The project shows that even in an obviously well-thought-out project, people can be least important.

Fourth, the people were left out of the system. From the allocation process to actual occupancy of the project, both the designers and the implementing agency were out of touch with the occupants. The designers were as keen as IDA to hand over the project. They are now doing a post-occupancy evaluation with a grant from HUDCO, but evaluating occupancy has not occurred to any.
IDA claims to have started community development with its new slum upgrading project, but it has not yet developed a comprehensive occupancy plan for the township and is not even sure how to go about doing it.

The allocation process must be changed to a system designed to allow beneficiaries a choice of location so that groups can move into projects together and be located in one cluster. Slum dwellers being relocated for various development and upgrading projects should be relocated in the same way to provide some level of cohesion.34

The advantages of phasing the project and developing one sector at a time should be looked into for future projects. In Aranya people are living scattered all over the site, away from anybody else. Each slice or each area should be planned so that it can be filled as soon as possible.

People are not moving into the project for an array of reasons, but mainly because of a lack of confidence in the new environment. Whatever the demand, unless people have no other alternative, they will hesitate to move. Therefore tradeoffs have to be effectively worked out. The role of the community and community-based organization is critical in such schemes in assessing community strengths and weakness and providing the underlying confidence that is needed.
Notes to Chapter 3.


2. Bhopal is the capital of Madhya Pradesh, 300 Km North-east of Indore.


4. Since there was no school of architecture in Indore and no well known architects had practiced there, he organized, in 1982 an exhibition of work by architects from the surrounding states to which the public, developers, and government officials were all invited. Architects who showed works included B. V. Doshi, Anant Raje, Suryakant Patel, Hasmukh Patel, Uttam Jain, and Kanvinde. As part of this exercise, IDA also felt that some of its projects should be designed by these architects. When Doshi visited Indore he was taken around the city and shown the areas to be developed as part of the master plan. They asked him to design either a housing project or a bus terminal, but when Doshi saw a large open area near Dewas, along the national highway and inquired as to what was being planned for it he was told it was for a sites-and-services project. He saw that to the south of this site, Sector 54 was already under development, and asked whether he could do this project. He was told that a project was already being developed by IDA with the government in Bhopal and the World Bank and that the project had already had initial approval.


6. Sharma is presently the chairman and managing director of HUDCO; he moved to HUDCO before the project was finished.

7. The current rate of exchange is 26 Rs = 1 US dollar.


9. Ibid., p. 12.


11. Ibid.


16. Ibid., pp. 9-10.

17. Airoli, a sites-and-services scheme in New Bombay financed by the World Bank and at that time one of the largest sites-and-services projects is typical of sites-and services projects in India.


19. Marie-Agnes Bertaud and Alain Bertaud developed a computational and design model for sites-and-services project. These models can be run on a hand-held calculator or a microcomputer. The intention behind them is to alert planners to the economic advantages of rationalized layouts. But often they are used as an excuse for unimaginative planning and a means to achieve high densities and cheap ways of subdividing land. See Marie-Agnes Bertaud, *A Model for the Preparation of Physical Development Alternatives for Urban Settlement Projects* (Washington, D.C.: The World Bank, 1985).

20. My surveys of households in both Aranya and Orangi show that even people earning the minimum are able to use their links with the larger community to get assistance with building their homes.


22. The houses in Orangi suffered from a similar problem because the foundations were not properly built and are not damp proofed. The results are cracks in the walls and uneven displacement of the walls.


24. In India there is a reservation system to help the so called "backward classes" which includes the "Harijans" or untouchables, tribal and other groups that need special assistance. In October 1990 there were major riots in India when the government increased the quota for these classes in all government jobs and education.

25. In India generally, in housing projects property changes "owners" on what is called a power of attorney. A legal document transferring the power from one individual to another is prepared. This allows the new "owner" to use and defacto own the place. The title is however, still retained in the name of the previous owner. To ensure that the previous owner does not come back to claim the property, a rental agreement for thirty or more years is also signed, making it practically impossible for the original owner to claim back possession. Rental laws in India are such that it make it very difficult for a landlord to evict a tenant and such an agreement ensures against eviction. Recent survey of Bodella housing in New Delhi, shows that over a seven year period, of the 630 families that live there only 10 to 12 original families to whom the plot were allotted are living there. It is also interesting to note that this transfer took place in the first two years of the scheme.
26. Two cooperative housing schemes in Delhi, one developed by the private sector and the other by the government shows that the primary aim of such cooperatives is for financing the scheme. Some restrictions for transfer of property have also been implemented here. See chapter 6.

27. Mulk Raj, Director of Finance, HUDCO suggests putting the house title in the name of the wife, as she is much less likely to sell out than a husband.


29. I was unable to interview a school teacher; whenever one saw me approaching, the teacher would disappear. I later found out that they thought I was from the education department and meant to close down the operation. In Indore city at that time there was a crackdown on kindergartens and schools that were being run without the Education Board’s permission. However, I learned about the schools from the residents who had children attending them.

30. In Khuda-ki-basti project local suppliers were encouraged to set up shop around the township. In principle no octroi tax was to be levied for building materials bought by Khuda ki Basti residents. However, in practice this has not worked. The three octroi posts between Hyderabad and Khuda ki Basti invariably levy a tax. Here police, leaders or the court have been of no help.

31. Narmada is a major river in Central India. There is a River Redevelopment project that has been undertaken with financing from the IMF and the World Bank. The Narmada Valley Project is expected to inundate an area of hundreds of miles drowning out several thousand villages. A major controversy has erupted between environment protection groups who are looking after the resettlement of the villages and government officials in charge of the project.

32. Studies of Indore slums by Rybczynski, et all., How The Other Half Builds, pp. 3-14, they describe common spaces being shared by residents; however, they do not throw light on why and how that sharing of spaces comes about.


34. In Indore one of these projects involves 20,000 families located in river beds or in major access area in the development plan. The National Housing Bank has about Rs 1,000 million for the purpose. Even though a relocation plan has been drawn up and these families will be relocated on IDA schemes or housing board schemes, Aranya Township is not being considered as one possible site. Also no plans that relate to community and family groupings have been worked out.
Chapter 4. Role of the NGO and the Community in Developing Sustainable and Equitable Environments

Over the last decade, a successful experiment in intervening to create an equitable and sustainable community environment has been evolving in Orangi, a *katchi abadi* (illegal or unofficial settlement) in the northwest periphery of Karachi. In March of 1986 the Prime Minister announced that all *katchi abadis* in Pakistan were to be given legal status and could not be demolished. Orangi is the largest low-income settlement in Karachi. Its first houses were built in 1963 in an area that the Karachi Development Authority (KDA) had planned as a colony of over 1,300 acres. After the 1971 war, however, a flood of migrants from Bangladesh poured into the township, and it now extends over more than 7,000 planned and unplanned acres. The population now numbers about 800,000 living in about 100,000 houses.1

The population is ethnically diverse, consisting of Mohajirs (immigrants from India after partition), Biharis (immigrants from Bangladesh), Pathan immigrants from the northern regions, immigrants from Punjab and local Sindhis and Balochis. They include laborers, skilled workers, artisans, shopkeepers, peddlers, clerks, and a few white-collar workers. The average extended-family income is estimated to be around one thousand rupees per month,2 but the number hides an enormous range of income from under 500 rupees a month to about 25,000 rupees a month.3

The Orangi pilot project (OPP) is a non government organization; it has been working in Orangi since April 1980 and has developed various programs which have significantly improved the quality of the environment. According to its director Dr. Akhter Hameed Khan, the OPP has adopted a research and extension approach--research in design and extension in implementation--and over the last
decade it has forged new ground in the development of an equitable and sustainable partnership between local developers or private entrepreneurs (dalals), the local building material manufacturers and suppliers (thallas), and masons. This partnership between the community and OPP has led to the provision of sanitation services, housing, health and family planning services, work centers for women and family enterprise units.

OPP considers itself a research institution whose objective is to analyze existing problems in Orangi, and then provide viable solutions through research that can determine the best technology and systems to be used and then applying those findings to the community. OPP itself does not construct sewerage lines, or set up clinics or schools or industries or houses. It only promotes community organization and self-management. By providing social and technical guidance it encourages the mobilization of local managerial and financial resources and cooperative action.

A survey made in November 1989 shows that Orangi has 110 mohallas, 6,347 lanes and 94,122 houses, of which until recently OPP was involved in about half: 66 mohallas, 3,389 lanes and 49,941 houses. In OPP and non-OPP areas, 64,495 houses have been provided with modern sanitation. OPP’s ability to provide an equitable and sustainable standard of living without direct government assistance has been recognized. Recently the mayor of Karachi recommended that it be extended to other parts of the city and that OPP-RTI (Orangi Pilot Project and The Research and Technology Institute) become the consultants for the replication of the Orangi approach. Akhter Hameed Khan, through a careful examination and critique of how illegal settlements are developed and what role the various actors such as the people themselves, the dalals and the thallawalas play in the development of the settlement, took the idea of self-help and extended it beyond its definition of houses
Karachi and Site Location. (Above, Fig. 4.1) Orangi located 7 km. northwest from the city center. Source: Building Community. p. 82. (Below, Fig. 4.2) Location of katchi abadis in Karachi. Source: A Study of Metropolitan Fringe Development in Karachi. p. 61.
constructed by individuals who will live in them and applied it to the community as a whole. According to Arif Hasan, who is a consultant to the project, “Most of Orangi is a squatter colony developed by dalals. The people here have built their houses with the advice and assistance of thallawalas a housing program in Orangi could not be successful if it aimed at anything more than helping people to continue doing in a better way what they were already involved in doing. To achieve this it was necessary to understand what was happening in Orangi in the housing area and the roles of the various actors in the housing drama and their relationships with each other, on the one hand, and with materials, technology and culture, on the other.”

From this, OPP has developed for Orangi a comprehensive program of “community-help.”

The Orangi Pilot Project’s Development and History

The Orangi pilot project was organized in 1980 after Aga Hasan Abidi, the founder of the Bank of Credit and Commerce International (BCCI) invited Dr. Akhter Hameed Khan to undertake social work in Orangi. The present BCCI scandal has not affected the stature of Aga Hasan Abidi in Pakistan, where he is still revered as a generous philanthropist and as someone who challenged the Western banking supremacy. To date no BCCI banks in Pakistan have been closed nor are they expected to close. The political implications of closing BCCI would be immense as most high placed politicians have been helped by BCCI. However, the BCCI foundation is a separate organization and not directly connected to the bank.

Dr. Khan, now 78 years old, is a social scientist who resigned from a promising career in the British Indian Civil Service to become a laborer and eventually a school and college teacher, as he was unhappy with the British system and was yearning to understand the local culture. He eventually became the
principal of Victoria College in Comilla, now in Bangladesh, in the 1950s. When recurrent floods brought famine and destroyed the economy of the rural areas in that province, the government of Pakistan, invested large amounts in flood control but failed to solve the problem until Dr. Khan pointed out that the real reason for the floods was the break-up of the old feudal system whose institutions had kept the drainage systems functioning. He argued that the only way to stop the flooding was to bring the peasants together and create new institutions to replace the old. This led to his involvement in rural development, in flood control, in organizing peasants, and eventually, the founding of the Comilla Academy which assists peasants in rural development.5

After Dr. Khan became director of the Comilla Academy, Harvard University in 1958 as part of its development advisory service, gave the academy a substantial grant to continue work with flood control and rural development.6 Aga Hasan Abidi was then an executive of the United Bank, then the largest bank in Pakistan. He visited Comilla, met Dr. Khan, observed his work with great interest, and offered the most lucrative terms for getting the grant deposited with the United Bank. In 1979, Abidi, who had already formed BCCI, founded the BCCI Foundation to support philanthropic and development work. He once more approached Dr. Khan, and asked him to organize social projects for the foundation in the squatter colony of Orangi, where at that time thousands of repatriates from Bangladesh were being settled.7

Dr. Khan told Abidi that he was against all forms of charity, but would be willing to undertake a project aimed at developing community organization. Abidi agreed to fund this effort. No target dates were set and Dr. Khan was to be autonomous in every way, an arrangement that distinguishes OPP from other such projects in Pakistan.8
OPP, officially established as the Orangi Pilot Project Society and Orangi Trust, gets its funds from other sources besides the BCCI Foundation; other supporters are UNICEF, the Aga Khan Rural Support Program, the Aga Khan Foundation, the Swiss Development Corporation and other international donor agencies. In the year 1990-91 it was granted, Rs. 2,200,000 from BCCI and Rs. 6,930,381 from other agencies for a total budget of Rs. 9,130,381. Of this it spent Rs. 4,918,560 on both OPP societies, Rs. 4,155,000 in the Orangi Trust which gave out loans for family enterprise work, for a total of Rs. 9,073,560.9

Dr. Khan’s approach in Orangi is based on his conviction that people organized in small groups can help themselves; “if social and economic organizations grow and become strong, services and material conditions, sanitation, schools, clinics, training, employment, will also begin to improve.” 10 Dr. Khan believes that community participation on a large scale without the existence of smaller organizations is impossible. These small organization units should begin with a lane, and then expand to the community. Engineering technology and implementation procedures, the product of the traditional client, engineer, contractor relationship have to be constantly modified to suit the new system, where the users, organizers, and implementors often have little or no technical knowledge or artisanal skill.11 Expert assistance is provided to maximize the use of local resources—personal savings and initiative, manual and managerial skills.12 These principles lay behind OPP’s approach in developing the Orangi Pilot Project.

**Orangi Pilot Program’s Low-Cost Sanitation Program**

Originally Orangi had primitive forms of excreta disposal, poorly laid drains, and no rainwater drainage, creating a dangerously unsanitary environment that led to disease, death, and damage to housing stock. For that reason sanitation was
considered to be a more urgent problem than housing. Water-logged lanes and soakpits were destroying the health of the inhabitants and the value of their property.

Before OPP's sanitation program, most residents used the bucket latrine, where a shell of a truck or car battery would be used for collecting excreta. The sweeper would remove this shell and throw out the excreta into a natural creek (*nullah*). The waste water usually flowed out into the street. The cost of the sweeper service was about Rs 15 per month. The more affluent residents dug soakpits. The cost varied from Rs 1,800 to Rs 3,000. Here too the waste water flowed out into the streets. Also these soak-pits filled up in two to three years. The cost of having the soakpit emptied by the municipal truck was about Rs 75. In most cases after the first cleaning the soakpit filled up every three to six months as it fell further into disrepair. Some residents of Orangi also laid sewerage lines from their houses to the nearest natural drain. However, this was not common and in most cases the work suffered from technical shortcomings.\(^{13}\)

OPP concluded that Orangi’s population should have modern sanitation (flush latrines and underground sewerage lines) in place of the disastrous medieval sanitation that existed there. Dr. Khan was convinced that it was possible for low-income people to install their own systems at an affordable cost. Using simple technologies OPP started using the organizational capabilities of the local leadership in each lane. To do this the modern sanitation system was broken down into its various components:

1. the sanitary latrine inside the house;
2. underground sewerage lines with manholes and house connections in the lane;
3. secondary or collector drains;
4. main drains and treatment plants.
Orangi Township. (Above, Fig. 4.3) View of township. (Left, Fig. 4.4) Filth and raw sewerage in lanes before OPP implemented the underground sewerage program. Source: Orangi Pilot Programs: A Pictorial Case-Study. p. 1.
Through surveys OPP found that the house-owners in Orangi were willing and able to assume responsibility for funding, constructing, and maintaining the first three levels, which made up 80% to 90% of the system. The main drains and the treatment plants, like the main roads and water lines, would remain the responsibility of the central authority.

Through research OPP was able drastically to reduce the cost of construction and to persuade the houseowners to accept full responsibility for it. To do this they simplified designs, standardized steel shuttering for the manholes that could be installed by the home owners themselves. They then surveyed and mapped the site, prepared models, slides and visual aids showing how the sewerage lines were laid out, and prepared instruction sheets, posters, etc.

**Orangi Pilot Program's Approach to Community Involvement**

Removing the mistaken belief that people in *katchi abadis* will be supplied with sewerage and sanitation without charge by the government was the difficult part. When Dr. Khan asked people in the community, it was clear that they wanted a conventional sewerage system, but it was also clear that they were unwilling to pay for it—they wanted Dr. Khan to persuade the Karachi Development Authority (KDA) to provide it free, as it did (or so the poor perceived) to the richer areas of the city.

Dr. Khan spent months, accompanying representatives of the community to petition the KDA to provide the service. When it was clear that this would never happen, Dr. Khan set to work with the community to find alternatives. He would later describe this first step as the most important thing he did in Orangi—liberating, as he put it, the people from the immobilizing myths of government promises.
Once it was clear that the people would have to finance the sewerage system themselves, actually getting them to pay for it was not difficult. The people living in Orangi were not destitute. They were poor, but they had built their houses with their own savings. The house was their most valuable asset, and they were willing to improve it. Soakpits and waste water were causing waterlogging, seriously damaging the houses and reducing their value. The desire to improve their house was therefore a powerful motivation for constructing sanitary lines and underground sewerage.\textsuperscript{14}

**Motivating Community Involvement**

As part of their extension approach OPP next looked for individuals in each lane willing to act as leaders and trained lane managers and masons; provided and explained maps and estimates; loaned out tools and shuttering, and provided social and technical guidance and supervision.

Motivating the residents in Orangi was achieved by OPP’s “social motivators,” that is, local residents who had been involved with the development of Orangi. One was a *thallawala*, another had assisted a land-subdivider, another had been a building contractor, and yet another a plumber. They were responsible for communicating with the people, organizing meetings and helping settle sociological and organizational problems. With the help of slides, posters, and leaflets, the benefits of OPP’s low-cost sanitation was explained. In these meetings the importance of lane organizations was stressed; no technical assistance was possible without such an organization.\textsuperscript{15}

Another motivating factor was health, especially of children. Mothers saw most clearly the connection between filth and disease, and realized that sanitary lines and dry lanes would reduce disease and the price paid for it. Installing the underground
sewerage system would also stop the expense of cleaning overflowing soakpits and solve the problem of not getting timely help at cleaning the soakpits.

Lane as a Unit for Organization
The most important decision made by OPP was making the lane, which consisted of twenty to forty houses, as the unit around which community involvement was planned. The lane was a small unit where all people know each other, so problems of mistrust would not arise. This also meant that OPP did not have to involve the existing political leadership in Orangi, which functioned at the neighborhood or sector level. The selection of the lane as a working unit, however, caused technological problems in developing an underground sewerage system, but they were eventually solved quite ingeniously.

Each lane selected its own lane manager, who on behalf of the lane formally applied to the OPP for assistance. There was no standard structure for the organization; it varied from lane to lane. The lane managers collected the money, received tools from OPP, and organized the work.16

OPP’s simplified design and method of construction reduced the cost of sanitary latrines and manholes to less than a quarter of the contractor rates. The system also eliminated kickbacks and profiteering, and this further reduced the cost to an investment of one thousand rupees (an average month’s income). The residents were asked to consider the lane as an extension of their house and to manage and finance it as they have financed and managed their own house. Initially, OPP staff met with resistance and grumbling. However, slowly and over a period of two years, the message was got across, and after the first couple of lanes accepted the idea and started the work, the others followed.
Community Involvement. (Left, Fig. 4.5) Secondary drains being constructed. (Below, Fig. 4.6) The community maintaining their sewerage lines. Source: Orangi Pilot Programs: A Pictorial Case-Study. p. 4.
To convince the residents to participate, OPP staff had to redesign the proposed sewerage system to allow individual lanes flexibility to decide and organize how they would work. Concentrating on lanes as the unit for involvement was important, as it gave OPP time to assist lane managers in organizing the other lanes. Residents were also able to see the results in the lanes that had already implemented OPP's proposal, which helped convince both those residents and international development agencies that were questioning OPP's approach that the system worked--physical conditions were improving and pollution was less.

The Sewerage System and the Technology Used

Physical planning was done for one lane at a time. Invariably in the beginning only those lanes which were located near a creek (nullah) or could easily discharge into it participated in the program. However after four years, by 1986, the unit of operation increased to entire neighborhoods.\(^{17}\) This also came about because of a change in design for the sewerage system used.

The design of the original sewerage system was that sewerage be discharged into the open creek (nullah) running through the settlement. However this meant that the problems of the lanes was simply being shifted to the creeks. Initially only those lanes that were located near the creeks benefitted from the program. The lanes far away from the creeks had to come together first to lay secondary drains to reach the creeks. This would have been difficult and would also take much longer. It was felt that many sewerage lines would clog up occasionally and would have to be cleaned out. However due to the lack of water, proper flow of sewerage in the lines was not possible.

To overcome these problems; it was decided to place a one-chamber septic tank, or haudi as it is known locally, between every connection. This mini-septic tank
prevents solid matter from flowing directly into the drains. A ‘T’ joint at its outlet is designed to prevent scum from entering into the sewers. The size and design of the haudi were determined by its cost to the user and not by any engineering standard. The haudi was to be emptied when full by the respective households. To popularize it and educate the people in maintaining it, meetings were held and posters prepared and pasted on the walls in each lane. The building of the haudi has added to the cost but this had to be done in order to provide a better and disease-free environment. The haudi is connected to a square manhole which has a 6” or 9” diameter reinforced concrete pipe laid along each lane. Connections to household squatting pans are through a 4” diameter reinforced concrete pipe.

The manhole was also changed from a circular manhole designed specified by the municipal corporation. This manhole required skilled labor and cost more; it was also too light. People could easily lift it and throw in garbage. To stop this from happening the manhole cover was changed into a in-situ concrete slab, which was too heavy to lift and projected beyond the manhole chamber, reducing the need for highly skilled labor. The cost of the manhole was also reduced to Rs 120 from Rs 400 per manhole. OPP supplied the re-usable steel shutters for this type of manhole construction. The pipe diameter, 6-9 inches, was oversized in order to give the advantage of more tolerance for errors in slope when working with unskilled laborers.

Secondary drains were eventually introduced. The design and implementation of secondary drains is more complex than the lane drains. Technically it involved calculating the location of lane drains and their slope without a master plan. This has caused problems initially where, because the calculation was incorrect. The connection did not meet. At this stage locally elected councilor’s were involved as they were seen to be most effective in persuading neighborhoods to join in. They
Sewerage System. (Above, Fig. 4.7) House to manhole connection with the haudi (old system). (Below, Fig. 4.8) House to manhole connection without haudi (new system). Source: OPP: A Report on a Filed Visit. pp. 12-15.
Sewerage System. (Left, Fig. 4.9) Sewerage lines being constructed. Source: Orangi Pilot Programs: A Pictorial Case-Study. p. 3. (Below, Fig 4.10) Lane after sewerage lines have been constructed.
were also used to pressure the municipality into financing the people’s scheme. Councilors get money from the municipality for specific development works in the areas they represent. The number of neighborhoods that are now forcing councilors to spend funds on laying underground secondary drains is increasing as they are now aware of the advantages of having the whole system functioning effectively. More recently water supply has increased, and with the laying of most lane drainage and secondary lines, the haudi has been eliminated from the design.

Since 1981 under OPP auspices people have installed sewers serving 45,014 of the 49,941 houses that OPP was allowed to work with. Another 19,481 houses in the non-OPP area have also been provided with a modern sanitation system for a total of 64,495 houses. From 1982 until 1989 OPP’s sanitation program was restricted to only half of Orangi (no such division was made for OPP’s housing program). OPP is now permitted to work in all of Orangi. The total investment by the people themselves in both OPP and non-OPP areas, for sewerage lines in lanes, latrines in houses, secondary drains and rectification of work that was not done properly is Rs. 47.5 million; OPP’s investment in research and extension up to December 1989 was Rs. 2.8 million, a ratio of 1:17.5. In areas which OPP has provided services, 87.3% of lanes have underground sewerage and 88.9% houses have latrines. In non-OPP areas, 38.4% of lanes have sewerage lines and 42.5% houses have latrines. The average cost for installation is Rs. 752.7 per house. Comparing actual costs in OPP areas with the cost where the Karachi Municipal Corporation has intervened in Orangi shows the OPP’s cost of providing sewerage lines in lanes was about Rs. 15.28 per running feet; KMC’s cost was Rs. 90 per running feet, a five-fold difference. OPP is able to provide its services at a very low cost because the scheme is both self-financed and self-managed, and the
Sewerage System. (Fig. 4.11) Extent of sewerage lines financed and managed by the residents as of April 1991. Source: Orangi Pilot Project.
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maintenance is paid for by the home owners precluding the need for revolving funds and avoiding recoveries and defaults.

The lessons learnt from the sanitation program gave the OPP research and training program the expertise needed to solve other problems and improve the quality life in the housing program. They showed that katchi abadis in Karachi can build their sewerage on their own without international aid, without waiting for the local bodies to take decisions, without resorting to large-scale technological changes, and without catering to a system of development where corruption is an integral part. Furthermore, in the process of acquiring these services OPP has brought about a change in the unequal political relationship that people have had with their governments and has developed their trust in OPP. The Orangi Pilot Project no longer needs to motivate the people into organizing for the sanitation program. The people organize themselves, and it is their representatives who approach OPP. Instead of one lane at a time, now whole neighborhoods represented by their councilors are approaching OPP for technical know-how.

**Lessons of the Sanitation Project**

The focus of OPP's work was to lower the cost of sanitary latrines and sewerage lines to such an extent that the house owners of Orangi could afford to pay it. Without this drastic reduction in cost it would not have been possible to persuade the low-income families to undertake the responsibility of self-financing, self-managing and self-maintaining the underground sewerage lines. Bringing the cost down through extensive research enabled them to have a successful community participation program.

Some of the noteworthy features of the sanitation program that we may be able to replicate in other housing projects are: (a) In order to effectively undertake the
project and let the lane residents be in charge of the project, no master plan was
done and no time targets were fixed. Necessity, ability, and strength of social
organization dictated the timing. (b) Community participation involved only the
implementation of the project; the design and research were done by professionals.
(c) Political involvement was minimal and all residents were treated equally. (d)
The project itself was simply organized without any fanfare; only when the project
became widely accepted did local councilors organize their neighborhoods to do the
work. (e) Bureaucracy and red tape were completely eliminated. The official
hierarchy was only maintained in documents, otherwise all workers were treated
similarly. (f) Local technology and materials were used. The suggestion of plastic
pipes instead of reinforced concrete was not accepted as plastic pipes are
manufactured using imported technology and the local building suppliers would not
be able to deal with it.

**Orangi Pilot Program’s Housing Program**

In 1986 OPP started a housing program following the same research and extension
approach. Most of Orangi had been developed by *dalals* (local developers and
private entrepreneurs) and houses had been built with the advice and assistance of
*thallawalas* (local building material manufacturers and suppliers).

Whenever land was subdivided in Orangi, a building contractor moved in and
established a manufacturing yard for blocks, lintels, pipes and slabs. Asbestos
sheets and other industrial roofing material are also stocked by them. In Urdu the
building material yard is called a *thalla* and the yard owner *thallawala*. The
*thallawala* has been responsible for the building of Orangi houses. He not only
supplies materials and labor on credit to the new plot owner but also cash credit at
times. His profit margins are low and most do not use physical force to recover
dues--social pressure is far more effective. Most people want to live here and do not want a bad name. The thallawala is indispensable to the community, and his advice and intervention is sought in most public and personal matters. Besides the production and supply of building components and the extension of credit, the thallawala also plays other complementary roles; he coordinates skilled labor for construction, imparts technical advice, supplies tools and accessories on rent, coordinates the sale and purchase of plots and houses and also serves as a social worker of their area.23

In the earlier part of the subdivision, most plots were 80 sq. yds.; in the recent subdivisions further to the north and west it is 120 sq. yds. The quality of houses and their construction have improved substantially since the 1970s when most houses were jhuggis (shacks made of reed mats and bamboo). Today most of the houses are block masonry with asbestos or tin-sheet roofing. A small but increasing number are being built in reinforced concrete, the ultimate in affordability and social status. The permanent nature of this construction is a function of security; structures in these areas have been legalized and owners have property rights. The cost of an 80 sq. yd. serviced plot sells for anywhere between Rs. 60,000 and Rs. 100,000, far beyond the reach of any poor person. In the 1970s when the subdivision was taking place plots were being sold for Rs 1 a square yard.

House Construction

House construction in Orangi has been incremental, the quality and extent of construction depending on the availability of resources at any given time. By now the settlement is old enough that most areas in Orangi have essential services. With the emergence of the thallawalas as a strong local service center, building materials
Housing. (Above, Fig. 4.12) Courtyard Houses. (Below, Fig. 4.13) Courtyard houses with different roofing materials ranging from asbestos sheets to concrete.
and other components and tools are also readily available on credit. The result is the permanent (concrete and block masonry) construction that we see today.²⁴

In Orangi, studies carried out by the OPP show that 5-7% of the houses were built by the people themselves without any help. These houses are mostly one or two room affairs and are made from temporary or semi-permanent materials such as rubble, mats, timber, polytene or plastic sheets, and industrial rejects. The construction is unsound; the roofs leak, the stone walls are not properly bonded, and the structure in many cases cannot withstand strong winds because there is no foundation for the walls. Their cost is about 4,000-5,000 Rs. and they take 2 to 4 days to build.

Fifty-five to 60% of houses were constructed with the help of skilled masons and unskilled labor hired on a daily-wage basis. Material were purchased by the owner from the local thallawala. Construction was supervised by the owner and his family members. Sometimes the support and help of family members also extended to getting credit and materials. Houses in this category were made of precast concrete block foundations and plinths. The walls were made of hand-made earth blocks. The roofs usually consist of galvanized iron sheets supported on angle iron trusses or timber joists. The walls were often un-plastered and the floor was of cement. These houses cost about Rs. 35,000 to 40,000 each when they were built in 1986. Most were single-storey with 3 rooms, a kitchen, a bath and latrine built around a paved courtyard. The doors and windows were of steel. The construction was usually completed in about 4 to 5 weeks. Sometimes one room and kitchen, bath and latrine were built before other rooms are added in the second or third phase of the development of the house.

Fifteen to 20% of the houses were built on labor rates by contractors hired by the owner. They cost about Rs. 50,000 to Rs. 55,000 each but were otherwise
identical to the houses just described above. Four-5% of the houses in Orangi are classified as permanent structures as they have in-situ concrete plinths, plastered walls, and reinforced concrete roofs and cost about Rs. 70,000 each. The permanent roofs is what classifies these houses as pucca or permanent. In the fourth stage an upper floor is added and tin or asbestos sheets are reused from the lower floor when the roof for the upper floors is built. However, in most cases because of structurally unsafe wall strength, and improper foundations, the whole room over which the new floor is to added is rebuilt.

Faults and Problems in House Construction
This process of house construction was full of problems and wastage. Technically, construction was sub-standard due to the lack of technical knowledge of the mason and lack of adequate supervision by the owner. Substandard workmanship, lack of curing of concrete, and faulty details were common. The galvanized iron roofs leaked because of incorrect transversal and longitudinal overlapping and insufficient slopes; roof supports sagged, and the unplastered walls absorbed water when it rained. The most serious defect, however, was the erosion of plinth walls and foundations from sulphate in the soil and the consequent rising damp in the walls. Another source of weakness was the use of sub-standard hand made blocks, the main building component for walls and foundations. They were usually not dried long enough and the concrete was not cured long enough, causing cracks in the buildings that led to eventual collapse. Most houses had faulty ventilation and sanitation systems (though the latter has since been addressed by the sanitation program); the ventilation in most houses was non-existent. The use of galvanized iron or tin for the roof made the interior of the house unbearably hot in summer.
When houses were extended and new reinforced concrete roofs put on them, the walls usually had to be rebuilt, wasting the previous construction, and consequently both material and money. This was also true when floors are added—foundations and walls had to be rebuilt and the investment made at phase two and three was wasted. In phase four the upper floor was added, construction was affected to such an extent that nearly the whole house had to be reconstructed.

**Orangi Pilot Program’s Approach**

OPP’s approach to solving the structural problems of the houses in the area was based once again on its research and extension model. Research in the operation of *thallas* in Orangi was undertaken to understand how they operate and how OPP could bring improved technology to them without disrupting their operation. Very early on OPP recognized that any hope of success in improving housing depended on the participation of the *thallawalas* in reforming the building manufacturing process. OPP first set about improving the thalla-made blocks on site. This is in direct contrast to most other efforts that are being made, where research into improving building construction and material technology is conducted either at local educational institutions or by the national building research centers where improvements would have been apt never to reach the people concerned.

OPP through research introduced standards for construction and design of buildings elements such as improving hand-made blocks to machine-made blocks, improving the production of a precast lintel and a precast staircase and introducing a new batten and tile roofing system. In addition they also designed foundations for load-bearing walls, developed standard house plans and designed new windows and wind-catchers for ventilation. As part of their extension program they developed the thalla as a research and extension base, they provided training to
Construction Problems. (Left, Fig. 4.14) Cracks in walls and foundation due to use of substandard materials and techniques. Source: *Orangi Pilot Programs: A Pictorial Case-Study*. p. 9. (Below, Fig. 4.15) Water seepage in courtyard.
Construction Problems. (Above, Fig. 4.16) House showing weathering and sulphate attack. Source: *Orangi Pilot Programs: A Pictorial Case-Study*. p. 10. (Below, Fig. 4.17) Use of mud-bricks to hold roofs of corrugated tin and asbestos in place.
masons for using the new building components, provided plans and estimates, lent tools and shuttering and provided supervision and technical guidance.

**Machine-made Blocks**

There are about 200 thallas making concrete blocks by hand. The most popular sizes produced are blocks of 3-3/4” x 5-3/4” x 9-3/4”, known as cut size and 4” x 6” x 10” (full size), which together constitute about 95% of production. The cut size is both more profitable and most produced. Technical problems in the blocks result from poor compaction, curing and improper mixing of cement and concrete. These make the blocks brittle and prone to weathering and sulphate attack. These sub-standard blocks are only capable of bearing a load of 100 pounds per square inch (psi), an eighth of what is required for good construction.

Improving the quality of the blocks made in the thallas was therefore essential. To ensure uniform mixing, firm compaction, and curing, block-making was mechanized. After extensive research OPP perfected a block-making machine in 1987, which would work on a miniature scale, so that each thalla would be able to purchase its own mechanized block-making machine, a concrete mixer, vibrator, pump, and moulds. A local supplier was found, and after suitable modifications the machine was made available to thallas at Rs 75,000 each. OPP loaned the money to buy the machine. In all 29 thallas are now producing machine-made blocks, four of which are working under the supervision of OPP. Each has received a loan which they are paying back at the rate of Rs. 2,000 a month.

The machine-made blocks are four times as strong as the hand-made blocks, and cost 30% more. They were initially sold at the same price as the old blocks to ensure that people would buy them then. OPP demonstrated that the thallas could recover the cost because mechanization had tripled the daily production from 700-
Construction Material. (Above, Fig. 4.18) House made of standard hand-made blocks. (Below, Fig. 4.19) Machine-made blocks being manufactured at a local thalla using a block-making machine.
800 blocks to 2,000-3,000. Machine-made blocks are also larger, 6” x 8” x 12” so the total number of blocks needed is reduced. Therefore, even if the new block costs more than the old blocks the total cost remains more or less the same and the new ones have the advantage of a load bearing capacity of 800-1000 psi, allowing an additional storey when desired without rebuilding. They also eliminate the need for reinforced concrete columns in two-storey structures and they support reinforced concrete roofs.

**Lintel and Staircase Design**

The design and production of the lintel were also improved by demonstrating to the *thallawalas* the importance of mixing cement and *bajri* (sand) in the correct ratio, of proper placement of reinforcement bars for optimum strength, and of building simple hangers to keep a half to one inch of space between the bottom of the lintel and the bars to achieve the right strength. Misplacement of reinforced bars not only causes the lintel and slabs to flake, but throws load distribution off balance, leading to a weakening in strength of both the slab and beams used.

OPP has also introduced the design of a staircase built with pre-cast slabs. Its components cost Rs 2,000 compared to Rs 4,000 for a reinforced concrete staircase. The pre-cast slab staircase takes less space and can be constructed in 3 days compared to 15 days for the reinforced concrete staircase.27

**Foundations and Ventilation**

OPP has also developed simplified foundation design, where plain concrete footings have a load bearing capacity of 2,500 psi and are strong enough to for a ground-plus-one-storey house. Two alternatives, one for soil-bearing capacity of
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one ton per sq. ft., which has a wider footing of 3’ x 3” and another with a shorter footing of 1’ x 9” for soil bearing capacity of two tons per sq. ft., were developed.

Ventilation in existing houses was improved window design and location. In case of using the new roof, the ceiling was made 10 feet high and fan lights were designed to improve air circulation. Air circulation was also improved by locating a 1’-0” x 4’-0” window on the windward side and a 4’ x 4’ window on the leeward side, installed at 2’ height from the floor level. Also the traditional concrete or brick jali (grille) was replaced by a new flat iron grille which covered 3/4th the length of the room and was 1’ x 6” in height. The new grille cut down the dust accumulation and was easier to clean and maintain.

On the roof, vents were designed as openings in the ceiling covered with a grille to allow light and ventilation. However, they have run into problems as chickens are raised on the roof here, and chicken and other bird dropping tend to fall into the house.

Role of the Thalla

These simple improvements in technology and quality have been important and have avoided the necessity of OPP having to set up its own thallas to compete with the existing ones. OPP realized that the thalla was an institution that played both major and complimentary roles in Orangi. The thallawala’s relation to his customers is both social and commercial. The credit he provides is flexible and informal, and repayment depends on the social pressure the thallawala can exert on his clients.28

On the average a thalla employs 4 or 5 people. In 50% of the cases the thallawala is illiterate and has to employ a munshi (accountant). Laborers hired for the production of blocks, lintels and slabs are paid by the block or by the sq. ft. in the case of slabs and lintels. The average wage is 0.50 Rs per sq.ft. and 0.15-0.25
Rs per block, depending on size. Wages are paid monthly, but the workers are given a daily allowance (*bhatta*) of Rs 10-15, about 20% of their daily wage.\(^{29}\)

Beside employing labor and an accountant, the *thallawala* also employs a cart driver, either on contract or on wages, to deliver the finished product. Cartage is a source of profit; 66% of thallas own donkey carts. The driver’s monthly pay ranges from Rs 900-1,200, and the expense of maintaining the donkey is about Rs 300.\(^{30}\)

OPP’s recognition of the thalla’s role in the community was important; it encouraged the thallawala to accept OPP’s recommendations and purchase the mechanized block-making equipment. Even so, however, the number of thallawalas that are manufacturing mechanized blocks is not sufficient to meet the local demand, partly because OPP’s studies found that those thallawalas who make mechanized blocks sell 70% of them to customers outside Orangi. By March 1991 thallas in Orangi had sold 5.5 million-machine made blocks of which only 1.6 million stayed in Orangi.\(^{31}\) Although the use in Orangi of machine-made block is slowly increasing, the demand from outside is still much greater and *thallawalas* sell to whoever comes to them first.

When a house owner goes to a thalla to get machine-made blocks, in most cases they have to wait a month or so for delivery. Time set aside for construction of home improvement is very limited, work generally has to be done in 15-30 days, and delaying work because blocks are not available, causes great inconvenience to the family. In addition there might not be another thalla close enough for the house owner to go to. The house owner is unwilling to wait, and buys hand-made blocks instead.

Another reason for thallas selling so many machine-made block outside Orangi is that they do so through dealers. Consequently orders are much larger than those
placed by individual homeowners. Selling to dealers assures thallas of future and long-term orders and a constant source of income. Therefore even if local demand increases, the demand from outside is much more lucrative.

**Batten-and-Tile Roofing**

After having established a working relationship with some of the thallawalas in Orangi, OPP turned to providing an alternative roofing design using batten and tiles. People with low incomes build houses first with tin or asbestos roofs, and eventually remove the roof and replace it with a permanent one. To do this the old walls have to be demolished entirely. The cost of reinforced concrete used for the new roof is also unaffordable to most, so in fact roofing improvements to houses are rarely undertaken. Most of the urban poor continue to live under roofs that are too hot in summer and leak when it rains. The batten and tile roof design is an innovation based on precast roofing design. The technology of producing precast beams and slabs was modified so that they could be manufactured by thallas.

The new slab is 2’ x 3’ in dimension, more like a large tile, and is 2” thick. It has reinforcement bars of 1/4” diameter, 3 of them in each direction. The screeding on top of the slab is about 1 1/2” to 2”. It also includes a layer of water-proofing and is evenly finished to form an impermeable surface. The new slab being smaller in size is lighter and can be lifted in place with a small pulley. Most precast slabs are much larger and need a sophisticated lifting system to be put in place. Being smaller it can also be thinner, making it lighter. The required thickness is then gained by screeding. The batten is 8” x 4” X 3” which supports the slabs, with a ring beam of 3” x 6” that goes around the wall.
Construction Material. (Fig. 4.20) Precast batten-and-tile roofing design for span ranging up to 15 feet. Source: Orangi Pilot Project.
Batten-and-Tile. (Above, Fig. 4.21) Interior of room before using batten-and-tile roofing. (Left, Fig. 4.22) Interior with batten-and-tile roof and walls of machine-made blocks.
Batten-and-Tile. (Above, Fig. 4.23) Exterior facade of a house using machine-made blocks and batten-tile roof. (Below, Fig. 4.24) Facade of house using batten-and-tile roof manufactured outside Orangi and without OPP assistance.
The thallas pay Rs 60,000 for the purchase of moulds, vibrators and curing tanks to produce the slabs and battens. This investment adds another product for the block-making thalla. The cost of a batten-and-tile roof works out be Rs 21 per sq. ft. The 1 1/2” screeding costs Rs. 4 per sq. ft; the ring beam Rs. 3 per sq. ft., and labor cost are Rs 7 per sq.ft., for a total cost of Rs 35 per sq.ft. An asbestos roofs costs about Rs 25 per sq.ft.32

The batten-and-tile roof has significant advantages over asbestos, tin or reinforced concrete. It allows for a double storey extension; it has the same strength as reinforced concrete roofing; it allows the house to be rebuilt incrementally, room-by-room, allows for expansion and has flexibility of growth. It is quick: using this technology a room can be built in a day. It is cheaper: reinforced concrete costs Rs 60 per sq. ft., about 40% more than batten and tile. It also allows no flexibility; the whole house has to be built at the same time.

Reinforced concrete columns can be added to existing 4-inch walls by cutting wall corners and adding a ring beam, the structure is then strong enough to carry an upper storey. Using this technique it is not necessary to demolish all the walls; 40-50% of the existing wall is saved. This means that houses with old walls can be provided with new roofs incrementally and, if needed, an additional storey could be added without much cost.

As of now, only one thalla is producing and supplying batten and tiles. A second thalla will join it, but has not yet started regular production because its moulds proved defective. Two more thallas have shown interest in batten-and-tile manufacturing.
Mason Training

A mason training program was introduced in 1987 as part of OPP’s effort to improve the skills of masons working in Orangi. They receive training in construction techniques, the proper use of equipment, the importance of waterproofing, proper earth compaction, curing, proper ratio for mortar used in jointing, to use the batten-and-tile roofing system, in building correct foundations for walls and in building precast staircases.

An important aspect of their training is to learn to provide adequate ventilation using skylight, vent cowls, and the courtyard. Training is been imparted through class lectures, meetings, instruction sheets, leaflets and manuals, and on-job supervision. Ninety-six masons have been trained thus far.

Analyses of Orangi Pilot Program’s Housing Program

OPP, through its research and extension program, acts as a consulting agency to the home owner when extensions or new houses are built. When the home owner decides to build an extension, add a new roof, build an upper storey, or build a new house he has usually had two options: he can ask the thallawala for building material, consult with him on how to build and have a mason referred to him, or he can approach a mason for the construction and through the mason approach the thallawala. With the introduction of OPP’s housing program, the home owner now has the third option of approaching OPP for these services. Unfortunately many are not aware of OPP’s housing program, as it is not well advertised. Lack of trained masons and not enough thallas manufacturing the required building materials have also slowed down the effort.
Since 1986 OPP has provided fifty households with services ranging from structural redesign and ventilation improvements, to new reinforced concrete structures, machine-made block walls, and batten-and-tile roofing. For this study, twenty of these houses and twenty houses where OPP did not provide its expertise were surveyed. They included houses with no recent changes and those that had undergone substantial changes, some that pre-dated the batten-and-tile roofing system and some using machine-made blocks. The survey showed that in both OPP and non-OPP houses 95% were owners of their property and 5% were renting the premises.

Of the houses surveyed over 60% of occupants were introduced to OPP through the thallawala; 35% had become aware of OPP’s housing program in other ways, or were employed by OPP; 5% who came to OPP had been advised by masons who had received training from OPP. Once the occupant decided to use OPP’s services, which is provided free of cost, OPP prepared a plan, worked out the quantities required, and gave an estimate of construction and material costs. They also suggested design modifications, particularly to improve the stability of the structure and the ventilation. After the plan was prepared and estimates made, a work schedule was drawn up, materials ordered, and work commenced. During construction OPP provided supervision to ensure quality of construction. OPP also loaned equipment for lifting the batten and slabs when new roofing is being done. Other equipment is also loaned to masons during construction.

The survey showed that in general, the overall condition of houses where OPP has intervened is much better than those without OPP interventions. Houses without any improvements in the sample were generally at the second stage of development, that is, they had walls are of hand-made blocks covered by galvanized iron roofs. The condition of the houses reflected their income: the poor lived in
structures with unplastered wall with cracks in them, the roof had leaks and holes, slopes for draining rainwater away from the house were not adequate, flooring was cracked and uneven and ventilation in most cases was non-existent. In houses where the occupants earned combined incomes of around Rs 5,000 per month, the houses were in better condition, the walls were plastered and maintained, the roof had no holes, but the ventilation still was insufficient and improvements were needed.

Where additions or improvements had been made, 95% of them used RCC construction. In only two houses, did people use batten-and-tile roofing without OPP assistance. In these houses the condition of the structure and quality of construction were fairly good, but ventilation had still not improved.

In houses where OPP had provided services the conditions of those rooms where improvements had been made were good. Where new batten-and-tiles roofs had been added the ceiling height had been increased to 10 ft. improving ventilation. However, in rooms where no improvements had been made, the conditions were similar to unimproved houses. OPP’s technology has definitely improved conditions, even in older interventions where only guidance to improve ventilation by introducing vent windows under roofs had been given.

The survey showed that in over 60% of cases, OPP’s suggestions for design improvement and ventilation had not been followed. In some cases they were too expensive; in others, the homeowner had been convinced by the mason that these changes were not required and that the slab openings for wind would leak. The design of OPP’s wind-catchers were not accepted because it was felt that it would cause problems in upper story expansion or had problems with dirt falling into the room.
Problems in OPP's approach

Of the houses surveyed, 15% complained of problems. The most frequent complaint was that work had not been done properly due to lack of supervision. In one case a staircase was built improperly; in another, a chaaja or lintel had not been installed over the window to keep rain out. The problem could not be rectified because the beams ordered had been too narrow to project out of the walls to install the lintel. In another house, finishing and screeding of the slab were done improperly causing leaks, and in some houses slabs had not been vibrated properly, and air bubbles had caused water seepage.

Other complaints had to do with the masons themselves. Frequently they disappeared for days, delaying the project. Another complaint was waste; materials overran estimates. Owners were not sure who was responsible and in most cases they blamed OPP for the overruns.

OPP's intention in providing supervision had been to avoid precisely these problems and to check the quality of construction. Most of the problems had been committed when OPP staff was absent or inattentive. It must be pointed out that most problems occurred when the technology—for example, the use of batten-and-tile—had just been introduced and OPP, thallawala, and mason were all learning the technology. However, the problems were severe and steps to solve them must be taken.

Some of the problems that arise are due to the fact that people are not aware of what OPP's role is meant to be. The more successful OPP is in its advertisement campaign, the less it will be able to afford to provide supervision for its housing program. It already does not have sufficient staff to provide adequate supervision for all the houses it prepares plans and estimates for. Increasing the number of
trained staff will increase its overhead. Instead, OPP should spend its energies on adequately training more masons and thallawalas, and making them responsible for quality control and on literature that allows homeowners to supervise construction, which they are already doing when the conventional technology is or and when OPP’s services are not used. OPP should provide partial supervision.

OPP must draw up a clear statement outlining its responsibilities and identifying the stages at which it will provide supervision. This will make the homeowner aware of OPP’s role and responsibility and that of the thallawalas and masons. As it stands, everyone assumes that since OPP has developed the technology all problems associated with its construction are OPP’s.

**Recommendations**

The total number of houses being built or renovated is much higher than those under OPP supervision. The number of houses under construction is unknown but there are many. In every other lane there is a house under construction. Few of these are using OPP’s services. Of the twenty houses surveyed in which OPP had not intervened, 95% of the owners were not even aware of OPP’s housing program, though they were aware of OPP’s sanitation program and all of the non-OPP houses are located either next to or across from houses where OPP is providing services. Clearly OPP needs to do a better job of advertising its housing program through posters and literature distributed at all thallawalas, including those that are not yet part OPP’s program, and asking masons that have been trained by OPP to tell those owners that are about to undertake home repair about OPP’s housing program.

OPP was successful in organizing the collection of money for its sanitation program using lane managers. This experience they are trying to build on and
establish local loan-granting centers for home building. However in this case loans will be given to individuals or families for home improvement, and not for community improvement as in the case of the sanitation program.

Studies undertaken by OPP highlight the role the thalla plays in the community and the services it provides. OPP wants to build on this and is considering expanding the thallawalas into loan-granting centers. According to this scheme, OPP would provide funds to thallawalas which they would then distribute for home improvements. Each thallawala would be responsible for collecting payments and turning them back OPP. Unfortunately for this scheme most thallawalas seem unwilling to assume this responsibility. They will be obligated to OPP if they are unable to collect the money and will have to make good the loss. Thallawalas have already been providing material on credit, but in this scheme they will be expected to provide money that is not their own. This, they feel, is too great a responsibility.

In addition, material on credit is given only to those persons the thallawala knows and trusts to pay his bills. Only a portion of the material is given on credit, and in most cases the credit is for a month, the same terms that he gets from his own suppliers. However if the thallawalas start distributing loans they will have to institute a monthly or weekly collection system, increasing their responsibility. To whom is the thallawala to give a loan and whom to refuse? The thallawala could be pressurized into giving loans out for emergencies, etc. To exert pressure on those who default may also be difficult and lead to strained relations with his customers affecting his primary business of providing construction materials.

The house survey showed that in 95% of cases people had access to money. At least one member of the family was employed and working either in a factory or in some company, and loans were available from their employers. Others participated
in some kind of a pool or saving scheme, which gave them access to money. Still others sold part of their land and used the proceeds to build on the rest. In some cases people had bought double plots when they first moved to Orangi and sold the second for a substantial sum. Few inhabitants have no access to money or savings. Of these some would not qualify for any loans since they are in no position to pay it back. OPP should be targeting its loan scheme to reach this really needy group. It should also find some other outlets than the thallawalas for distributing money. To turn the thallawalas into quasi-bankers would lead to complications in their relationship with the community and with OPP whose money they are responsible for.

OPP besides its loans for the block-making machine is now considering giving loans to groups of thallawalas to buy trucks, so that they do not have to depend on others to transport bajri (sand). The reaction amongst thallawalas to the truck fund is mixed. Although they all agree that having a truck would make it easier for them to get sand, some are wary of sharing a truck with other thallawalas. The idea of forming an “association” or “cooperative” among the thallawalas was rejected because similar ventures have already been tried and have ended into conflict. However, thallawalas who have neither the money nor the space for mechanization, have shown interest in becoming sales agent for machine-made block, an idea which OPP should pursue.

Summary

OPP’s housing program in Orangi, has been successful in achieving its major aims of providing improved technology that can readily be used by the community and improving the quality of the housing. The development of low-cost technology such as machine-made blocks and the batten-and-tile roofing system is both
equitable in its approach and sustainable in the long run. Using its research and extension approach, OPP has shown a clear understanding of how low-cost technology should be adopted and developed. Their understanding of the local home building process has enabled them to introduce the most appropriate products.

With the introduction of machine-made blocks manufactured locally, OPP has brought to the community what they would otherwise have to get from outside at a much higher cost. The improvement to wall foundations, the batten-and-tile roofing system and the ventilation shutters are all important products that are appropriate for the community not only in Orangi, but in other communities in Karachi and elsewhere with a similar climate and soil conditions.

OPP needs to extend its program so that it has a broader impact. However, before it can do that it has to improve the technical level of the masons and its own staff so that it can provide the kind of services that the community has come to expect. Extending and improving its machine block making and batten-and-tile program is necessary. At the present level the output is inadequate to fill the demand, and this can only get worse as OPP’s outreach and information-dissemination efforts expand and the community becomes more aware of the technology it provides.

OPP needs to reevaluate its proposals for extending the role of the thallawalas. A loan-distribution program through thallawalas has the potential for damaging OPP’s reputation. However, developing the thallawalas as a resource should remain a priority, and more of them should be introduced to the improved technology. OPP should recognize that thallawalas need not belong to OPP’s program. Competition must be encouraged and batten-and-tile-manufacturers outside Orangi should be encouraged to set up their thallas or distribution centers in
Orangi. Increasing the availability of improved blocks and batten-and-tile will encourage more people to use it.

Now that OPP has officially been accepted by the mayor as the agency for implementing the principle of ‘internal’ development by the residents and ‘external’ development by the Karachi Municipal Corporation, it will be under pressure from the government officials to show results. Therefore it must try and deal with those problems it can control and refrain from moving into the business of lending money.

Its success in adapting simple technology and in drawing on the ingenuity of local institutions and skills available in the community has important lessons to offer to other communities. OPP’s approach fundamentally questions our present housing delivery system. It has provided us with an opportunity to take a new look at housing and community development. It has shown that housing and its services can be divided into two categories: ‘external’ and ‘internal’. External activities should remain the responsibility of the municipality or other government agency, and ‘internal’ those the local community should control. Several approaches need to be worked out that can be applied to solving the housing problem in developing countries.

The sanitation program showed that it is possible to bring the community together in small manageable groups to undertake what is otherwise perceived as a government responsibility. OPP in its housing program however, wisely, did not attempt community participation in its traditional sense of forming a community association to address the housing problem. They recognized, that housing is an individual activity and instead concentrated on those members of the community who play a direct role in providing housing, that is the thallawala and the mason, and improving their product and skills. This development of technology and skills
will have a lasting effect, even after OPP has stopped playing an active part, as improved technology and building skills would now be developed and available in the community. This is its success, which can be replicated in other housing projects as well.
Notes to Chapter 4.


3. The exchange rate in August 1991 was $1 = Rs 24.5.


6. A. F. Robertson, *People and the State* (Cambridge: Cambridge University Press, 1984), pp. 44-45. According to Robertson, the grant was given as part of a larger aid to support ‘Village Agricultural and Industrial Development Projects’ (V-AID) in Pakistan. Two research and development institutions one in Peshawar and the other in Comilla were established.


8. Ibid.


11. Ibid.


15. Ibid., p. 6.


17. Ibid., p. 7.

18. Ibid., p. 8.
19. Ibid., p. 9.


21. Ibid.

22. Ibid.


24. Rahman and Arain in their report Role of Thalla in Housing provide an interesting and detailed account of how the thallawala operates, how he is able to provide credit to home owners, where he gets his building material from and his actual costs of doing business.


26. Rahman and Arain, Role of Thalla in Housing.


29. Ibid., p. 24.

30. Ibid., p. 23.

31. Khan, Orangi Pilot Project Programs, p. 19.

32. Based on interview with Mr. Raza, a thallawala, in Orangi, August 1991.

33. Another independent supplier of batten-and-tile has been functioning in Korangi which is another settlement in southern Karachi. However the size of slabs used there is thinner, i.e., one and a half inches thick. Slabs designed by OPP has a recess on their underside which forms a pleasant pattern when viewed from inside the house.
Chapter 5. Advantages and Risks of Private Sector Involvement

Squatting on private or public land has been a common, and at times the only, option the urban poor have to find a piece of land in the majority of the cities in developing countries, but that situation has changed, as empty urban land developed for non-profit purposes is disappearing in many countries.¹ Squatting on vacant land was the way people occupied land in the city, creating squatter settlements or “unauthorized colonies,” as they are called in the subcontinent. But the practice was in fact the brainchild of middlemen (colonizers/developers) who marketed peripheral land to cash in on the gap between the demand for land and shelter and the formal sector supply. In spite of all its efforts, the public sector’s land and shelter programs have been limited and the prices in the legally operating private market are too high for a majority of families. Developers of illegally occupied land, on the other hand, are able to bring land into the market cheaply and quickly by eliminating the provision and therefore the cost of infrastructure—water, electricity, sewerage and drainage, roads, parks and schools. Official sanctions are not obtained, and no time is spent getting them. Entry cost into these settlements is kept low and slowly over a number of years, services are brought into the settlement as it becomes regularized. Colonizers as well as land owners manage to make huge profits, even though rates are kept as low as Rs 2-3 per square yard.²

Today, given the shortage of housing, the large number of property dealers operating in unauthorized colonies are progressively moving towards serving the middle- and upper-income class who want to build their houses or start small industrial or commercial enterprises. Plots changing hands three to four times are
not at all uncommon. Paradoxically, government intervention, either in the form of regularization and provision of services, or in improving links to the city center, hastens the rise in property values, and prices have in some places soared to 50 to 100 times its original cost. In Orangi, for example, plots which originally cost Rs 120 now cost from Rs 60,000 to Rs 70,000.

Since illegal developers are aggressively seeking more middle- and upper-middle income clientele. For the poor, entry into unauthorized colonies is becoming increasingly difficult, unless they are willing to settle for plots as small as 20-25 sq.yds. Poor households are bought out or squeezed into older settlements. Thus the picture of low-income households buying land illegally at low prices and building incrementally to improve housing conditions, with the government stepping in as the facilitator, does not completely fall into place.3

Given this development of the land market, it is difficult for the informal process to supply land for housing the poor. Governments can no longer rely on the informal processes to provide for the growing numbers of poor. It is estimated that by the year 2010, 70% of the urban population in developing countries could be living in impoverished and environmentally hazardous conditions.

The need for governments to become involved in the supply of land, participate in the land market, and facilitate NGO initiatives is increasing. There are many theories which favor governmental intervention in land markets, but only a few methods appear to work, and then only in special circumstances. One of those methods is land-sharing, where land which does not belong to the squatter, is negotiated by the owner and the occupant to formalize the rights of the latter. Another method adopted by some agencies is incremental development, where unserviced land is given to the very poor at very low cost. In both, the role of private developer and of community involvement is important. Two case studies,
Citra Niaga in Samarinda, Indonesia, and Kuda-ki-basti in Hyderabad, Pakistan, point to the advantages and risks in undertaking such developments and also highlight the importance of well conceived, well planned, and well thought out design in both processes.

**Land-sharing**

Land-sharing is a simple proposition involving the division of squatter land between the original owner and its occupants, with recognition of the legal rights to the land of settlers who have illegally occupied it for an extended period of time. This partition of land for the use by the landlord and for use by the occupants of the site is seen as a pragmatic and constructive resolution of conflicting claims. It is also a realistic compromise between landlords and slum dwellers, that has the potential of creating new and better living conditions for the occupants.4

One crucial factor that is absolutely necessary before any land-sharing process can be initiated is the threat of eviction. Once the threat is imminent, the process can be initiated either by the residents themselves, or by the owner, or by the government, or by a non-profit organization. If there is no threat of eviction then most involved parties would not be interested in upsetting the status quo to seek a solution. Therefore, for land-sharing to be considered an attractive proposition, there must be serious development pressure on the land that threatens imminent eviction.

Land-sharing works in societies that have a history of negotiation and compromise. In societies where there is a total mistrust of government policies or private investment intervention, attempts at land-sharing may lead to protracted negotiation and eventual collapse of the process. However, under circumstances
Land Sharing. (Fig. 5.1) Plan showing the Klong Toey land-sharing project in Bangkok before and after land-sharing was undertaken. Source: *Land Sharing as an Alternative to Eviction*. p. 119.
where land-sharing may be possible, questions arise about how planners could develop policies regarding its use.

An important aspect of any land-sharing project is the negotiation between the owners of the land, the occupants, and their representatives. This involves the actual division of the property and the negotiation of land price, a process that often requires tact and patience on the part of both parties. This negotiation is important as it eventually determines the overall composition of the community, i.e., the number of people that are to benefit from the scheme, the actual land that is being made available, and at what price. This has a direct influence on the eventual quality of the environment, as it is through these negotiations that the overall density, the road widths and road lengths, and the size of the open spaces of the project are decided.

Forming a community organization is necessary as it is this organization that will eventually be responsible for negotiating an agreement and then carrying out the various tasks that are involved, such as selection of the households and individuals eligible to participate in the scheme, plot sizes, subdivisions, and financing of both the land purchase and rebuilding the houses. Before any agreement can be worked out, an analysis of the number of households and people living there has to be made. Also, the length of stay of these households and individuals has to be determined in order to arrive at a selection criterion. This is often a difficult issue as some households or individuals are bound to be left out of the process and be asked to leave, which could lead to dissension among the residents and stop the process. Therefore it has to be handled through a criterion agreed upon by the participating groups.

Criteria need to be established for the location and sizes of the plots. Who should be given priority and the reasons have to be clearly worked out. The criteria
may be based on the length of stay, or the size of households, or the size of plot presently occupied. Whatever the criteria they need to be discussed and worked out as the actual available plot size is going to be less than what residents have at present. Division of the site will involve rehousing the existing community on a smaller site, which will increase the density of the site. If the original density in the settlement was already high, the new density will be even higher, unless some of the residents are excluded by the new scheme.

The increase in residential density and the need to clear parts of the site will necessitate the reconstruction of houses unless original densities were low enough to permit in-filling. Rebuilding may also require new forms of construction, using more permanent or more solid materials than what may have been used in the original structure. Recycling of build materials may be impossible, and this would mean an increase in cost.

Financing the purchase of land and the rebuilding of houses is an important issue which has to be worked out in detail. The actual cost to each member and the payment pattern needs to be established early on. Schemes which are flexible in nature have to be created so that they can assist the very poor; each household should be allowed to pay either on a daily, weekly or monthly basis. The cooperative also needs to work out a payment plan for the purchase of the land and other infrastructure construction costs. Cross-subsidy by the owner or other outside agencies may have to be negotiated by the cooperative.

The above points highlight the principle of land-sharing, explain the process involved and briefly discuss some of the problems associated with it. As stated, land-sharing is a complicated and lengthy process and its success depends on the strength of the cooperative and the willingness of all parties involved to ensure a smooth process. Some of the actors that are involved in this process include:
1. The residents on the piece of land and its community organization.

2. The owner of the land may be the government or a private individual/s. The approach in each case will be different. The land owner may be able to provide some financial assistance or provide cross-subsidies during the development of the project.

3. NGOs or a state agency that negotiates on behalf of the community and helps form the community organization.

4. The lending and financial institution that lend the money to the cooperative to buy the piece of land and monies for actual construction of the infrastructure and the houses.

5. In large projects international agencies may also get involved to provide financial or other assistance.

Land-sharing has been used in a few countries with success. In the Lines Area project in Karachi, Pakistan, the land was owned and redeveloped by the government. It incorporated 72,000 of the original occupants in the scheme, with cross subsidies made available through the auction of commercial plots to finance infrastructure development on the entire land. In Bangkok, six communities (Klong Toey, Rama IV, Wat Ladbuakaw, Sam Yod, Manangkasila, and Soi Sengki) have managed to initiate land-sharing agreements, often after long mediation by the National Housing Authority. Klong Toey is the most successful of the six land-sharing projects. Approximately 6,000 households have settled on 65 hectares of land belonging to the Port Authority of Thailand. After a thirty-year struggle for permanent housing an agreement was reached in 1983 in the form of a land-sharing agreement with the port authority granting the dwellers a 20 year, legal lease. In Citra Niaga, Samarinda, Indonesia, the land was government owned, but was redeveloped by a private developer and the occupants either incorporated
within the scheme or relocated. In all three countries the experiment has produced different results as they were motivated by, and initiated to achieve, different ends and were therefore handled differently. The rate of success of land-sharing projects is low, partly because there are so many steps and the complexity of the negotiation process invariably leads to delays. Yet the process holds great promise if the government and owner/developer are willing to come up with projects with clear objectives and strategies.

**Citra Niaga Urban Development Project, Samarinda, Indonesia**

The Citra Niaga project is one project where government and developer cooperation led to successful land-sharing and urban renewal. The project redeveloped a slum in the city center and next to the port into a commercial complex with kiosks and stalls for the pavement traders who were living in the slum, new shop-houses, and a shopping complex. The owners of the shop-houses who had legal rights and the pavement traders who did not were both accommodated in this project. The project has become the focal point of the city, where people gather in the evenings for shopping and entertainment. The project also provides a mix of commercial activity in keeping with traditional Asian markets.

Citra Niaga Urban Development Project was an innovative approach to land-sharing to address the issue of slum consolidation and urban renewal of central city land. It was developed by the local authorities as a strategy to tackle the problem of street hawkers who were choking the city's roads. It was one of the first land-sharing projects which focussed on commercial, non-housing rehabilitation for the poor.7

This particular program of rehabilitation and land-sharing was developed by a local developer and a group of architects as an alternative to the proposal made by
the local authority. The local development agency had first proposed a typical shopping complex as part of a slum clearance strategy. The typical super-market solution was not accepted by the mayor and the governor, as it did not address the informal sector nor did it solve the squatter problem. The mayor and the governor were alarmed at the rising squatter population and were concerned that if something was not done to improve the city of Samarinda, it would soon become a vast slum. Their aim was to allow the city, in addition to functioning as a center for the local state government, to also express the spirit of modernization without discriminating against any of the economic sectors. The principle of development was based on the belief that spatial improvement of the city’s facilities should include the participation of the people and should not only express the “image” and the spirit of development in the Samarinda municipality but should also increase the economic development at all levels of the society.

Samarinda is the provincial capital of East Kalimantan (Borneo). The population of some 360,000 persons in 1987 has shown a steep rise recently due to emigration from the hinterland because of extensive deforestation. There is also a substantial emigration from other parts of the country because of the economic opportunities available in the region due to logging, oil exploration and mineral exploration, and these industries are mostly in the hands of the Japanese, South Korean, or Taiwanese companies.

Samarinda, located on the banks of the Mahakam river, acts as the trade depot for the region, and the port accounts for half the total timber exported out of Indonesia. Even though the town attracted migrants, a large number were unable to find jobs in the formal sector and therefore sought employment in the informal sector, opening some retail facility as hawkers or pavement traders. The kaki lima, or pavement traders, increased dramatically from 1,000 in 1983 to 5,000 in 1985.
Citra Niaga. (Above, Fig. 5.2) Location of the project in Samarinda near the Mahakam river. (Below, Fig. 5.3) Site Plan of Citra Niaga project, showing the three phases of development. Source: *Aga Khan Award for Islamic Architecture.*
Citra Niaga. (Above, Fig. 5.4 and Below, Fig. 5.5) View of the slum before its redevelopment. 
Source: Samarinda Development Authority.
These are official figures which only reflect a trend, the probable figure was closer to 6,000. A large number were located within the town center because of its proximity to the port and other commercial interests. The slum population increased substantially, creating not only a housing problem but also a social problem, as the crime rate rapidly increased in most of these settlements.

The project site is located in the center of town and in close proximity to the port and a block from the warehouses. The slum on this site developed on what was an existing piece of open recreational land. In 1982, a devastating fire destroyed the shophouses around the park. The shops were quickly rebuilt but the park was taken over by squatters and became a slum.

Legal shophouses fronted the main street with the slum behind them. In the middle of the site was a swamp which became used for noxious small-scale illegal industries and presented a serious health hazard. About 100 families occupied the site a majority of whom were pavement traders; the others worked in workshops or light industry.

On the site were also a large number of prostitutes and criminals. The area was notorious as a red-light district. It was the bad name that the area was giving to the city that prompted the city fathers to do something about it. Then a large fire in Balipapan, another large town in the region, in the fisherman’s section of town, cost a large number of lives. Both these gave the authorities the impetus to redevelop this area.

The initial proposal of the city planning board was to develop a supermarket type of project, but it was found to be unsuitable and was also seen as unable to address the complex issues of the site, which was on a prime location in the center of the town and close to the harbor. The supermarket proposal also did not address the problem of the street hawkers who were choking the city’s roads, and needed to
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be accommodated in or near the site. Indonesia is unique in the attitude of its government agencies which try and accommodate the needs of slum dwellers. The Kampung Improvement Programs established by the government has been ongoing since 1975, and have made people aware of the plight of the urban poor. The ex-governor of the state of East Kalimantan was particular distressed by the slums in the city center and was impressed by some of the urban renewal programs in the United States, which he had visited. It was his enthusiasm that led to the support for an urban renewal project to be undertaken at the site which would revitalize the city center. His son Didik, a local developer, was invited to redevelop the town center. Didik, along with his friend Antonio Ismael, an architect working in a community-based project in Mexico, got in touch with Adi Sasono from the Institute for Development Studies, an NGO that was already working in Samarinda, and Michael Sumarjianto of PT Grivantara Architects to help launch the project.

The Project

The project as visualized by this group involved not only the owners of the shophouses, who had legal right to their property, but also included the pavement traders who were part of the slum. The scheme proposed by this group was a commercial complex which included rebuilding of the shophouses, that had been destroyed, a shopping complex, an area with kiosks and stalls where the kaki lima could sell their goods, and an open plaza which would become the focus of the project and serve as an open space where various activities could be held. This idea was accepted in principle by the authorities and a detailed program worked out. The government decree promulgated on August 27, 1985 stipulated that 30% of the shopping center at Citra Niaga would go to the kaki-lima and 70% to other trades. The project was to be developed on two levels simultaneously. The buildings were
being designed in the regional style and at the same time organizational aspects were being tackled.

Before the project was actually started, a complete inventory of the settlement was undertaken. An attempt was made to keep the intention of the survey a secret so as not to alarm the dwellers or give out word that redevelopment of the area was being proposed. This would stop the people from taking undue advantage of the situation. If redevelopment plans were made public too soon, people would show up with false claims to property in the area and create unnecessary problems. It was also feared that if the nature of the scheme was disclosed early on, before the community that would eventually occupy the shops and houses was brought in on the project, a number of people would speculate on ownership rights and push prices up.

From its inception the scheme was seen as a commercial development; the shophouses would be the only residential part of the scheme. Displacement was therefore a crucial issue which had to be addressed very cautiously. Through a preliminary survey, it was determined that a place to live was not of primary concern to the occupants. They wanted to be allowed to continue plying their trade there. The survey and inventory undertaken thus helped to determine which activities would support the overall success of the development. It also became the basis for selecting who could participate in the scheme. About 60% of the occupants could be accommodated on the site, but the other 40% had to be displaced. Activities such as workshops and light industry were relocated elsewhere by the muspidah (local authority), and in some cases the resettling costs were paid by the developer. People involved in prostitution or crime were evicted. This eviction involved a protracted dispute between the residents and the gangsters for about six months, but after the formation of a community cooperative they were
Advantages and Risks of Private Sector Involvement

eventually able to withstand the pressures from the gangsters. The developer also bought off a number of adversaries who where blocking the project.

The formation of a cooperative and their participation in all aspects of the scheme was important in its success. The innovative aspect of this scheme was two fold: the involvement of the local government, the central government, and the private sector; and the process undertaken to ensure the participation of families who occupied the area and had been selected to be part of the new scheme. The NGO worked closely with the community in identifying what their needs were, explaining the scheme to them, and showing them how they would improve their economic conditions at a cost no greater than what they had been paying to the local slumlords for water and other services. The scheme was designed not just as a self-cost recovery and self sustaining project, but as a profit-making venture.

The Program

The program brief and the functional requirements of the project emerged through a series of discussion that went on for three years between the government and the users. The principles that governed the brief were as follows:

All classes of users should have the same rights, treatment, and facilities because all of them would contribute to the prosperity of the area; land use must be mixed; the design must be traditional in character and be physically attractive; the layout should permit integration of users easily; and rigidity in design should be avoided. The users were to be shophouse owners of high and middle income; kiosk/corner shop owners of low income; and pavement-traders from the lowest economic class.
Citra Niaga. (Above, Fig. 5.6) View of the project showing the shops for the payment traders and the port in the background. (Below, Fig. 5.7) View of the central plaza.
Citra Niaga. (Above, Fig. 5.8) View of shop-houses in phase A and B. (Below, Fig. 5.9) View of shop-houses and shopping complex in phase D.
The ratio of land use between the informal sector and others was specified by the government. The developer therefore had to work out his project finances very carefully because 30% of the built space in phase I and II would go to users who were receiving free facilities and 70% to users who had to purchase the property to generate profit and cross subsidize the scheme. The terms under which the projects was sanctioned were that the developer would receive government land at no cost, but the local government would not finance any part of the development. The management of the shopping center would be appointed at the discretion of the local government and would include the local shopkeepers. In phase I and II 60% of the shops were designated for the informal sector and 40% for other tradesmen.

The program was conceived in 3 phases, with the first phase concentrating on a totally commercial development to finance the second phase which related to the informal sector. The first stage was designated area A and B where 58 shophouses would be built. This area was vacant; it too had been destroyed by fire and was included as part of the scheme to allow for capital generation.

Area C was the second phase of the project and included 25 kiosks and shops, facilities for 224 pavement traders, and 27 shophouses. The informal sector was developed in one go so as to minimize displacement time; this also insured that the bulk of the scheme and the development of the plaza were built simultaneously. The development of the informal sector in the second phase also gave the developers and the NGO time to form the pavement traders cooperative and to reach terms with all of the occupants. It also allowed time for sorting out the relocation issue. During construction a temporary settlement was supplied by the local government nearby, but only for trade; housing had to be found elsewhere. The NGO helped the pavement traders form a cooperative, which than purchased a 10 hectare piece of land on the outskirts of the city. This was made possible through a
bank loan given to the cooperative with the members’ kiosks and stalls used as collateral.

Area D was the third phase of the scheme and included 56 shophouses and 54 kiosks aimed at the higher income group. This phase gave the developer his highest returns and subsidized area C. In addition to the retail outlets, the other facilities provided include a tower to serve as a symbol and focus to the scheme, an open space which forms the center of the scheme, a performance space that is covered, public toilets, parking spaces, and a new traffic road between phase II and III.

The developer limited the kind of activity that was given to retail outlets. For instance six major types of retail activity were permitted in the informal sector; garments and sewing occupied 40.6% of the total shops; general merchandise 9%; coffee and drinks shops 17.4%; food 17% shoes, leather 6%; medicine 3% and others 7%.

The site area is 2.7 hectares; the total built-up area for all three phases was set at 1.83 hectares plus 1,800 sq.m., 9,500 sq.m. of open space and walkways and 1,200 sq.m. of roads. In all there is 16,870 sq.m. of built-up space for the shophouses, 1,443 sq.m. for kiosks and 1,800 sq.m. for the kaki lima. A total of 1,800 sq.m. of free area was given to the members of the informal sector co-operative for retail outlets. The stalls are only lent, they are owned collectively by the cooperative. The shophouses, on the other hand, were sold outright to individual owners.

Maintenance

The complex is maintained by a board comprised of representatives from all users. Service charges, parking and toilet fees generate an annual income of Rp 124.5
million (US $70,140) and the maintenance comes to Rp 114.5 million (US $64,507). The service charge to each kaki lima in the informal sector is Rp 1,500 per day (US 85 cents); this Rp 1,500 is allocated as follows: Rp 200 to the government, Rp 72 for rent, Rp 200 for electricity, Rp 200 for water and Rp 828 for the Management Board. For the kaki lima these are very favorable terms. Before the project was built they were paying Rp 2,000 per day in extortion and another Rp 1,000 for water. The money is now paid to the cooperative on a daily, weekly or monthly basis.

The total cost of the project was Rp 3.9 billion of which Rp 1.1 billion was for phase I, Rp 1.3 billion for phase II and Rp 1.5 billion for phase III. Resettling costs for those who did not participate in the project was Rp 0.4 billion. The developer, after the gross subsidies of Rp 700 million (US $394,366) got a rate of return of 27% before taxes, which is high. Two years ago the shophouses in area D cost Rp 75 million (US $42,254) and they are appreciating rapidly. The shop-houses in area C are selling for Rp 35 million (US $19,718) and those with road frontage for Rp 60 million (US $33,803). The gross daily sales at the kiosks selling food are in the vicinity of Rp 75,000 (US $42.25).

Lessons from Citra Niaga

The Citra Niaga project represents a breakthrough in commercial projects for Asian and developing country cities. It has been functioning for three years and has had a tremendous impact on the city. With this innovative experiment the city was able to reclaim its prime land for public use, provide an urban center, and reestablish the link between the city and the harbor.

The success of the project has many ramifications: it was developed successfully by a private developer in partnership with the government and the
community for the benefit of the larger community. It was a profitable business venture and yet included the usually ignored social and ecological aspects. It not only managed to upgrade a squatter settlement (although at a cost of resettling large number of people), but it also developed a public plaza in the heart of the city and reestablished the link between the harbor and the city. The scheme developed a successful shopping center and created an urban environment out of a slum which ordinary people shunned. It was financially viable. This suggests that even in small towns profits can be made if projects are well thought out and if innovative complex financing schemes, through a mixture of cross-subsidy and self-finance, are used.

The success of this project has given the government confidence in its ability to solve at least some aspects of its squatter problem. It has also shown that a positive and profitable government/developer joint enterprise is possible. Other such projects are now underway in the area and the government is also developing the adjacent sites in a similar manner. The attractive architectural features are being copied by various projects, and the whole area around the port is being revitalized and is teeming with life.

The community has been galvanized into achieving success in running and maintaining the project. With the help of the NGO, which was involved in the project from its inception, the community had a voice in the planning and design of those aspects of the project that affected them directly. Because in this particular case location for economic opportunity was more important than housing, the formation of the community organization helped to finance housing which was then built elsewhere.
Citra Niaga. (Above, Fig. 5.10) View of the performance pavilion in the central plaza. (Below, 5.11) View of informal shopping area around the central plaza.
Citra Niaga. (Right, Fig. 5.12) View of the tower in the central plaza. (Below, Fig. 5.13) View of the central plaza on a saturday night.
The architectural achievement was that it provided a central focus of urban space and character to the town.\textsuperscript{11} Which not only created a popular public space which can be compared to Boston's Fanneiul Hall Marketplace and other similar developments, but has understood the characteristics of the Asian commercial environment. In Citra Niaga there is a great variety of merchandise being sold to all income levels. This is the contribution of its design and planning. The typical shopping center provides a wide range of goods but primarily caters to the middle-class or the upper-middle class. Citra Niaga's achievement lies in its mix of retail outlets in both variety and price range. This gives the project an enormous dynamism and makes it pleasant to visit. The large choice offered is representative of retail outlets all over town in a small area.

This combination of creative land-sharing and urban renewal has produced a scheme which is not only financially successful, but has also provided that mix of commercial activity which is in keeping with the traditional Asian commercial fabric. Citra Niaga has therefore achieved a truly Asian urban development, and its relevance to other developing countries in terms of creating a shopping complex, a city center, squatter upgrading and an appropriate environment cannot be underestimated. It is a crowded, active part of town: on Saturday nights it teems with people. In the covered stage in the plaza are performances for both children and adults. The plaza is filled with street entertainers--fortune tellers, magicians, and so forth. Ninety per-cent of the promenaders are teenagers looking for entertainment. The project has provided a choice for the youth who otherwise hung around streets corners and got into trouble. Now they have a place to go that provides fun for the whole family.

Five institutions have been linked together by this project. They are the developer; the non-governmental organization and its consultants; the banks; the
cooperative that was formed as a result of the project; and the state and national government.

Land-sharing, in general, has not yet had widespread appeal and success, because of the complexity of the operation and the cooperation of the participating groups necessary. Problems generally arise due to the inability of the occupants of the land to form cohesive units. Long periods of negotiations often cause problems in completing the project. Yet, when successful, as it has been in the case of Citra Niaga, the results are spectacularly successful and has resulted in spatial patterns that respond well to rapid urban growth.
Incremental Development

The idea that the poor can build their houses more economically than the authorities can is based on the assumption, not that labor costs are saved, but that the houses can be built at a pace affordable to each family. A family purchases the land it can afford and builds pieces of its dwelling as its resources permit, a flexibility not found in the formal housing sector. The family also acts as its own contractor, controlling the purchase of materials and overseeing construction.

The incremental development approach to housing evolved out of the sites-and-services approach. It formalizes the methods found in informal settlements, where squatters provide shelter for themselves at prices and at a standard that they can afford. In incremental development schemes, infrastructure and urban services are also provided incrementally, that is, just as the house grows over time reflecting the resources of the occupant, so too, the services grow as they become affordable by the group of people living in a particular cluster or block. This reduces the initial cost to beneficiaries and allows more of the poor to participate.

Fundamental to the success of incremental development is that the scheme be affordable to the very poor from the start. A very low down payment is therefore required, and the initial services are limited to the basics: for example, a public water supply and public transportation to the city. But over a long period, house-to-house water connections, sewerage, electricity and road paving can be installed, when and how much depends on the ability of those living there to pay for it.

From its inception a community organization has to be developed that will collect installments. The installment schedule has to be flexible so dues can be paid on a monthly, weekly, or daily basis, depending on the earning patterns of the individuals. An NGO would assist in forming the cooperative but would also make
clear that neither the development agency or itself was responsible for providing the services themselves and that each block or neighborhood unit would have to pay for its own.

Standards for projects of this sort have to be flexible. Creative site planning is needed to allow community participation at the block or neighborhood level, independent of the rest of the project. The layout of the scheme should be fixed, but no standards pertaining to the quality or plan of the houses can be imposed. Professional guidance, however, should be provided to avoid unsafe installation.

To reach the target group residency in the scheme must be mandatory for receiving a plot. Plot titles can be held in the name of the cooperative to reduce speculation. The time-lag between plot development and allocation also has to be kept to a minimum if the project is to be a success.

Khuda-ki-basti, Incremental Development Scheme in Hyderabad, Pakistan

The Hyderabad development authority has sponsored one of the first incremental development schemes in Khuda-ki-basti. The results have been far from spectacular. It has run into problems, but it can also teach some lessons about how a the project has been successful in pointing out innovative responses by a government agency can provide cheap land for over 2,000 families.

Hyderabad is situated about 10 kilometers from the River Indus. The small towns of Kotri and Guddu lie at its outskirts. The Sind Industrial and Trading Estate (SITE) is located near Kotri and is a job source for those living nearby. City growth is mainly to the south, along the Karachi-Hyderabad super-highway. South of the superhighway lies Gulshan-e-Shahbaz a mixed-income sites-and-services project, that had remained under developed. In 1986 the Hyderabad Development
Khuda-ki-basti. (Above, Fig. 5.14) Map of Hyderabad and Kotri showing Gulshan-e-Shahbaz. (Below, Fig. 5.15) Location of Khuda-ki-basti. Source: *Evaluation of the HDA's Khuda-ki-basti Incremental Housing Scheme*. pp. 10-32.
Authority (HDA) planned an incremental scheme that integrated features of an illegal land subdivision into a government-sponsored scheme in order to provide affordable housing for the poor. For it they chose sector 6 of Gulshan-e-Shahbaz, because it bordered on the illegal subdivision of Ismailabad and the squatter settlement of Sikanderabad. The settlement that developed there was eventually called Khuda-ki-basti (Settlement of God) by the people who live in it.

HDA wanted to simplify the allocation process and reduce the initial costs to make it easier for the people to receive a plot and to keep the cost low by providing virtually unserviced land and by not establishing standards for house construction. They also wanted to allot plots immediately and encourage development of infrastructure and services incrementally based on the residents' requirements and ability to pay. Households for allotments were identified by the HDA with the help of local councilors in Kotri and Hyderabad. HDA granted 32 households possession of 80-square-yard plots for an initial deposit of Rs. 460. The only condition imposed was that they had to put up a structure within one year and leave a three-foot setback in the rear for ventilation.

On monitoring the project during the first few months HDA found that only two of the thirty-two allottees had complied by starting construction. The rest lacked resources to build, or simply did not want to because there was no guarantee of tenure. To overcome this problem the HDA started afresh in sector E 4 of Gulshan-e-Shahbaz. This time possession of plots was granted, but the title deed was withheld until the household had constructed a house and moved in. The period of construction was reduced to three months. Even this did not improve the situation.

The HDA then decided to cancel the previous allotments and to re-allot the plots to applicants on the waiting list. Their conditions were that they had to start construction immediately and move in within a month. The plots were made non-
Khuda-ki-basti. (Above, Fig. 5.16) Layout plan of a portion of sector E-3. (Below, Fig. 5.17) Source: Evaluation of the HDA's Khuda-ki-basti Incremental Housing Scheme. View of sector E-4, showing houses built in concrete as well as mud-bricks.
transferrable except by inheritance. The allottee forfeited the deposits if the allotment was canceled. After an initial period of activity, development slowed down again. This time it turned out that the allotments, based on the recommendations of local councilors, had been given to a lower-middle-income group whose housing situation was already adequate. They even enjoyed amenities in their present dwellings that they would not have had in Khuda-ki-basti. There was no incentive to move.

At this stage the HDA decided to enter into partnership with the local dallals (professional land speculators and land grabbers) and let them find households in the katchi abadis (illegal settlements) of Hyderabad who would want to resettle in the Khuda-ki-basti. The HDA issued cards which had a schedule of payments printed on it instead of a title deed. The initial down payment was still Rs 460 with a subsequent monthly development charge of Rs 60. On completion of the full payment of Rs 9,600 the allottee would be given the deed. But the dallals had their own vested interests; they very diligently settled households and made money through speculating on the plots.

The Concept of the Reception Area

By this time the HDA had come to recognize that the allotment procedure was crucial to ensuring the success of any scheme. When a family on the waiting list and in dire need of shelter turned up at the site with all its possessions and simply occupied a plot, HDA officials began to realize that, if a family was really serious about moving in, it would bring all its belongings to the site. This realization became the basis for the idea of a “reception area” as an effective mechanism to find the right people and filter out all those having aims other than living in the project.
Khuda-ki-basti. (Above, Fig. 5.18) View of the basti. (Below, Fig. 5.19) View of the reception center.
A reception area in the form of an open plot was provided where families could temporarily live in makeshift dwellings while they waited for a plot. From there the HDA could observe the household and decide whether or not its intentions and its need were real. To overcome the reluctance of families to pass through the reception area the HDA built a few semi-permanent houses and rented them to those who could afford it. This scheme worked; 16 days after its initiation on November 2, 1986, 350 families had moved through the reception area onto a plot. The HDA made the reception area a permanent feature of its allocation process.

Today to receive a plot an applicant submits a photocopy of a national identity card along with an application to HDA. After the stay in the reception area and the screening process, the beneficiary is allotted a plot and makes a down payment of Rs 1,000. If the allottee does not stay on the plot the allotment is canceled and the plot is reallocated.

The monthly instalment of the development charges are deposited into a separate account for each block of the scheme. Block residents decide which services they want in community meetings. When sufficient money is collected in a block account, the residents meet with the HDA to decide by popular vote what it should be spent on. Once the decision is taken the HDA hands over the supervision of construction to the block leaders. Since the community does the supervision and the community contractor works for a marginal profit, no kickbacks are involved and the development cost is reduced by about 25%. The block organization is also responsible for maintaining services and action against defaulters and absentee owners. They disburse small loans for house improvements and income generation.
Evolution of the Settlement

In most new developments, the moment a scheme is announced, a number of local leaders, self-proclaimed social workers and other middlemen try to take advantage of it. The middlemen capture as many plots as they can either by encroaching or by using fake applicants or through contacts inside the implementing agency. Anticipating an increase in land value in the area adjoining the scheme, they also establish illegal land subdivisions there. This happened in Khuda-ki-basti, and may be one of the reasons there were so few settlers in the beginning.

When the scheme was still vacant a dallal encroached on the land and began to build houses overnight. Noticing that development was about to start, customers for adjacent plots showed up. The dallal then sold plots on the condition that they start construction immediately with himself supplying the building material. When the dallals were given the responsibility for identifying prospective households by the HDA, the cards that HDA used in place of the title deed became an important source of income and influence. Dallals charged exorbitant amounts for prime plots in the scheme, and made fake cards to populate the scheme as quickly as possible to inspire confidence. When the “reception area” was established they also took advantage of this by taking bribes to settle people directly a practice the HDA failed to stop. Obviously there are dangers in involving dallals. They operate by making their customers obligated to them, but they also have the advantage that they can attract people to build in the area and resist outsiders with claims. In the case of Khuda-ki-basti, however, they misused their position so frequently that ultimately the HDA had to end its cooperation with them.

In the land registration process the lowest in the hierarchy of public servants is the patwari or tapedar (clerk), who keeps records of the land titles in the area.
Although of humble rank the *patwari* controls records and can easily tamper with them. In a society where bribery is common the poorly paid *patwari*'s position invites corruption. Through their connivance civil servants, members of the bureaucracy, and the police now claim land in and around Khuda-ki-basti.18

The *waderas* are a powerful group of feudal landlords who often sell their land to subdividers and also have subdividers’ appropriating land on their behalf, enabling them to obtain facilities in their areas quickly.19 Some of these subdividers and aids live in Khuda-ki-basti itself and serve as local leaders in political parties or voluntary organizations. They continually try to occupy more land than they are entitled to in order to speculate.

The local leaders are brokers in a patronage network. By monopolizing access to public means the broker privatizes them. Brokers never attempt to solve problems because, by doing so, they undermine their own usefulness to others. They would rather maintain and even generate tensions to provide the situation in which they thrive. In Khuda-ki-basti some of them are now trying to get more plots and trying to abolish the instalment plan.

The HDA attempted to generate community participation through social workers, but this failed as well. A “working committee” instituted to keep out non-residents was dissolved because it so often quarreled. Since then, the community has elected leaders at the block level (a block consists of 250-300 plots). The block organizing committees administer the bank account in which the residents’ installments are deposited and out of which the development of the block is financed. These committees also distribute and control loans provided by the HDA on behalf of House Building Finance Corporation HBFC, for building and businesses. They also manage transfer fees.
Quarreling in these committees led to the formation of an executive committee with a monthly rotating membership of block representatives and one representative from the HDA. This committee has the power to suspend members if charges of corruption are leveled against them. In spite of this the community does not have a high opinion of the block leaders because when the eleven blocks were organized in August 1988, elections were held by show of hands, and most of those elected were middlemen, land speculators, and small-time entrepreneurs and their musclemen. Opposition to them from the losing candidates has consequently been strong. The block organizations have also turned into lobbying groups, pressuring the HDA for additional services. HDA has stopped depending on them for support, and has at the same time surrendered too much control to them. Of late the HDA has decided to stop trying to organize people, but rather to work with a level of organization that is created by the residents. The block committees' accounts are kept in a bank branch in Khuda-ki-basti. Balance sheets are published every month. Transfer fees have to be deposited to this account.

Khuda-ki-basti is too new a settlement to control and effectively make use of such a representative organization. The block organization is also too large—each one represents an average of 200 to 250 families, making it difficult to form a cohesive group. The poor design of the blocks has also been a contributing factor.

Some problems are beyond the control of the HDA. One of them is ethnic sensitivity. After the ethnic riots in 1988 many Mohajirs felt that they could no longer be safe in Khuda-ki-basti; though they would have been in a majority, they would also have been surrounded by Sindhis. This prompted them to stay on in Hyderabad city, where they had moved to during the riots, leaving vacant plots in Khuda-ki-basti.
Poor transport between the settlement and the city remains a problem. The Sind Regional Transport Corporation runs public transport 25 times a day between the settlement and Hyderabad, but the service is unreliable, time consuming, and expensive—the Rs 5 per trip it costs accounts for about 19% of the average household income. Private transport service in small vans is also available between the settlement and the city and to nearby work places. This transport is more convenient for the people and is used by them regularly, but also costs about Rs 10 per round trip to the city.

Another problem is that, though in principle no octroi tax was to be levied for building materials bought in Hyderabad by Khuda ki basti residents, the three octroi posts between Hyderabad and Khuda ki basti invariably levy a tax. The police, leaders, and the court have been of no help. Finally, the public agencies that connect services and infrastructure are very corrupt, adding to the hardships of the community.

**Conditions in Khuda-ki-basti**

Surveys have shown that the average household size in Khuda-ki-basti was seven persons. More than 50% of the households were employed in the informal sector, 17% in the manufacturing sector, 16% in the service sector, 9% were government employees, and 6% did not have a job. A comparison with the adjacent illegal subdivision shows that both settlements house nearly the same income groups. About 78% of the residents are Urdu-speaking Mohajirs and Biharis, 16% are Sindhis, and 4% are Punjabi. About 40% were squatters before they moved to Khuda-ki-basti; one-third rented their previous house, and about 20% came from villages. Previously 66% of the residents lived in Hyderabad, 17% came from Sind, 14% lived in Kotri, and 4% came from outside Sind.
Physical Conditions

The HDA did not give adequate thought to the design of the scheme, a standard sites-and-services layout. The plan was based on potential uses that were unrealistic. The streets are too wide and planned for cars. The main roads between sectors are even wider, but they are used for public transport. Open spaces are vast and their location is not based on any functions. The plan is a grid with no hierarchy of spaces between public and semi-private. Community facilities are distributed randomly within the site.

The project would have been better planned in clusters with community spaces protected from vehicular traffic; this would have kept land from being used for the wrong purpose and would have guaranteed safety from traffic. The number of units per acre could easily have been increased from 26 to about 40 and would have conserved land. Back lanes should have been eliminated, and the HDA has also failed to enforce the provision that 3 feet be left open at the rear of the plot to guarantee light and ventilation. A clear segregation between external and internal infrastructure should have been part of the physical plan, and one block should not have consisted of more than 100 houses to allow for effective block organization.23

The lack of physical planning has resulted in monotonous unattractive spaces as one walks through the settlement. In this hot and dusty climate, the lack of shaded and protected spaces make it difficult for children to play outside and the ‘parks’ are unused and poorly maintained.

Housing Conditions

Of the houses, 16% are pucca (built with permanent materials), 45% are semi-pucca (semi-permanent), and 39% are kutcha (built from temporary materials), though
there are differences within these categories. The average investment in a house was about Rs 19,000. The major source of financing was through loans from relatives and employers; a minor one was the House Building Finance Corporation which charged 15% interest for its loans. The average household income was Rs 1,500 per month, if a household can afford to spend about 20% of its income on housing (Rs 300) after paying Rs 110 for the development charge it has Rs 190 left for house construction. With this amount, a household can repay a loan of Rs 11,500 from the HBFC in ten years. Rs 11,500 is sufficient to build a semi-pucca house.24

Quality and design of housing in the settlement were poor by the standards of informal Karachi settlements but average by Hyderabad standards. The HDA gave no help in design and construction and made no attempt to develop ways of improving them. Minimum guidelines could have been provided in terms of effective layout, ventilation, and how to construct foundations and keep damp out. But apparently the HDA had no personnel for this purpose.25 They had not learned from the Orangi Pilot Project, similar services could have been provided.

Infrastructure

The allottee in Khuda-ki-basti at first used bucket latrines for disposal of human waste, and the public health hazards from this practice were serious. When the HDA became aware of this problem it tried to increase the down payment from Rs 1,000 to Rs 1,700 so it could supply the plots with ventilated soakpits with concrete toilet squatting tops, but the residents objected to the cost increase. The HDA is only now providing concrete toilet tops with the plot, as most residents have by now built a soakpit. However, the soakpits themselves are quickly filling up because of rocky soil conditions.26
Khuda-ki-basti. (Above, Fig. 5.20) View down the main street in sector E-3. (Below, Fig. 5.21) Suzuki vans used by private contractors for transportation to the city.
Khuda-ki-basti. (Above, Fig. 5.22) Tea-shop in the central street in sector E-3 where most of the shops are located. (Below, Fig. 5.23) House made of recycled temporary materials.
The HDA has adopted the Orangi Pilot Project approach for the delivery of services. Once sufficient funds from development charges have accumulated in a block account, the community then decides what kind and level of infrastructure are needed. There is a direct relationship between the level of community organization and the availability of infrastructure. By the middle of 1988, 72% of the residents had piped water in their lanes and 24% had sewerage lines, although there are problems with its functioning since it was put in by the community. While lane lines have been laid and are utilized, the secondary lines have not been laid. At some places sewerage is seeping out of the ground and collecting in puddles, posing a potential health risk.

Delays in the delivery of services after payment has been made is another problem, because the community refuses to bribe the officials of the Water and Power Development Agency that is responsible for providing water and electricity so there are delays. Residents have had to wait anywhere from two and half months to nine months before these services are provided.

Unlike the Orangi Project, where a non-governmental organization was involved in motivating the people and providing the technical expertise, in Khuda-ki-basti, the HDA is trying to play the role of an NGO, but is having limited success. Residents still feel that the HDA is responsible for providing the services. Since the block organizations are politicized, they also put pressure on the HDA that does not necessarily reflect what the people may really want. Given these conditions, the community does not have a clear agenda and therefore participation is very difficult to get and sustain. For that reason it has not had the level of success achieved at Orangi.
Khuda-ki-basti. (Right, Fig. 5.24) Open sewerage collection tank outside the house. (Below, Fig. 5.25) Sewerage leaking into the street from blocked sewerage lines.
Community Services

There is no hospital and no ambulance in the area, though doctors serve the community on a part-time basis. There are five private schools, and six clinics including one women's center. A home-school project initiated by the HDA encouraged educated women to open basic schools in their homes, but, like most of the NGO programs, which were to have been appropriated by the local social welfare or block organizations and were not, it has ceased to function. The majority of the residents feel that they did not benefit from the NGO program. The NGO programs did not work because they were not related to the local organizations, nor was there an official HDA connection. Civic strife also did not help.27

Cost Recovery

The scheme achieves full cost recovery as the price of the unserviced land is collected from the allottee in the down payment. The only direct government subsidy admitted by the HDA are the administrative costs. The cost of infrastructure is bound to rise with inflation so full cost recovery may not continue; it depends on the ability and willingness of the population to continue paying for it. The cost of the developed plot is borne by the beneficiaries in installments spread over eight years.

However, the reason services can be provided so cheaply is because the HDA had subsidized the major services in the Gulshan-e-Shahbaz development. Although the rest of the development is still vacant, Khuda-ki-basti has been able to connect up with its infrastructure. To expect that housing can be provided to the poor without subsidies by the government is unrealistic. The question here is not
Advantages and Risks of Private Sector Involvement

whether the government should subsidize housing developments for the poor or not, but how can governments supply housing for the poor at a cost affordable to both occupant and government, where tenure is secure, and where there is an equitable and sustainable environment.

Potential for Replicability

The basic premise of incremental development schemes is that it can benefit the poor households. However, the down payment of Rs 1,000 is still high, especially for a place that lacks job opportunities. For a poor family to pay Rs 110 per month for infrastructure and still have money left over for house construction and other daily needs is difficult. In addition, a sizable number of respondents reported a drop in income as a result of moving to the scheme. To be successful there should be more income-generating activities in and around the site, and the number and quality of social services in the scheme must be increased.

The mechanism of the “reception area” does seems to help check infiltration by middle-income groups, but as facilities are added to the scheme, over time land value is bound to rise and with it the possibility that its poorest residents will be priced out of the project the upper-income groups.

The success of the scheme depends on the allottee occupying the plot and staying there. As the scheme grows, it is becoming more and more difficult to police the settlement and ensure that this is happening. After the ethnic riots of 1988, many people moved back into the city and have not returned.

The scheme is managed by 3 or 4 officials. The pressure to accept bribes, particularly by those who have built there but for some reason do not want to stay, is very high. To evict an allottee once the house has been built, even as a temporary structure, is difficult. The problems with the block organizations have exacerbated
the situation, as most middlemen and land grabbers are quick to claim vacated plots and houses.

For incremental development projects to be successful, two issues have to be resolved. The participation of middlemen or *dalals* in the scheme has to be controlled. In Khuda-ki-basti the role of the middlemen grew as the scheme developed. The idea behind involving middlemen was that they had financial ability to promote development. They were supposed to check illegal subdividers. Jan Van der Linden, in his evaluation of the project, said that it was “probably the right thing to do since it is sometimes impossible to work through ‘proper channels’.”

However, in practice this has caused the failure of the scheme, because depending on middlemen to control speculation has given them power over the HDA, and eventually the leadership role of the community. They act as patrons and they tend to divide rather than unify the people living there. Without an NGO or other organization that could focus the community organization on solving its own problems, middlemen favor one group to the disadvantage of the other and the project fails.

This project shows that incremental development schemes do not provide land as cheaply as illegal subdivisions, but they do offer tenure and provide cheaper infrastructure faster. They also reach their target population more effectively than conventional sites-and-services projects and at least initially prevent infiltration by higher income groups into the scheme. The HDA’s approach has challenged conventional wisdom, and offered an alternative to the World Bank approach of sites-and-services, which even the Bank itself has come to question.
Future Directions for Incremental Development Schemes

In incremental development, the role of the private developer has to be regulated. The advantage of private developers is not their ability to provide cheap services, but their ability to be opportunistic. Profit is their incentive; they develop settlements illegally because they can make a profit doing so. They are able to provide land at low cost to the poor because they do not provide services. However, there is a cost incurred in paying off government officials, the police, and the land owner, if it is private land, and the cost of undertaking the subdivision. This cost is charged to people at a rate that ranges from Rs 700 to 1000. Plots to widows and disabled people are also given free to settle the people as quickly as possible. Most developers move on once the subdivision is filled, but the more savvy of them keep choice plots for themselves until the settlement is consolidated and services are brought in, and the price of the plots rises rapidly. The developer then sells these plots to the highest bidder and makes large sums of money in the process.

In Khuda-ki-basti, the middlemen are trying to buy up plots allocated to the poor through their intermediaries so that they can then sell them once the settlement is fully developed. The HDA was unaware of this, but once it became aware it tried to cut them out of the process, leading to a power struggle. In incremental development schemes the role of the private developer should be limited to developing the settlement and giving them a certain number of plots as payment. The issue of community organization, beneficiary selection, settlement design, densities, level of services to be provided should be handled by the development agency and the NGO.
To improve the level of community participation and to ensure its success it is necessary to redefine the role of the implementing agency. The charter of the HDA requires only that it develop urban land; it does not have to administer the settlement once it exists. One possibility is to have staff carry out community development activities; another is to use the services of a non-government agency to implement the project. The HDA would demarcate the land and the NGO would be responsible for settling households on it using the reception-area approach. The NGO would be responsible for collecting down payments from the residents and transferring them to the HDA. Once the households have settled the NGO could upgrade and provide services as they did in the Orangi Pilot Project. The NGO will also be in a position to pressure the authorities not to delay in putting in infrastructure, just as the dallals did. This approach showed in Orangi that the community can improve its living conditions with help from the NGO.

Suitable urban design and settlement layout is lacking. The HDA gave no thought to subdividing the site to create spaces the community could use. It is a typical sites-and-services layout, whose prime objective was to install infrastructure cheaply and to follow the World Bank land-use criteria for percentage of built-up space, open space, and circulation space.

In incremental development schemes as in sites-and-services projects the quality of the environment is important. Arif Hasan, Jan J. Van der Linden, Brian Brace Taylor, and others who have evaluated the project have commented on how Khudaki-basti reflects people's ingenuity and hope. However, designers and government officials have a duty to assist in ensuring a qualitative development of the settlement. If it takes ten years to provide a decent habitat, it is ten years too late for all the children who have grown up in it and ten years lost for their parents.
Who is responsible for external and who for internal development has to be clearly defined and agreed upon. The development agency should be responsible for the first, the community for the second. But if this is not made clear conflict over rights and responsibilities will arise. Also important is to ensure that even though the community would be responsible for internal development the government should bear responsibility of providing assistance through NGOs. Communities should not be expected to come together on their own to undertake such large-scale efforts and sustain them over time. Standards and quality need to be maintained and the government should ensure it.

Given all these shortcomings, Khuda-ki-basti still has shown that without government resources, without loans, without any experts from the World Bank or the Asian Development Bank, the people, with modest help from an urban development policy instituted by the HDA, can develop new communities through government and private partnership.

**Summary**

More projects like Citra Niaga and Khuda-ki-basti are needed where government, private investment and the community together participate in providing housing for the poor. The partnership, however, does have its problems as evidenced in Khuda-ki-basti. The government tries to provide housing for as many people as possible at as low a cost as possible. Private developers want to derive the maximum profits from their investment, and the community wants the best environment at a minimal cost.

If the role of the private developer is clearly identified as it was in Citra Niaga, the process has a chance to succeed. Designers, NGOs and development agency officials all worked together in Citra Niaga to arrive at a plan that would best satisfy
all demands. Can the efforts undertaken in Citra Niaga be replicated in housing schemes? In Citra Niaga the development was commercial in nature so that the developer could make a profit. The prime location in the city center also played a large role in its success.

In most housing projects, however, available land is at the city’s fringes and opportunities for quick returns are limited. Yet, a cursory analyses of city growth in developing countries show that land that was once at the fringe ten years ago is now well located and in demand. New housing projects using private developer money and ingenuity can be developed if the development authority would provide the land and provide external services such as main roads and electricity at nominal or no cost. The developer would then be responsible for the internal development of the scheme and provide the internal infrastructure. Restrictions on what the developer could charge and the precise percentage of the plots for sale on the open market could be established, as was done in Citra Niaga. Certain plots could be given to the developer for commercial or other facilities. An increased floor space index could also be allowed at certain locations in the development so that effective cross-subsidy could be worked out. Housing allocation and residential development would be controlled by the development authority, the community organization and the NGO.

Land-sharing is also now being tried in Bombay. The Bombay municipal corporation has invited private developers or owners of the land in fifteen selected slums to redevelop them. Slum-dwellers are to be given 180 square-foot houses costing Rs 65,000 each at a subsidized cost of Rs 25,000. The land owner or developer is expected to recover the subsidy and make his profit from the free market sale of other houses on the site. The density on the site has been increased to 2.5 FSI (floor space index) to allow additional houses. Seventy-five percent of
the slum's residents would have to agree to this redevelopment. Those that do not want to participate would be given land to build houses elsewhere. The proposal has only been recently introduced so we do not yet know if such an approach can be successful. However, what is important is that governments are realizing that to solve the housing problem the active participation of private developers and the community is needed if the housing problem is to be solved.
Notes to Chapter 5.


3. Ibid., p. 34.


8. The exact number of original occupants that were given either kiosks or stalls was not made available to the author, even though a full inventory of the settlement was done before the project was started.


10. The analysis of the present values of the shops and their earning capabilities were determined by the author on a visit to the project in January 1990. The analysis of the project is based on my survey and interviews with the mayor, officials from the city authority, the management board, the shopkeepers and the architects involved.


13. The Pakistani rupee was valued at Rs 24.60 to a US $ 1 in August 1991. The rate of exchange in 1986 was Rs 17 to $ 1.


17. Ibid., p. 18.

18. Ibid., p. 19.

19. Ibid.


22. Ibid., p. 143.


26. Ibid.

27. Ibid., p. 40.


Chapter 6. Role of the Public, Private, and Community Sectors in Housing Developments

In the developing world, housing the population is regarded as primarily the government's responsibility. To fulfil it, various countries have developed national and local housing policies and have established agencies that are responsible for providing housing for all income groups. The private sector, too, has been active in developing housing, but their clientele has been mostly middle and upper income; only a few developers have built a modest amount of housing for the lower-income groups, an fewer still for those who cannot pay on a regular basis. The very poor, and those with irregular incomes have been left out altogether; if the government fails them, they squat on vacant public or private land. Housing cooperatives have formed in several countries where people come together and pool their resources to gain access to land and housing finance. Governments in many developing countries have established various programs to promote housing cooperatives, but these too, have been mostly limited to the middle- and upper-income groups.

In the last decade, changes in the way public, private, and cooperative sectors develop housing are taking place, and the case studies evaluated in this section point towards some of this innovation. Government agencies are becoming more sensitive to the needs of the poor. Improvements are taking place not only in improving access to housing and urban services, but also in the quality of space that is developed. Private developers are also becoming sensitive to the needs of the poor, and they are discovering a market that they can cater to. Finally government agencies are also promoting housing cooperatives for the poor so that the environments can be community-developed and managed.
HUDCO--Housing and Urban Development Corporation

HUDCO, the Housing and Urban Development Corporation was incorporated on 25 April 1970, as an expression of the central government’s concern over the deterioration of housing in the country and a desire to assist the state authorities in dealing with it. Its principal mandate was to ameliorate conditions for the poorest people. It is essentially a financial institution. It was supposed to undertake housing and urban development programs all over the country, set up new or satellite towns, and establish building-material industries and other centers. Even though the name suggests that HUDCO is an urban-development corporation, half of all its new dwellings are in rural areas. As of 1990 HUDCO had sanctioned 1.9 million units in the cities and another 1.9 million units in the rural areas. It has already financed 7,174 housing projects involving 3.8 million units in 850 towns. HUDCO has sanctioned Rs 67.63 billion worth of projects out of which its loan commitment is Rs 42.20 billion.¹ Ninety percent of these houses are meant for families with a monthly income of less than Rs. 1,400. However, in terms of actual financial commitment, 55% of all HUDCO funds go towards the development of EWS and low-income housing and 45% go to middle and high-income, and commercial development.² This is because it is cheaper to develop EWS and low-income houses because plots for them are small.

HUDCO not only finances housing, but over the last decade has been working towards bettering living conditions for especially poor people. However, its impact at the city-wide level had been negligible. Because HUDCO’s operation has expanded to over 900 towns, its projects are thinly spread. HUDCO has neither funded nor undertaken projects that would have a city-wide impact, such as low-cost water and sanitation projects, as part of its housing developments. In the
absence of such an approach, no importance has been given to coordinating projects on a city-wide level. Local private developers have also followed the isolated project approach. Aranya is one example: such a large-scale project which was essentially a satellite township could have developed various inter-city linkages, but HUDCO, had no mechanism for doing so.

Since 1989 an Urban Infrastructure Finance Wing (UIFW) has been set up within HUDCO to fill this gap. Projects to be financed include water-supply augmentation, upgrading, rehabilitation, solid-waste management, sewerage, drainage, and other infrastructure projects. During the eighth five-year-plan period, from 1990-95, HUDCO proposes to support projects with loans of over Rs 80 billion (40 billion for housing and 40 billion for urban infrastructure projects) and loan releases of Rs 61 billion (Rs 31 billion for housing and Rs 30 billion for urban infrastructure projects).

**HUDCO's Targeting of Low-cost Housing**

At first HUDCO financed housing by depending on the 'filtering' theory, that is, as new housing was built the relatively well off households would move into the new houses and leave the existing housing stock to the less well-off, and so on down the line. However, by 1975 it was clear that the filtering was not going on. Surveys showed that over 60% of housing developed by HUDCO was going to well-off households, and that they were retaining the old house as well. In addition, 80-85% of the households who were benefiting from the EWS and low-income housing schemes belonged to the organized service sector; households in the unorganized sector or the informal sector had no access to this housing market at all.
HUDCO therefore jettisoned its approach and introduced what it called “deferential project funding,” with ceiling costs, differential interest, and a amortization and loaning policy. The lower the cost of the shelter unit, the higher HUDCO’s loan component as a proportion of project cost. Where unit cost was Rs 6,000 or below, HUDCO financed the entire project. As the unit cost increased, HUDCO’s loan portion of the project cost declined. This policy was further strengthened by scaling down the amortization period. The lower the monthly family income of the target groups, the higher the amortization period, and vice versa. To administer the system, the population was divided into four groups, viz., economically weakest (EWS), low-income (LIG), middle-income (MIG) and high-income group (HIG). EWS plots are meant for families earning below Rs 700/month, and the plot size being 30-35 m². LIG plots of 55 m² are for families earning Rs 700-1500/month. MIG plots ranging from 100-140 m² are for families earning Rs 1500-2500/month and HIG plots ranging from 325-475 m² for those earning over Rs 2500/month. It seemed to work: the percentage of houses going to target groups rose dramatically. Results of various surveys undertaken by HUDCO showed that the percentage of non-deserving families dropped to 10-12%, though in some cases it was still as high as 30%.7

HUDCO also shifted its attention to cities of less than a million people by charging lower interest rates for projects designed to benefit these towns. The rate of interest for these was 11.5%, for others 15%. The repayment period on loans was 15 years and loans had to be secured either by a bank guarantee, mortgage, or state government security.

Introducing the various amortization rates and “deferential project funding” helped zero in on the target group, but it has not yet much helped the tendency of
“upward filtering,” that is selling the house and moving back to where they came from--cash being clearly more valued than comfort.

_Bodella Housing Project_

A housing project in New Delhi exemplifies why upward filtering does not work. The Bodela Housing Project was designed and developed by HUDCO in 1984-85, mainly for those whose income was around Rs. 350 per month. Within a short time, however, over 90% of the original families had sold their rights for 20,000-40,000 Rs and moved back to their old _jughis_ (slums). All the houses along the main roads were converted into shops, and most of the shop owners did not stay either. This tendency of the target group to move out is difficult to control. Mechanisms suggested by HUDCO may be appropriate for identifying and targeting the population, but they do not ensure that once the people have moved in a development, they will stay.

In Bodella the problem was the reverse of that in Aranya, even though it too is located far from the city center, on the western fringes of New Delhi. Developments are also being built in this area for upper-income housing, and a new district center is being constructed right across from the site. As part of this city development plan, public transportation has been made available. All these amenities and the shortage of housing in Delhi, increased the value of the site as the commercial potential increased, making the change of ownership particularly dramatic.

The problem of targeting the right group and keeping it there is very difficult to solve. The answers lies in rethinking ownership patterns, developing a cooperative sector, and making community ownership a priority.
Bodella. (Above, left, Fig. 6.1) Site plan showing cluster groupings and open space system. (Above, right, Fig. 6.2) Development of cluster. Source: Architecture + Design. Jan.-Feb. 1988, p. 48. (Below, Fig. 6.3) View of residential cluster space.
Bodella. (Above, left, Fig. 6.4) Plan showing use of cluster space. (Above, right, Fig. 6.5) Dwelling plan. Source: *Architecture + Design*. Jan.-Feb. 1988, p. 49. (Below, Fig. 6.6) Cluster space encroached upon by rooms extended into it and by other household activities.
HUDCO's Building Centers

HUDCO has encouraged the use of locally available materials and indigenous construction techniques to reduce housing costs. It has promoted new substitute local materials, efficient house designs and economic layouts by setting up manufacturing units for the production of basic building materials to be used as alternatives to high-priced building materials. Substitutes include dry hydrated lime, door and window shutters and frames from secondary species of timber, and by the use of reinforcement technology based on research conducted in various institutions in India and abroad. HUDCO also set up building research centers all over the country to train artisans in construction skills. They are expected to function as both training and production centers and would help enterprising artisans become contractors, who would eventually be able to organize groups of workers to build houses. Over a 100 of these centers will be set up within a year. The government will provide a subsidy of about Rs 200,000 and the local development agencies will provide the land.

Though the aim of these centers is noble, the approach undertaken by HUDCO is very much institutional and approached from the top down. Unlike the Orangi approach, where the improvement of technology was done through an already existing building contractor and mason base within the community, HUDCO is setting up services which may not be able to compete in the market place. In most settlements building material yards and manufacturing exists. Instead of upgrading the existing operations and the technology in use there, they are promoting new technologies such as ferro-cement, leaving skills in the community unused.
**HUDCO's Changing Approach**

HUDCO's approach is changing. As a government organization it will continue to function using the formal-sector model and the provider approach, but, it has initiated a number of sites-and-services schemes like Aranya which are a step away from the typical built-up housing that one associated with government projects. It is also becoming more aware of the value of housing cooperatives as an effective and powerful medium for promoting affordable housing and has earmarked a minimum of 10% of its annual operations for cooperatives, a sum expected to progressively increase in the coming years.

By 1990 HUDCO had sanctioned 325 cooperative projects, including some for rural housing, for a total project cost estimated at Rs 3.46 billion and a loan assistance of Rs 2.16 billion. The result is 291,000 new units, of which 275,000 units are earmarked for the EWS.9

HUDCO hopes that its move to develop more of its housing through cooperatives will help develop neighborhoods and believes that cooperatives can draw household savings into housing. HUDCO also hopes that by developing more cooperatives it will promote cost recovery and efficient management of its loan-recovery program. However cooperatives, particularly those for the low-income group, are not a panacea. The effective forming and functioning of cooperatives need efficient and aggressive NGO's or community based organizations that can help overcome the various obstacles that arise.10 Unless fundamental changes take place at the government policy level, promotion of cooperatives will not solve India's housing problems.
Changes in the Design Approach in Public Sector Housing

Even though successful examples may be few and far between, housing agencies are at least becoming aware of the importance of design when providing housing. The design of the Aranya Township in Indore shows that government development agencies are changing their approach and are now searching for innovative ways of providing a better designed environment. HUDCO was set up to provide housing for the poor, and it continues to play a leading role in this endeavor. Besides designing housing schemes that it finances, HUDCO now also regularly holds designs competitions for schemes where architects from all over India participate.

Other agencies in India are following HUDCO’s lead taken by in developing new approaches and involving planners and architects from outside the agency in the design. City and Industrial Development Corporation of Maharashtra Limited (CIDCO) in its development program in New Bombay has developed a four-pronged approach for mass housing and urban development, which involves having outside architects and planners develop master plans for three of the seven nodes of the New Bombay Master Plan. It has also involved six consulting architects to design over 1,000-1,500 houses. Developers are selected on a turn-key basis using their own design schemes based on the requirements and specifications given by CIDCO. They both construct houses and provide external services and then hand over the projects to CIDCO for allotment to the applicants. Project-management consultants have also been appointed to supervise the construction of houses. Design competitions aimed at the younger generation to bring in new design thinking have been organized. Each of the five prize winning architects has been entrusted with 800 to 1,000 houses, each in a different node of New Bombay.\textsuperscript{11}
The new housing policy formulated by the Government of India proposed that public-sector agencies should act more as facilitator than builders of affordable housing. In keeping with this objective CIDCO will play the role of coordinator and general supervisor. It hopes that this new approach will allow a large number of houses to be constructed simultaneously by engaging the services of architects/developers/project management consultants. They also proposed to allot a large number of plots to cooperative societies to encourage voluntary efforts to augment the housing stock.\textsuperscript{12}

In response to the needs of the urban poor, CIDCO has launched a massive program of sites-and-services with the help of the World Bank. In Airoli and Koparkhairane 20,000 sites-and-services plots have been provided. Another 10,000 more are planned for in other nodes in New Bombay.\textsuperscript{13}

Although all these projects have involved leading architects to establish new approaches to housing design, the management is still with CIDCO, and as a government agency the developments therefore tend to suffer from lack of long-term commitment and continuity. The acknowledgement by government agencies that there is a need for more active public and community participation in the development of housing in itself represents a major shift in ideology. Further innovative partnerships are bound to be forged between the government, the private agencies, and the community. They are being watched and studied by other development agencies to see how they affects their housing programs as well as squatter settlements and other slums.

The quality of the environment and what constitutes optimal built form for the urban population of India have been discussed and debated among housing development agencies, in schools of architecture and planning and at the national level. The "Report of the National Commission on Urbanization," issued in 1988,
promotes low-rise high-density as the optimal built form, arguing that "producing high-rise housing for the masses is absurd, since the high land values and the expensive construction that such a topology represents can be afforded by only a small segment of our society--forcing the others into squatter colonies, and precipitating exactly the kind of polarization which is destroying our cities like a cancer." 14

In urban India 30% of the households live below the poverty line and have capital for housing of less than Rs. 5,000. The next 30% earn less than Rs 1,000 per month and have available capital of approximately Rs 13,000; for the next 25% the figures are Rs 20,000 and Rs 40,00 respectively. Only the top 7% of households earn more than Rs 3,000 per month and have capital available in excess of Rs 100,000. 15 The report therefore argues that for the vast majority of urban Indians, the optimal built-form is low-rise construction because only 7% of the population can afford anything taller. Unfortunately this is precisely the income group that prefers to live in bungalows. Cities like Bombay are an exception; there the demand for land is very high and, given its physiography, is at a premium, so the need to build high and multi storyed structures there is obvious

Government agencies and institutions are becoming more aware of the sheer magnitude of the problems they face and are searching for innovative partnerships in the provision of housing for the lower-income segment of the society. Development agencies in ever-increasing numbers are responding to a growing concern for an adequate quality environment for the urban poor. The involvement of architects and other design professionals is not a new phenomenon. They have been involved in the design of high-rise apartment blocks developed by various housing boards both in India and abroad. These schemes failed not so much from poor design, but because of politics and the complexities of living patterns in multi-
Public, Private, and Community Sectors in Housing Developments

ethnic societies such as India. The seduction of politicians into providing more and more cheap housing regardless of the environmental impact was compounded by using high-rise buildings and apartment blocks. Colin Amery recently commented that “the architects’ linking with the prefabricated building contractors produced a solid dream which was immediately alluring to politicians because you can see a high rise block. You can count the votes floor by floor of the number of houses you can build. That was a designers’ dream, fashioning the consciousness of the politicians.”

Today architects and planners design communities that are much more appropriate. Aranya shows what a skillful designer can achieve when he is concerned with providing a responsive environment. But the project also shows that the battle is only half won. Community development and management have not been adequately addressed, and public-sector housing agencies are still too concerned with the end product and not enough with the community.

Private-Sector Housing

In the provision of housing for the lower middle class in the non-Western countries the private sector accounts for a substantial volume of the units built and its influence on development of the city fabric is significant. Most countries allow private companies to build housing ranging from a simple unit on a plot of registered land to the developments of land beyond the outer limits of urban centers and new townships.

A large number of projects by private developers are insignificant in cultural or architectural value, as the developers’ goal is return on investment which involves stretching the limits of the building codes and creating as many units as are permitted within the space. The end products are often similar to those developed
by the public sector—ordinary blocks executed in a tedious and dreary architectural style, usually tower blocks or four-to-five-storey walk-ups. Some are even worse than public-sector projects, as the profit motive induces developers to cut corners during construction; some building are even structurally unsafe.

Recently however, more and more developers are engaging architects to design their projects; quality and design have become of value. Unfortunately the costs then tend to be high. For large projects the cost of land acquisition and infrastructure requires substantial capital resources, preferably coupled with political influence, limiting the number of developers that can actually participate. The operations yield high profits, however, because low land costs particularly for those built outside city limits minimize initial investments. Unfortunately these, too, serve the privileged. Examples include suburban developments with either detached or row houses and features such as front or back yards, or courtyards, or even both. These are for the upper-middle or the upper classes and fetch premium prices. A large number are designed by well-known architects whose names add to the attractiveness of the project.

In India, private developers have been able to produce cheaper, well designed units, at times through subsidies from the government or through the judicious calculation of optimum density. These projects show the increased level of density that can be supported in a community, and help evaluate their replicability and assess their impact on future developments.

Industrialists have also played a particularly important role in the development of colonies and townships built to house their own employees. In such projects design plays an important role, because they need to create a community that is attractive to their workers. As a result, even though the involvement of the prospective occupants is minimal their needs are represented. Economy may be a
factor in the design process, but there is seldom a profit motive, since the housing by and large will remain in the possession of the particular industry (generally units are rented and not sold to the employees). Although the units are not part of the general housing market, they still house a substantial population which would otherwise be competing in the general market, so they do represent a contribution to the nation's housing stock.

Architects and designers play a particularly important role in industry-owned projects, and because they are large and prestigious projects, architects are particularly keen to design them, as it adds to their reputation and fame. Over the years a number of well-known Indian architects--for example Doshi, Correa, Kanvinde, Rewal, and Sabhiki--have designed these company towns and housing complexes for private industrial organizations or government industrial agencies.

In Delhi two major housing developments are being undertaken by private developers. The Delhi Land Financing Corporation (DLF) and the Ansal Group are developing large-scale complexes, once outside Delhi now within the greater Delhi region. They include both built units and developed and serviced plots. Some have facilities such as shopping centers, schools, and hospitals.

Changes in the Private Sector Approach

In India over the last two years as a result of the National Commission on Urbanization report, the role of the private sector has been redefined. The Urban Commission came to the conclusion that public agencies and housing boards should play the role of facilitator, not builder. Given this new approach, some state governments have gone into partnership with private developers to increase the housing for the EWS and lower-income people. In Uttar Pradesh, for instance, in northern India, an agreement has been reached that whatever scheme the
government adopts, a certain portion of the development will be earmarked for the EWS. In a township being developed by the Ansal Group a private developer from Delhi in Lucknow, 40% of the houses constructed are slated for the EWS. These houses are supposed to sell for a price of Rs 21,000 against a cost of Rs 28,000. The Ansal Group is subsidizing the Rs 7,000 difference. In other projects in Haryana a state neighboring Delhi, the Ansal Group is developing townships where 20% of the plots are destined for the EWS. They are developed plots with services provided at almost one-tenth today's market price. The government sets the rate at which the plots will be sold to the beneficiaries. In the same scheme another 25% of the houses are being constructed for the lower-income group, and here too serviced plots are provided at cost. The at-cost basis is also determined by the state government.17

The private sector plays an increasing role in the provision of housing for the poor. In Bombay an innovative land-sharing project has recently been initiated whereby private developers provide infrastructure, services, and subsidized houses in slums, in return for which they are given an increased floor space index (FSI) or floor area ratio, in 30-40% of the slum area for commercial or other development which they can then sell at a profit.

It is by now a myth that the private sector caters only to the affluent. Several developers have shown themselves both willing and able to provide decent housing for the poor, though they cannot and will not do so unless the government's policy is clear. Only two states have formulated such a policy, and in Delhi no one has started thinking about it. In Bombay the slum upgrading program has come about with the help of developers only at the insistence of the new commissioner of the municipal corporation.
Private developers must make a profit; they are not charitable organizations. Therefore incentives have to be worked out using the advice of the more prominent and conscientious developers to arrive at a clear and reasonable strategy.

In Indonesia, just outside Jakarta, a new town, named Bumi Serpong Dami, is being developed entirely by the private sector. It has been planned to provide accommodations ranging from low-middle class to rich. The population in thirty years is to be 800,000, larger than Chandigarh is now, after thirty years.\(^{18}\) Endeavors like these demonstrate that private industry and developers have contributed significantly to the housing market and have important roles to play in future developments. Their efforts need to be examined, not only to understand their design implications, but to also take a closer look at how they work.

**Cooperative Housing**

Community involvement in housing development has increased substantially during this century, as confidence waned in the political and financial systems that control the production of housing. To be effective individuals have to organize into groups to increase their negotiating power and their capital. Cooperatives are one result. Poor people may come together to form a cooperative, or people from a particular group or region may come together to produce housing for themselves.

Abrams argued, as early as 1964 that cooperatives hold promise for developing countries because they take advantage of social patterns based on tribal and clan ties. The benefits that can be defined should be salvaged in the urbanizing process or they will be irrevocably lost.\(^{19}\)

In Europe cooperatives provided housing for the working class,\(^{20}\) especially after World War II. In Chile, housing cooperatives have built nearly 10% of the total houses constructed between 1963 and 1970; and in Brazil, 157,860
cooperative units were constructed between 1966 and 1973.\textsuperscript{21} Statistics such as these show that housing cooperatives are playing an increased role in providing housing for both the poor and the middle class. The type of housing cooperatives build ranges from small settlements of 15-30 dwellings to whole satellite cities. The smaller schemes are generally carried out by contractors with the cooperative raising and distributing the necessary funds. However, some cooperatives also act as their own contractors to reduce the cost of construction. Large-scale cooperative projects are widely supported by the public sector, because they represent a non-government effort to tackle the housing problem. Favorable loan opportunities are offered either by the financing institutions or by government agencies.

The first and crucial step is the acquisition of land, which is then used as collateral to raise the construction loan.\textsuperscript{22} To obtain the necessary permissions and the loan, cooperatives need to produce some design or architectural documents. Therefore there has to be a certain amount of group input into the design of the project. Close cooperation between architects and cooperative members has resulted in successful designs, at least in terms of the harmony achieved between the community and its environment. Even if architectural quality may be lacking, user participation in and contribution to design is important.

Cooperatives are still in the process of figuring out how best to formulate design principles. It may not be feasible under our present system of design for so many to participate, and at times the results are awkward. What needs to be determined is what the level of community input should be; what kinds of design issues can be laid open for discussion; and how these will affect the overall design.

Cooperatives involve collaboration between private initiative and public support; they offer a most effective way to generate dwellings. Housing developed by the
community sector needs closer examination to understand the process and the resulting built form.

In India by 1988, there were over 41,000 housing cooperative societies with over 3 million members and a working capital of Rs 16 billion (16,000 crores). These are supervised by Apex Housing Finance societies/federations which have been formed in 24 states. The Life Insurance Corporation of India had by March 1988 distributed a total of Rs 11.39 billion (1,139 crores) to various housing cooperatives for construction of 700,000 houses. In India, because of large government subsidies, a substantial number of housing projects are being developed by cooperatives. Architects are often also involved in them, as at times these too are large and prestigious projects. Generally, middle-income cooperatives are organized by professional people who are able clearly to state their requirements. They may go this route because it has financial advantages and makes it easier to acquire land for building. In New Delhi at present there are over 2,000 registered societies; since 1988 due to increased land speculation by some developers, there is a moratorium on new cooperatives. Setting up and running cooperatives requires elaborate procedural steps.

Two cooperative societies in New Delhi were studied to find out what problems they face and what their advantages and disadvantages are. The selected cases are unusual and were chosen precisely because of their uniqueness, as they highlight the issue of community involvement more dramatically. Design was not a primary concern in the study. It concentrated instead on the role of the cooperative in the development of the housing and the roles of its members.
Yamuna Apartments

The first society to be studied, the Yamuna Apartments, was one of the first cooperative housing schemes to be completed, and although it was built under the same constraints as other housing development in Delhi—including DDA’s own housing—it presents a refreshing contrast in concept, design and development.

To accommodate the fast growing population of the metropolis, the DDA, in addition to selling apartments through a self-financing scheme, allots land to cooperative housing societies at the rate of 90 sq. m. per member. The result has been high-density multi-storey blocks with stereotypical layouts similar to the ones constructed by the DDA itself.

The Yamuna Co-operative Group Housing Society was formed in response to changes in government policy. It was the first society to be approved and the first to be built, it is now over 20 years old. It took a number of years to acquire land and collect the capital needed to purchase it. The DDA encouraged it by giving concessional rates in South Delhi beyond the Ring Road because at that time it was promoting the development of land in Alak Nanda in South Delhi. New members have joined since, some are from other parts of the country.

The Yamuna Co-Operative Group Housing Society has 195 members drawn largely from the middle class and mostly white-collar government officials from the World Health Organization and the Federation of Indian Chamber of Commerce. Most of them are originally from the South Indian states of Andhra Pradesh, Kerala, Karnataka, and Tamil Naidu, and they constitute a fairly cohesive social group with similar specific requirements. The apartment plans and layout could thus reflect a very specific social and cultural way of life.
Until today the land is in the name of the group-owned society. The Group Housing Society raised money from its members; the lessee of the land is the Yamuna Co-operative Housing Society. Individual members sub-lease the flats, they do not own them. This is done to curtail speculation, as land given to cooperatives is below market price. The trust records the deed, a government regulation that is part of the Delhi Apartment Act.

The society follows the by-laws laid out down by the government. The cooperative society has to be registered with the Registrar of Cooperative Societies in Delhi and the DDA. An individual society cannot modify or change the rules. According to the existing by-laws, individual cooperatives have to have governing boards whose members are elected by all members of the society. All new members to the board of the individual society have to be approved by all members of the society and by the registrar of cooperative societies to avoid stacking of management board. In many instances, individuals had been able to gain control of the cooperative society board and then manipulate the transfer and sale of plots and additions to individual apartments.

Since the flats are not in the name of individuals, selling them is difficult. Ownership is transferred by giving a power of attorney to the new occupant. The cooperative allows such transfers to take place, but would prefer to be able to approve the new owner. Because of the delay in acquiring land and starting the construction in Yamuna Apartments, a number of the original members had left, and new members from the waiting list had joined by the time it was built. These new members had to pay interest approved by the registrar to bring all the members on par, because interest had to be paid on monies deposited by those members who had left. The original membership had been chosen by the co-op founders, who decided on the kind of people they wanted to live with. There were no written rules.
governing membership. In case of new members, the governing board checks the individual or family background and tries to determine whether they will fit into the community. In Yamuna all members are expected to serve as volunteers on various committees.

**Role of the Cooperative Members in the Design and Construction**

What sets Yamuna apart from other cooperatives is the active role its members took in the construction. Its role in design was limited to that of an informed and active client group, but when building began the cooperative played an active and significant role, which led to substantial savings and points to ways communities can participate in the design and development of their living environments. Tara Apartments, another cooperative, designed by Charles Correa and across from Yamuna, may have a better layout and architectural qualities, but there its members did not participate in the design or building process. Tara apartments has cost much more than Yamuna.

From the beginning members made it clear that they would help in construction to save on costs and ensure quality. To do this, a managing committee, a building committee, and a finance committee were set up and an outside consultant was appointed to oversee construction and act as a quasi-contractor. His fee was based on a percentage of construction cost. The consultant, however, found the quality check by the members too stringent; he could not deliver the expected quality of construction at the profit he expected to make, so he left the work midway. The Yamuna Co-operative members then decided that instead of hiring another contractor, who might well do the same thing, they would to do the contracting and supervising themselves. Some members were in the building business. The
structure of the buildings was designed by one of them, so they felt that they could take on their construction and were aware of the work involved.

A committee was set up whose task was to get building materials at concessional rates. The members checked for quality all the material that were purchased, using contacts they had and in some cases (buying teak wood, for example) going to wholesale auctions. Most the work was done with hired carpenters and machinery installed on site.26

The results were major savings by the housing society. The cost of construction was under Rs 100 per sq. ft., about half what it would have cost them if it had been built by an outside contractor.27 Today the committee looks after the regular maintenance. They charge each member Rs 105 per month irrespective of the category of flats or size of household. The sum is used to pay water charges, and street lighting, to maintain common access ways, and to pay salaries for gardeners, 24-hour security guards, a plumber, and an electrician who serve the day-to-day needs of the community. For major repairs the material is purchased, and the plumber or the electrician provides the labor. All the interior work is the responsibility of the flat occupant; only outside maintenance is done by the society. Some money also goes towards the sinking funds as part of the statutory obligation.

Each member contributes Rs 2,000 as share money when he joins, which is invested by the society and pays interest, to be used for major repair work required down the line, such as replacing the underground pipes. No such problems have arisen in the last eleven years.

Each member also pays for parking--Rs 20 per car for street parking and Rs 5 per scooter in a basement. Each flat owner also has a storage cubicle in the basement. In one of the basements is a cooperative store; another has been let out for children to play music or dance. Originally they had thought to cut down on
maintenance charges and make money by renting out shops, but eventually it was decided that these should be run by and for members. Members offer the amount they are willing to pay and the highest bidder gets the shop. Shops are not sold, since the members would then lose control over who comes into the premises. They do not see the shops as investments but as a service to the community. People are allowed in only after the security guard has verified their purpose. There are half a dozen shops in the society—a tailor shop, a grinding mill, a fresh vegetable shop and a small canteen.

Design of Yamuna Apartments

The projects architects were Ranjit Sabhiki and Ajoy Choudhury of Design Group. The site covered 4.25 acres (1.72 hectares) of which 0.5 acres (0.2 hectares) in the northeast corner had by law to be left as open space to form a continuous green space with similar areas in the adjoining residential complexes.

The design approach was to imitate a “typical” Indian village, with its lively narrow galis or pedestrian streets. The complex consisted of several blocks of 4 storey walk-up units arranged around a central square. The modulation of the facade was achieved by changing the shape of the terrace from square to rectangular on alternate floors, which varied the facade and provided a strong geometrical framework for the buildings.

In the central square are the recreational facilities. The club is on a first-floor level that forms a bridge between two housing blocks. The shops and canteen are also in this square. The dwelling units are of three basic plans of varying sizes grouped together in a repetitive way to form the housing blocks.28

The staircase is on the outside of the building and leads off the internal pedestrian street, acting as transitional space between common public areas and the
Yamuna Apartments. (Fig. 6.7) Site plan and typical floor plans. Source: Mimar. 14, p. 60.
Yamuna Apartments. (Above, Fig. 6.8) The change in the shape of the terrace--from square to rectangular--on alternate floors provides considerable variation to the facade. (Below, Fig. 6.9) Units grouped around the central square which has shops and an open air stage.
Yamuna Apartments. (Right, Fig. 6.10)
The access staircase in each block form important design elements. The street below is reminiscent of a typical gali.
(Below, Fig. 6.11) Children playing in the central square.
private areas of each house. This also enables residents to converse with each other.

The designers spent time with members of the society trying to understand their lifestyles and their requirements so they could fit it into their design, but their relationship was no different than that of any designer with an informed client. The head of the cooperative society Mr. Narayanswamy is a well-known structural engineer, who was then teaching at the School of Planning and Architecture in New Delhi and was also the structural engineer for the project. The client group therefore was very informed and were able to articulate its needs to the designers in a systematic and precise manner.

The complex is now eleven years old and has weathered well. The residents have made minor modifications to the design, particularly enclosing the balconies to create more living space. The main objective of the designers and the society members, to create an integrated community, has largely been fulfilled.

Swayam Siddha Cooperative Society, Madipur, New Delhi
Promoted by the Ministry of Urban Development and the Delhi Development Authority (Slum Wing), as part of the International Year of Shelter for the Homeless in 1987, Swayam Siddha Cooperative Society, Madipur, New Delhi, a national site and shelter demonstration project, marks a shift in the role of the public sector in housing from that of builder to that of facilitator. This project also exemplifies the complexities involved in establishing a cooperative society for low-income housing. It involved the All India Women's Conference (AIWC), an non-government organization entrusted with the management and development of the project, as well as a cooperative society. It was financed and designed by HUDCO
using ideas of user participation and integrated development, and it is seen by HUDCO as a landmark in the shift of government from provider to facilitator.

The project had the following objectives: development in keeping with user lifestyle; efficient use of land without compromising on basic environment quality; cost effective project management; mobilization of financial resources; adoption of low-cost building technologies to reduce housing investment; and development of viable urban communities through NGO participation.29

The project was initiated by Mrs Mosina Kidwai, who was the Minister for Urban Development, at a conference on the International Year of Shelter for the Homeless, held in 1987, promised to build housing for poor widows. She asked the Delhi Development Authority’s Slum Wing to provide the land and HUDCO to finance and design the project. She also asked the All India Women’s Conference, (AIWC) to be part of the team. She did not want either the DDA or the Central Public Works Department (both of which were under her jurisdiction) involved in the building because she wanted it to be a volunteer organization. She was a member of AIWC, and she felt it was an appropriate project for the AIWC to take on.

Technical support given by the National Building Organization included providing low-cost technology. Project management was provided by the School of Planning and Architecture in New Delhi, by the Integrated Project Management Group, and by a private architectural firm.

The backbone was the AIWC and in particular Mrs Vidya Prabhudayal herself, who was appointed treasurer of the Swayam Siddha Cooperative Society and was also a senior officer of the AIWC. Mrs. Prabhudayal is a powerful individual who was an elected representative of Congress and has very close connections with the ruling elite of Delhi. What she achieved shows the need for political connections to
### Roles Played by the Various Institutions

<table>
<thead>
<tr>
<th>Institution</th>
<th>Type</th>
<th>Services</th>
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| Ministry of Urban Development| Government                | - formation of multi-institutional project team  
- coordinating project team work in association with other government departments.                                                                                                                  |
| Delhi Development Authority  | Government                | - registration of widows living in Delhi for the 46 housing schemes  
- permitting the widows to form a cooperative for obtaining finance  
- allotting land on a priority basis  
- transferring deposit money of the widow beneficiaries to the Society  
- timely approval of the scheme  
- signing of perpetual sale deed on part payment towards registering of land, enabling the Society to obtain a loan from HUDCO for the scheme |
| Slum Wing                    |                           |                                                                                                                                                                                                          |
| HUDCO                        | Government                | - project design and development with user and NGO participation  
- financial assistance  
- coordination of multi-institutional project team  
- reviewing progress periodically                                                                                                                                 |
| All India Women's Conference | Non-governmental organization | - formation of the group housing society  
- registering the society  
- completion of formalities under group housing society rules  
- liaising with DDA  
- registering and mortgaging the property for obtaining a loan from HUDCO  
- income tax clearance  
- obtaining necessary sanctions and clearance,  
- appointing the management consultants and the contractor and monitoring the progress of the work  
- recovering loan instalments and interest from members and making payments to HUDCO  
- recovering ground rent from members and payment to DDA Slum Wing. |

Madipur. (Fig. 6.12) Roles played by the various institutions in developing the Swayam Siddha Cooperative Society. Source: *Architecture + Design*, Jan.-Feb. 1991, p. 83.
get such projects developed and the need for leadership in initiating and organizing community initiatives.

*The Role of the AIWC in the Process of Housing at Madipur*

AIWC was asked to become involved when the project site was inaugurated in January of 1987 near Madipur village in North Delhi. The land measured 1.63 hectares and had been acquired from the DDA Slum Wing. The complex was to house about 300 widows, whom AIWC was to select from among the more than 1,000 widows the DDA Slum Wing had registered since 1975. An income of less than 700 Rs per month was the qualifying factor. AIWC was also put in charge of getting the cooperative society registered and the houses built. Mrs Prabhudayal had no previous experience in construction, but she was the Director of Public Instruction in Punjab before she came to Delhi and had experience working with people.

Setting up the cooperative society and of obtaining the various exemptions necessary for making it work for a very low-income group are difficult and time consuming. The project was scheduled to be completed in one year with work commencing on October 1, 1987. However, the various obstacles in getting the cooperative society formed, registered, and approved, delayed the project for over a year. To set up the housing cooperative Mrs Prabhudayal had to go to the Registrar of Cooperative Societies' Delhi office. There she was told that the society could not be formed; the Delhi government had banned new cooperative societies because of the growing problems of speculation in the 2,000 already formed.

Mrs. Prabhudayal, then went to Chowdary Prem Singh, at that time the Director of the Metropolitan Council in Delhi and the member in charge of development.
After a good deal of running around and string pulling, she finally got the society registered.\textsuperscript{30}

Next a meeting of the selected widows was called. The Registrar of the Cooperative Society came with his staff and registered the women and the society was formed. Then the plans and estimates prepared by HUDCO were approved by the DDA. Before HUDCO could release the loan the land had to be registered and the deed passed to HUDCO as collateral. The DDA Slum Wing prepared the papers and handed them over to the Swayam Siddha Cooperative Society (SSCS).

Rs 200,000 was the required fee for the actual land registration. Since there was no money, a waiver had to be obtained from the Commissioner of Taxation. It was granted after a letter came from the Registrar of Societies stating that the co-op was tax-exempt; the minimum charges in all about Rs 50,000 were paid. At the time of registration with the DDA the widows had each given Rs 3,000; this money was collected from the DDA Slum Wing and used to pay the above minimum charges. The deed was then handed over to HUDCO and the loan of Rs 8.1 million approved.

After the land was acquired, design and construction began. User participation in construction was ruled out from the beginning; the widows had neither the time nor the skills needed.\textsuperscript{31} Labor to construct the houses was hired with the help of a project manager, the Integrated Project Management Group. Again this did not work well, and again the society terminated the services of the management firm and assumed the responsibility for managing the day-to-day construction with the help of an architect who provided the same services as the management firm at a much lower cost.

This was an unexpected outcome and underlined the determination and ability of the society members to manage their own affairs.\textsuperscript{32} However, management did not
come easily. Mrs Prabhudayal undertook the responsibility of overseeing the
construction. In order to keep costs under control and to get the project built, she
had to use every trick in her bag and browbeat several high-level bureaucrats into
helping her. For instance, cement in India is very expensive and always in short
supply. To procure cement she met the Commissioner for Rationing and
Consumption (cement is rationed in India) and managed to buy cement at the cheap
rate of Rs 456 per bag. She also got cheap bricks and other building material.

To get the plans and estimates for electrical connections for the society she
contacted DESU (Delhi Electrical Supply Unit) which provides electricity in Delhi.
To hire an electrical engineer to prepare the plans and estimates would have cost Rs
30,000, but Mrs. Prabhudayal,

happened to know the Chairman of DESU when he was the commissioner of Consumer
Articles. He agreed to help us. He asked a junior engineer to help us with the plans and
work out a budget. Of the total cost of Rs 2.3 million, we only paid Rs 1.3 million the
rest was shared with the New Delhi Municipal Corporation (NDMC).33

For water and sewerage connections she sought the cooperation of the New
Delhi Municipal Corporation (NDMC). The lieutenant governor intervened on her
behalf to get the plans for the water and sewerage done. The plans for the services
and other development were made by DDA and then approved by the NDMC.

**Design of Madipur Housing**

The design of the housing is based on a conceptual plan for eighteen unit clusters,
each on a plot of about 20 sq m, enclosing a central courtyard for the common use
the widows and their children. The units are single-storey, with a single cooking
and living space and a separate enclosure with bathing facilities. Storage is possible
in space beneath the stairs. An *otla* (threshold or porch in the front of the units)
provides a multipurpose outdoor space. The rear otla gives access to the toilet and a rear lane which opens onto small open areas which improves ventilation and simplifies the laying of service lines. The rear lane connects with the pedestrian networks leading to community facilities. The cost of construction came to Rs 36,675 per unit (including land and development). HUDCO extended an 85% loan. The cost of the house at the market rate would have been over Rs 100,000.

To facilitate design, development, and construction a management committee was formed, as mandated by the Registrar of Cooperative Societies. The chairperson of AIWC, Mrs Padma Seth, was vice chairman of the management committee; Mrs. Prabhudayal was the treasurer; the Deputy Registrar of the Cooperative Society was the secretary and one representative from HUDCO, from DDA Main, DDA Slum Wing and the Urban Development Ministry were members. It also had six elected women from among the beneficiaries.

Discussions between the society members and designers regarding the facilities to be provided to individual units then began. The AIWC and in particular Mrs Prabhudayal helped achieve a desirable balance between expectations of the beneficiaries and their ability to pay. These discussions resolved many conflicts, which would have been difficult for the HUDCO, or any other government organization, to handle on their own. For example, the clients did not want to share a staircase with the neighbor as it would prevent enlarging their own unit. The revised design provided two sloping waist slabs on which steps could be built, should expansion take place, without any increase in costs. The extra area beneath the slab added useful space in the dwelling. It was also only with the help of the AIWC that the design team was able to convince the society to accept a cooking space within the unit to keep the overall costs within affordable limits. The beneficiaries wanted plastered instead of the proposed exposed brick surface, so the
Madipur. (Above, Fig. 6.13) Cluster plan showing central court shared between 18 houses. (Below, Fig. 6.14) Perspective showing cluster entrance arch and external brick finish, both later deleted to accommodate residents desire for a plastered external finish. Source: *Architecture + Design*, Jan.-Feb. 1991, p. 82.
Madipur. (Above, Fig. 6.15) Cluster concept diagram showing the development of the cluster and its final grouping. Source: Architecture + Design, Jan.-Feb. 1991, p. 81. (Below, Fig. 6.16) The cluster courtyard. The waist slabs for future vertical expansion are clearly visible.
Madipur. (Above, Fig. 6.17) Vehicular road in the project. The backs of houses open to it. The main entrances are through the cluster courtyard. (Below, Fig. 6.18) Upper storey extension being built by resident who has just moved in.
AIWC and the design team balanced expenditure elsewhere by eliminating the cluster entrance arch.\textsuperscript{35}

Even though weekly discussions were held to help guide the design, Mrs Prabhudayal later complained that “the women had no say in the actual design of the units. The plans were shown and discussed in the general body meeting and approved by the general body before construction started. Any comments on the design were only discussed at the general body meeting and changes made there.” When the design was presented, however, they had the opportunity to voice their opinion and make changes, and this itself represents a major break in the way government agencies operate. The top-down or provider approach had shifted to a mutual-sharing approach in this case.

Although one room is minimal in this case even the AIWC agreed that it would suffice, since the major consideration was low cost. Therefore a one-room tenement was built with an outside courtyard space to be shared among eighteen widows and the potential for upstairs extension with the provision of waist slabs, at least one of which is already under construction.

The houses are not owned by the widows but by the cooperative society, with the widows as lessees. They can only sell their units back to the society which then has to resell it, or give it, to another widow, as mandated in the bylaws.

The loans are for a 15-year period. Before possession the beneficiaries had to pay Rs 300 per month over a three-month period. After possession, the monthly cost is Rs 100 per month. It includes the cost of land, electricity, water, sewerage, and maintenance. The amount is collected by the treasurer of the society (Mrs Prabhudayal) who then pays it to HUDCO. The society is billed every quarter. After the initial installments, the names of the beneficiaries are sent to the DDA for sanctioning of possession.
The project so far has been successful. It was completed in July 1991 and the first beneficiaries moved in August. It is too early to tell whether selling will be a problem or not, as most widows have borrowed money from outside to meet their payments. At a later stage there may be pressure on these women who are unable to pay off their debts to give up their home.\textsuperscript{36}

Another success was the degree of institutional coordination achieved. Weekly meetings were held at HUDCO with representatives of the various government agencies involved. The success is also due to the inordinate energy expended by the AIWC and Mrs. Prabhudayal in making all the right connections and forcing her way through the maze of bureaucratic red-tape that she came up against in getting the process underway.

**Housing Finance**

Even in the informal sector where houses are built incrementally and through a process of accretions households need access to money, though the amount needed at one go is much smaller than what is needed in the formal-sector approach. Various money-lending mechanisms serve the informal sector, but in the formal sector no financial institution existed until 1970 that could serve the needs of ordinary people. M. J. Pherwani, who is the chairman of the National Housing Bank, points out unlike the agriculture sector where the government used savings from farmers to develop agriculture, household savings mobilized by the banks, the financial institutions, and the central and state governments, is not used to build housing.\textsuperscript{37}

The development of a housing finance system in India has been dependent on institutional support from established development and investment institutions. The first step towards specialized housing programs was taken when HUDCO was
established. Other national financial institutions either have few funds or are not eligible to lend for housing. The banks can lend money for housing, but their lending is restricted to 1.5% of their deposits. Other large government corporations such as the Indian Fertilizer Corporation of India, IDBI and ICICI are not allowed to lend for housing.38

Over the last decade more significant changes have taken place in the housing-finance sector in India. The promotion of the Housing Development Finance Corporation (HDFC) 13 years ago as the primary finance institution in the private sector has given a tremendous impetus to housing finance. HDFC provides loans to individuals and charges them 14.5% interest and requires the deed to the house or apartment as collateral. It was developed with little no initial government support. Today it is a premier housing finance institution in India and touted as a model of success. However, its growth has been predicated on institutional support from government-owned banks and financial institutions.39 In 1989-90 HDFC's cumulative loan approvals grossed Rs 20 billion and loan disbursements Rs 15 billion for nearly 400,000 units all over India. Outstanding housing loans amounted to over Rs 12 billion.40

In 1980's the annual gross capital formation in housing was about one-third of what it was in 1990 (about Rs 31.3 billion compared with Rs 110.6 billion).41 In just over a decade, housing finance has become a major component of total formal-sector finance. In 1990, the flow of net credit to housing has increased to nearly Rs 20 billion a year.42 This exceeds, in one year alone, the cumulative institutional contributions to housing in 1980.

Ten years after the promotion of the HDFC the government set up the National Housing Bank (NHB) to develop a network of specialized housing finance
institutions in the country. In fact the NHB came into existence at a time when local and regional finance institutions were yet to be developed. The NHB also acts as a regulatory body. It has been conceived as a multi-functional bank for the housing sector operating the housing finance system at non-subsidized rates of interest with full cost recovery. At the same time it is supposed to induce cross-subsidization low interest rates being charged for the poorest households, but keeping in view the fiscal concessions enjoyed by the high-income households.43

Future Role of Housing Finance Institutions
In the last few years a number of primary HFI's have been established both in the public and private sector. However most of them depend on the banking system and have made no major effort to diversify and broaden their base of resources. Household savings primarily for housing has not been actively promoted except in few cases.

Though India has the advantage of a more developed primary housing sector than quite a few developing countries, it nonetheless faces a difficult task in changing to a market based economy. A rapid integration of the HFI with the rest of the economy is needed. It is indisputable that efforts of all HFI and banks, including the foreign banks, tend to focus on the middle class and those that are employed. To some extent, house loans are also being obtained by professionals such as lawyers and doctors, but by and large, the informal sector comprising small businessmen, traders, and others have not been sought as a target for housing finance.44

In India's economy the service sector dominates, and the small businessmen and traders therefore offer the maximum potential for growth. The demand for
housing among them is no less than the demand for housing by young professionals.

The urban poor are still cut out of the system. Efforts should be made by the ever increasing number of HFI’s to serve that segment with small loans without collateral. Diversifying HFI’s into smaller institutions that can cater to the poor is needed if a comprehensive housing policy is to be developed.

**Lessons Learnt**

In the 1980’s both the attitude and approach of government housing agencies and private developers shifted. Design and the quality of the environment received more attention, and designers began to play a greater role in community design.

Agencies such as HUDCO and CIDCO are now searching for new ways to create innovative partnerships and are supporting research to bring this about. HUDCO established the Human Settlement and Management Institute (HSMI) in New Delhi, which is primarily concerned with land management, income generation, and environmental studies. HUDCO’s new recognition of the importance of upgrading infrastructure at the city-wide level and of integrating its housing development projects into the city structure is a result of HSMI’s work.

HUDCO has also, together with the DDA Slum Wing, set up a Habitat Polytechnic, to reorient technical education toward housing and human settlements. The polytechnic will concentrate on construction skills, with special emphasis on low-cost technologies. It also hopes to teach at the undergraduate level a range of skills, that will facilitate housing development, the first of its kind in India.

In a recent speech to the Ford Foundation, Mulk Raj HUDCO’s Director of Finance, lamented the lack of institutional attention towards the poor. “Institutions rarely reach the urban poor. Only NGO’s can break this impasse. Wherever
NGO's are active, they have helped the poor to form themselves into neighborhood committees or cooperatives."

The Building Center of HUDCO has been very active in promoting new technology. However 'top-down' that approach may be it has had an impact by making people aware of local building traditions. The linking of design professionals as consultants to these agencies has also brought fresh thinking to the design and built form of residential communities. These exercises are to a large extent concerned with internal spaces, clustering, and spatial hierarchy. The problem involved in neighborhood formation and urban integration have yet to be seriously considered.

Integrated development and community involvement are no longer being paid lip-service to by officials in government agencies, particularly HUDCO. There is now an active search for innovative collaboration. However, each small effort brings its own problems and gives researchers an opportunity to learn and to suggest more innovative linkages. These efforts have to increase dramatically before the provider approach is replaced by the enabler approach.

Care has to be taken, though, that integrated community development does not simply become the latest fad, providing rhetoric for politicians who are not really interested in improving life for the poor.

In the private sector the changes have been of a different nature. There efforts revolve around catering to the people who can afford its housing and to creating model residential communities for them. Architects, designers, and developers catering to these needs, however, cut themselves off from the rest of the city and create an isolated "socially cohesive" environment. The message that such designs transmit is that the city outside is not healthy, and only these new developments can provide a healthy, clean, and safe place to live, free of the problems of a big city.
They also tend to lead to greater class and social distinctions between the rich and poor.

Some developers are now catering to the poor through the formal sector, but their efforts are still limited to those poor people who can pay something on a regular basis. The very poor are still out of the market, since housing finance institutions serving the poorest people have such limited resources, while both the National Housing Bank and Housing and Finance Development Corporation serve those with at least some collateral. The community sector approach may be useful here in helping the poor gain access to loans by providing collective land as collateral, the approach used by the Swayam Siddha Cooperative Society.

The community sector and the two cases described above point to some of the achievements of the cooperative housing sector. Community initiative and management were the key to their success. In the case of Yamuna, the society members of their own accord saw the advantages in taking over the management of the construction process, albeit by default. No outside agency was involved in providing either management or organizational services. They were able to achieve this, where others have failed, because the community were friends and from the same socio-cultural region of India and because they represented an educated and influential class. They knew what they could achieve in the way of a pleasant place to live for their families.

The Orangi Pilot project also demonstrates what can be achieved when a community is brought together. Savings were substantial, quality was high. However, community management is no panacea. As in the case of the Swayam Siddha Cooperative Society, the role of the NGO was crucial to the development of this project. Without the AIWC the society could not have been formed and the client group would have been vulnerable to exploitation by both the government
Public, Private, and Community Sectors in Housing Developments

agencies and the private contractors. It is unlikely that HUDCO and DDA would have exploited the situation. But the normal situation in India is that government agencies have their own limitations, and however concerned they may be they are unable to feel the pulse of the community. The Aranya Project has very clearly highlighted this issue.

The Swayam Siddha Cooperative Society and the role of the AIWC and the Orangi project and the role of the OPP both show that for every project there must be some key powerful individual with determination and connections who is willing and able to piece the whole project together. In Orangi, the vision and determination of Akhter Hameed Khan provided the backbone, the widow’s co-op, now proclaimed as a banner project in which powerful government agencies were involved, still required the AIWC and particularly Mrs. Prabhudayal to go through a maze of red tape before it could be formed and the project gotten off the ground. Cooperative societies for the urban poor are a good idea, but unless some of the rules governing their formation are amended, most poor people will not be able to take advantage of them without the backing of a powerful NGO. It is difficult for an undefined group to press its demands. It was the NGO that undertook the responsibility of evaluating the socioeconomic status of registered families, listing the target group, and most importantly providing the leadership necessary for the emergence of a cohesive lobby.

Another problem the widow’s co-op demonstrates is that a project must have an outside non-profit agency for both occupancy and post-occupancy service. Collecting loans and making payments on time cannot be managed by the occupants. It takes time before a society can start governing itself. NGO’s can also help prevent loan sharks from moving into the project and taking possession of the property. The task of policing is not easy, but NGOs are at least seen as an
effective barrier. NGO's may stand a better chance than government agencies in such cases, as the OPP project shows. Private outside management services in both Yamuna and Swayam Siddha Cooperative Society did not work because unless they can clear a profit they will not provide the services at the required quality.

The above cases show that in successful projects, individual and group initiatives must be strong. No organization, whether private or government, can succeed without it. Whether the government will be able to encourage and appreciate such efforts is unclear. Would, for example, government agencies entrust the responsibility for forming groups to voluntary organizations, who because of their associations with the people are better placed to identify what the right group is? This is particularly important when new housing projects are being undertaken, as the need for identifying the target group is as critical as forming it into a cohesive whole and identifying and fostering its leaders.
Notes to Chapter 6.

1. HUDCO, *Twenty Years of HUDCO* (New Delhi, 1990), p. 3.


4. HUDCO, *Twenty Years of HUDCO*, p. 35.


8. I undertook a study of the project along with HUDCO to supplement an earlier study undertaken by HUDCO and partly published as “Bodela Dwelling Transformations,” in *Architecture + Design*, (Jan-Feb 1988), pp. 48-51.


10. Madipur project in Delhi jointly developed as a cooperative by HUDCO and the Slum Department of Delhi Development Authority is an interesting study in how such projects are developed with the help on an NGO.


12. Ibid.

13. Ibid.


15. Ibid.


17. Based on interview with Sushil Ansal, head of the Ansal Group, August 9, 1991.


21. See A. C. Lewin, *Housing Co-operatives in Developing Countries* (New York, 1981), pp. 18-19. He provides a comprehensive study of housing cooperatives in the developing countries and their potential and suggests ways in which more effective housing cooperatives can be established.


24. When the plots were first developed in 1981, there was no other development there. However today it is part of a thriving community in South Delhi, located near some attractive residential developments. The location is now sought after as a prime residential location.

25. In Bombay, the situation is different: much like condominiums in the United States, there the builder or promoter constructs the flats and then sells them. It is binding on the buyers to form a society without which they would not be able to get electricity, water, etc. In Delhi the society is formed to start with, the land is given to the society, and the construction is overseen by the members of the society. They have all contributed money towards the development costs and for various approvals.

26. Interview with Mr. Iyengar, resident of the society on August 8, 1991. He was involved in the construction of the buildings.

27. Interview with Mr. Ranjit Sabhiki, architect of the project, on January 14, 1990.


30. Interview with Mrs Prabhudayal, August 8, 1991.

31. In most countries where labor is cheap owner-building may not be appropriate. Particularly in less developed countries labor accounts for a small part of the total costs, though households are usually unable to provide any but unskilled labor and often the need to provide labor meant the household suffered losses of earnings greater than savings made in housing costs. The widows had no other wage-earner in the family. See Tony Schuman, “The Agony and the Equity: A Critique of Self-Help Housing,” in Bratt, Hartman and Meyerson, eds., *Critical Perspective on Housing* (Philadelphia, 1986), p. 467.

33. Interview with Mrs Prabhudayal, on August 8, 1991.


35. Ibid., pp. 81-83.

36. Interview with Mrs. Prabhudayal, on August 8, 1991.


41. Ibid.

42. Ibid., p. 10.


44. Ibid., p. 36.
Chapter 7. Factors Influencing Sustainable and Equitable Developments

The problems surrounding poverty, class and race have reached alarming proportions. Declining health, social, and environmental conditions are leading to increased political unrest in countries both rich and poor. Riots in Los Angeles, looting in Rio de Janeiro, racial and religious tensions in South Asia all point to a deep and growing resentment among the poor. The notion that the poor would be able to pull themselves out of their misery without any external assistance has simply to be abandoned. They are unfortunately caught in a vicious circle of enduring poverty and life lived in squalor and misery. Government programs aimed at poverty alleviation, shelter, and urban services have so far not had as far reaching an impact as expected.\(^1\)

The goal of this study is developing criteria for sustainable and equitable housing and for urban service programs. I have argued that inequity needs to be reduced in the manner in which these programs are planned and developed. An approach to inequity reduction that has been proposed in this study is to increase the choices that the community is given and to create conditions that promote community decision-making. A second is to optimize the role played by government agencies, private-sector organizations, community groups, and NGOs, and to assist other sub-groups that may have a potential role to play.

The evidence from all the case studies evaluated here—Aranya Township, Orangi Pilot Project, Citra Niaga, Khuda-ki-basti, Bodella, Yamuna Apartments, and Madipur—demonstrate that developing housing and urban shelter programs is a complex process and that no one approach can be used in all cases and be expected
to work. What the case studies also show is that housing and urban-service programs have a better chance of becoming sustainable and equitable if they are developed through consensus rather than confrontation and encourage and promote private sector involvement under conditions that are clearly understood and instituted. Community accountability and decision-making must also be increased, local-management promoted, and program components in which the community has a larger implementing role introduced. The role of small-scale building contractors must be enhanced; and the needs of the broadened client groups understood and reflected in planning and design. Finally site design for urban developments have to be integrated to reflect the needs of the immediate and surrounding community.

**Housing Through Consensus**

Through the 1960s and 1970s, in most developing countries, the poor and migrants who were unable to find housing resorted to illegal means to gain shelter. Land-grabbing and squatting was one of the most prevalent method used. Over the years, squatting became an organized activity that was no longer done by the individuals. Instead land developers had become involved in illegal land development by using squatters as a means to grab land they could not otherwise obtain. The poor were consequently shoved from one set of economic pressures to another generated by land developers. The result was that two mutually exclusive systems for housing and urban services for the poor were operating— one dominated by the government and the other dominated by illegal land-developers. Over the last decade several studies have shown that many low-income developments have been built with support from the government agencies, private developers, community groups and NGOs, and that observation has been confirmed here. In the most successful projects it was found that the distinction between government dictated and
community initiated had become increasingly blurred. Orangi, Khuda-ki-Basti, Citra Niaga and Madipur all show that cooperation between the government, private investment, community groups and their representatives is proving to be an effective approach in procuring land for the poor, having housing built, and in securing urban services.

**Building Trust**

The case studies show that cooperation between the government agencies, community groups and their support organizations is not uniform. Partnerships between these groups were either formally instituted or informally achieved, or both. A new intermediary layer where both the government approach and the self-help approach can function seems to be forming. This coming together is often based on confidence that all the parties involved will be able to deliver what they promised, based on their record and the commitment shown.

In Orangi, for example, the OPP did not enter into partnership with the Karachi Development Authority (KDA); in fact the project was undertaken because KDA was not doing anything about providing the services the community needed. However, the KDA did not try to stop nor restrict the project, a lack of interference that was surprising. In the past, government agencies have discouraged such large-scale community-based endeavors (the total number of people now served by OPP is around 600,000), because they were afraid that it would lead to other demands. In this case the government did not interfere because OPP took great care not to politicize the effort and kept communications with the government open through intermediaries at the local councillor level. One other factor is also important: two of its chief supporters were well connected and powerful people. Akhter Hammed Khan, the director of OPP, is a respected social-worker and scholar with long
standing links with the government, and Aga Hasan Abidi, the founder of BCCI, was even more powerful.

OPP also cultivated community leaders who were first shown the importance of the proposed infrastructure system and were convinced of its viability. They then convinced the rest of the community to participate. Great care was taken to keep the politicians out of the picture until they could play an useful role, which was to maintain contact with the development agency.

Using this approach, after 10 years OPP was able to convince KDA and the mayor of Karachi of the viability of its project. The KDA has embraced the OPP approach for the provision of urban services to the city’s slums. It remains to be seen if government involvement will help or impede providing community level infrastructure. One of the factors in Orangi’s success is that it managed to keep the politicians out of the process. Now that they are part of the process can OPP manage to convince the community to provide their own services and keep local politicians from taking over the organizational aspects of the program?

Citra Niaga used an approach that was the reverse of the Orangi one; connections were formally established. Here, the Samarinda Development Authority was a partner in the project which was developed by a private developer, the son of the ex-governor, who had first initiated the idea to redevelop that particular part of the city. The project got off the ground only after the developer was able to put together a team that included an architect and an NGO. They were then able to convince the development authority that the project was both feasible and important. In this case, too, trust and confidence were established at two levels—with the development authority and with the community. The NGO had already built successful community development projects in Indonesia and had an
established reputation; the community therefore trusted them. The development authority also had a good reputation.

Khuda-ki-basti had yet another experience. In this case, the Hyderabad Development Authority sought support from land dealers in settling and screening the beneficiaries, but failed because no precise role for the developers had been specified. The development authority saw the *dalals* as extension of the agency, whereas the *dalals* were in it to make a profit. This led to conflict and mistrust. HDA did not establish its own connection with the community; the developers did. As a result, the community suffered setbacks in those aspects of the project that involved partnership.

All three cases show that trust and confidence in the organization undertaking the project are necessary for successful partnership. They also show that government agency participation need not be active as long as mutual trust and confidence are established. In all three cases the private developer, the NGO, and the city agency had separate agendas, but in two of the cases they were able to work together because they established clear rules of partnership. Each party was willing to let the other achieve success; it was only a matter of working out boundaries and responsibilities and sticking to them. In Khuda-ki-basti no such rules were established. The development agency wanted to use the local developers, but not to allow them to share in some of the success; the local developers wanted to make money and manipulated the situation to their benefit.

The Khuda-ki-basti experience shows that *all* market-based and government agencies may not be able successfully to participate in urban projects. The level of partnership achieved will also depend on the kind of projects that are to be undertaken. Certain roles may be mutually conflicting and preclude successful partnership.
What this study has shown, though, is that there no longer exists a clear distinction between government-led and community-based approaches; there is an intermediary layer, where the top-down approach and self-help activities come together. Successful programs have managed to find this intermediary level of connection. Those projects that make connection between those in power and the community have the greatest probability of achieving sustainable and equitable developments.

Conditions for Private Sector Involvement in Housing and Urban Development Programs

The involvement of private investment is no longer considered by many politicians and development theorists as categorically negative. Most projects have some private-sector investment, and the studies here show that there is a still larger role for them to play. With proper controls and mechanisms the private developer can successfully undertake housing, urban services, and mixed-use developments. In Citra Niaga controls and communication mechanisms were established and in Khuda-ki-basti they were not. The results were obvious.

In Citra Niaga the project was developed based on a understanding of the requirements of the residents, of the development agency, and of the developer. Very early on the Samarinda Development Authority established a clear set of controls and guidelines for the developer to follow. In addition the controls set were reasonable and in some cases favorable to the developer, encouraging him to participate. The goals set were limited; they did not try to achieve everything in one project. That the developer would need to profit was never questioned. The project was planned to allow the developer to make a profit, but in return to achieve clear social and communal goals. Social goals were limited to providing only a space for
rightful slum-dwellers to ply their trade; no housing for participating slum-dwellers was envisaged on the site. Housing was developed through a completely separate program worked out by the community and the NGO. The agreement that participating slum-dwellers would only be given a place for trade and not for housing was crucial to the success of the project.

In addition, the project was to provide an urban space for city use in order to revitalize the urban core. To achieve this the actual area to be developed, the kinds of commercial activity to be established, the open-to-built-space ratio, the total amount of profit, and the proportion of public to private space were all decided after extensive discussions between the developer, the development agency, and the community representatives.

This case shows that by setting clear and achievable set of goals, and by undertaking responsible communication with all parties concerned, a well programmed, carefully implemented and successfully managed project can be achieved.

Promoting Private Small-Scale Developers in Urban Development Programs
In most state sponsored urban development projects small-scale contractors are rarely used because of time restrictions and because their involvement requires more coordination and more sustained management. The case studies show, however, that depending on the kind of project, it may be possible to involve small-scale private developers and, when it is, there are certain advantages in supporting them. In Orangi, the project was planned for community involvement in small groups. The sewerage system was lane-based and the technology used was simple and did not require sophisticated technology. This meant that it was possible for small-scale developers to assist in its implementation. Since the project was divided into small
independent segments that were being implemented concurrently, several small contractors could be involved at the same time. This also meant that work between various contractors did not have to be coordinated, thereby limiting the time lost due to lack of coordination and poor management.

The advantages achieved in Orangi from this small-scale contractor participation were threefold and have implications for settlement upgrading and new development programs. First, even though major funding for research and technical assistance came through national and international donor agencies, the money for the actual construction was raised by the community. A portion of that came from local private contractors in the form of material loans to the community. Second, the small-scale private developers supported this project because they saw in it financial benefit for themselves. Their support was one of the factors in getting the project moving. Private small-scale developers are usually members of the community, and most live there. They often are respected community members and wield influence. In Orangi, over time, most of the community had received some favors from the local contractors, either in the form of building material or construction loans. So they were indebted to them. Some of the contractors were used by OPP to help get the project off the ground. Third, small-scale contractors usually employ locals and thereby provide economic opportunities to the community. In Orangi, there are approximately 250 of them and each employed about 3-4 local laborers. Any disadvantage arising from increased management responsibilities or construction time was far outweighed in the long run by the advantages provided by their involvement.
Risks in Lack of Control and Clear Aims When Involving Private Developers

The risk of involving private-sector organizations, whether large or small, is that their need to make money can conflict with the project's goals. Such a conflict was clear in the Khuda-ki-basti project, when *dalals* were used to solve problems of beneficiary identification. When the government could not attract any of the poor to move into the project, local private developers were asked to assist. Since neither their role nor their gains were settled in advance, the *dalals* felt the development agency was indebted to them. Since the HDA was using them, this gave them the opportunity to gain other favors from the government. Therefore they developed a mechanism to profit from their involvement by manipulating the system and gaining control of the community organization. HDA lost sight of the role they could best play, and instead involved them in roles which allowed them to gain control of the community and thereby the project.

New partnerships between the government, private investment, and the community are being continually forged. This study shows that if the role of each group is not clearly projected and worked out, the partnership will end up favoring one group over the other. The development agency and the private sector organization have to be explicit about what they want the partnership to achieve and then work out a mutually satisfactory agreement that is fair to all parties. Developers should not be viewed as social or charitable organizations; they work for profit, and therefore clear rules for partnership are necessary. The task of the development agencies is to establish these guidelines and controls, so that the private developers can provide the finance and management. Once these conditions are met the community can be given the responsibility for managing and developing
the project. If they are not met the partnership will remain on a tenuous footing, and eventually the project will fail.

**Increasing Community Accountability and Decision-Making Responsibilities**

In most public and private housing projects no group is accountable to the community. Under the present system, when projects are financed by either local or international financing agencies, the development agency is held accountable for the cost of the project. The planners and designers are accountable to the development agency and the development agency is accountable to the politicians. Evidence from the case-studies shows that, when accountability to the community by those involved in the design and development process is increased, the chances of a development's being able to meet the needs of the community and becoming sustainable in the long run improves dramatically. In Orangi, Citra Niaga, Madipur, and Yamuna Apartments those involved in both the design and development work were made accountable to the community and their representatives. In Khuda-ki-basti, the intention to build in community involvement was there, but that aspect of the project was undermined by the developers who seized control of the development process. This study shows that by increasing accountability, a series of checks and balances are established and that community involvement in various aspects of the project increases. It also shows that when accountability is increased, the community can make in decisions involving program planning, project design, and implementation. Development agency officials and project planners also became aware of community needs.
Developing Accountability in Program Planning

When program accountability by the community is developed and a fair opportunity to debate decisions is provided, then even those decisions which may otherwise seem unpopular or impossible to achieve are attainable. The case studies show that in those projects where the community held accountable all of the participating organizations, the decisions that were taken were accepted by the majority and the development that followed was approved.

In Citra Niaga, the community group was given the opportunity to discuss the project program and it made the decision to support only the commercial aspects of the project. Given the choice, the community found it most important to have a place where they could sell their goods and earn their livelihood. The NGO group working with the community was also able to convince them that if a small shop or kiosk was first secured from the developers and if they were organized, then they would stand a better chance of obtaining loans for housing.

In Orangi, the OPP was able to assist in developing the urban services only because the community was involved in decisions and knew the people in charge to be responsible. The system of lane managers allowed the community to undertake responsibility for management and construction. The OPP was only responsible for providing technical assistance.

Opportunities for increasing community decision-making have to be carefully orchestrated, as it can easily get out of hand. In Khuda-ki-basti, for example, the Hyderabad Development Authority attempted such an approach when it tried to get the community to form block organizations that would be responsible for deciding the kind and level of services, where they would be developed, and by whom. However, this did not work as envisaged because responsibility that was supposed
to have been vested in the community was usurped by the local developers, who managed to control the community groups by getting themselves or their representatives elected to the block committee. This usurping of power by the local developers split the community. Eventually they were unable to decide on the what was important and how to obtain it. The community fought over who would be responsible for services. Even bringing in an NGO to act as a mediator did not work because the community looked upon the NGO as an extension of the HDA. The lack of clear responsibility and infighting among community members have slowed the pace of work considerably.

*Increasing Community Accountability in Design Decisions*

Cluster planning is the system most frequently used for housing projects, because it is thought to permit a greater number of dwellings on a site, to allow for natural drainage systems, provide access to sunlight, and give community space which is better distributed. Over the last decade a number of projects have been planned in this mode, including Aranya, Artiste Village, Bodella, Khuda-ki-basti, and Madipur. One of the problems this system overlooks, however, is that it is overly dependent on physical order. Clustering, or any other formal model, is developed for one set of circumstances and no longer works when the social and cultural conditions that first led to its development change. There is a danger in assuming that recreating a pattern of residential living used in the past as clustering is, will lead to a better environment.

In Aranya and Artiste Village, the architects developed cluster plans based on a traditional layout that include a series of open-to sky spaces going from the semi-private to public, with the aim of providing the community an opportunity to use these spaces in a variety of ways. The cluster spaces in both these projects were
well thought out in terms of scale, ambience, and use of material, but most were never used by the community in the ways envisaged by the designers. Most of the open spaces have been privatized, for example, and only nominal spaces for access and egress have been maintained.

Aranya does not yet have a large enough residential core to allow a comprehensive evaluation of the use of its cluster spaces. Of the people who are living there already, however, most do not appear to know what the designer’s intentions for the use of open spaces were. Those who move into the cluster first set the norms for communal space use for those who follow. Without adequate information on their intended use people make up their own. The bolder of them have put barbed wires along the cluster spaces adjacent to their houses and have planted flowers and vegetables in them.

In Artiste Village, a similar phenomenon has occurred. Within one cluster all families have encroached upon the public open space by building fences up to the building line. A few have also build extensions on these preempted spaces. From the owners’ point of view, there is nothing wrong with appropriating spaces that are not used or maintained. Since they are not maintained, they can be been encroached upon and privatized. It could be argued that this attitude shows initiative, and can therefore be seen as a positive sign of community involvement. However, the difference here is that it is not a group of people making a decision about the use of communal open space, but individuals deciding what they want to do, whether or not their personal benefit may be of benefit to the community. If all the residents were to convert open space into personal property and build on them, it will affect light and ventilation in the houses of adjacent neighbors and lead to conflicts that will be difficult to resolve. In places that process has already started.
Artiste Village. (Above, Fig. 7.1) Location Plans. Source: CIDCO. (Below, Fig. 7.2) Site Plan. Source: Mimar 17, p. 37.
Artiste Village. (Above, Fig. 7.3) Plans and elevations of houses. Source: *Mimar* 17, p. 38. (Below, Fig. 7.4) Typical cluster of seven houses.
To avoid such problems, it is necessary to increase the community's involvement in deciding what kind of open-to-sky spaces are designed, what they will be used for, and how they will be used. Now the community is not involved in any design decisions, and therefore it has no opportunity to voice its opinion or hold any group accountable for what is being planned and designed. The process of getting the community involved in decision-making may lie in increasing its opportunities to choose and by promoting community management.

**Promoting Community Management**

The case studies show that community management in low-cost housing has several advantages: it improves maintenance and controls cost, and less obvious, it helps create conditions for sustainable and equitable developments by providing a social structure for new communities, especially where the opportunity for developing social networks and structures would otherwise be time consuming and limited.

In projects where self-management was undertaken—Orangi, Yamuna Apartments, Citra Niaga, and Madipur—reduction in the cost of construction was achieved by eliminating expensive contractor's. It was also found that the community had more control over what was being built, and that they also assumed greater responsibility for the project after it was completed. In each of these projects the open spaces were looked after and maintained. The organization that was formed to manage the development of the project was eventually turned into a management group that oversaw maintenance and repair of the development and undertook to collect and settle disputes that arose. The case studies also show that when local management is installed the environment is well maintained, public spaces last much longer with less wear and tear, and private encroachment on communal spaces is limited, because the community has direct control over the
spaces it uses, and does not have to wait for a public agency to look after them. Even carefully designed and planned housing environments will not be sustained unless occupant control over these environments is established so that open spaces are maintained and used.

Jamel Akbar has shown, in his study of traditional built fabrics in North Africa and the Middle East, the importance of the interrelationship between ownership, control, and use. He identifies five basic forms of property ownership—unified, dispersed, permissive, possessive and trusteeship—and argues that in each of the five, changes in relationship between the owner, controller, and user has its effect on the maintenance and use of the property. From Akbar's study we can postulate that space which is owned, used and managed by the same individual will be the best maintained, and those areas in which the owners differ from users, and both differ from the managers, will be least well maintained and used. Cluster communal spaces fall into the last category. They are owned by the development authority, used by a few people, and managed or maintained by the municipal corporation. Unless these relationships are changed, these spaces will be misused and neglected, as the case studies show.

In Aranya and Artiste Village, self-management was not considered an integral part of the development process. The result was that open spaces were neglected and in several cases encroached upon by residents for their own private use. A rising level of disrepair of services became evident. One of the reason for this lack of self-management may be, as surveys of Aranya, Artiste Village and Bodella suggest, that most residents do not know who all of their neighbors are in any given cluster or block. They may know them by sight, but have only limited contact with them. In Aranya this may be understandable, since it is sparsely populated, and more people are just now moving in. But both Bodella and Artiste Village are over
Artiste Village. (Above, Fig. 7.5) Garbage dumped in an ill-maintained cluster. (Below, Fig. 7.6) Cluster space used for parking cars.
five years old. One could argue that five years is not a long time to judge whether or not a community spirit will develop. However, there is no guarantee that it will. In the meantime the environment will have changed so completely that it may no longer be possible to introduce some of the controls that would be needed to protect use and maintenance. The rate at which communal spaces and property are being destroyed is high and in no time spaces become ill-maintained, encroached upon, fall into disrepair, and, worst of all, become refuse dumps.

One problem with depending on community spirit to produce organizations is that in most housing developments, because of the allocation system used, families with very different backgrounds, belief systems, preferences, and ethnicity are living next to each other. Given such disparities and the pressure of modern urban living they rarely have the opportunity or a forum to meet and discuss communal needs with their neighbors. This is evident from the lack of neighborliness in most of these projects.

In projects where groups with similar backgrounds, religion or ethnicity are living next to each other, neighborliness has sometimes developed and spontaneous communal decisions are being taken successfully. Yamuna Apartment is one such example. Here most families are from the same region and are mostly upper-middle-class white-collar workers. Even in the Artiste Village where most of the cluster spaces are either ill-maintained or encroached upon, there are exceptions. In one of the low-income clusters, the families have put a gate at the entrance to the cluster to claim the internal space for their own use. This cluster is clean and well maintained, children play there, and women feel safe when they sit outside and work. It was possible for them to do this because all of the neighbors had similar backgrounds; they had moved into the cluster at the same time; and most houses were occupied.
The difference in the quality of the environment in terms of cleanliness, use, and repair between self-managed and municipality-controlled projects is substantial. The development authorities are usually incapable of maintaining open spaces; they have neither the budget nor the manpower to do so and prefer that this responsibility be turned over, as soon as possible, to the municipal corporation. The minimal chances that the municipal corporation could do any better is evident in the overall disrepair of the city itself. For the community to establish and organize itself takes time; in the meantime the open spaces fall into disrepair, until some individuals decide to take them over.

If self-management of communal spaces is introduced, then this may enhance the community’s understanding of open spaces and their uses. The community would also begin to realize what would happen if they were to encroach upon these open spaces. Awareness and accountability would both increase once self-management is promoted.

Introducing External and Internal Components to Urban Development Programs

In most urban development projects the government is responsible for providing the major trunk services. These include major roads, the trunk infrastructure systems, and electricity. In contrast, in low-income projects the development agency is responsible for these. In site-and-services schemes, where all services are provided, it has been found that dividing urban development programs into external and internal components increases community control over those parts of the development process that affect their day-to-day life most. It also increases the choices that the community has in terms of what gets developed and by whom,
promotes self management, reduces development cost, and gives small-scale contractors the opportunity to participate.

Dividing low-income development projects into external and internal components means that the government would be responsible for site preparation, major roadwork, main commercial sector, trunk infrastructure systems, and electricity. All of this work is supervised by the development agency and undertaken by large contractors. The internal component includes lane and cluster sewerage lines, paving of internal roads, local wiring, and building the service core. All of these are managed by the community and built by local contractors. Such an approach is also equitable, as it provides employment to a number of small contractors, keeps the jobs within the community, and improves their incomes. Orangi, Khuda-ki-basti, and Yamuna Apartments used this approach. Their experience highlights both its viability and the problems encountered.

In Orangi, the external component was left for the development authority to provide. The internal component was a progressive infrastructure system that worked without the trunk system. Community control over the project was achieved by treating each lane separately. Not all the residents were convinced of the viability of the system and some lanes had not been able to organize themselves sufficiently to undertake the work. Using the lane system those that could not or did not want to participate did not jeopardize the whole project. Control of each lane was in the hands of a lane manager who was a lane resident and selected by the lane members.

Flexibility of choice can be achieved when the internal component is controlled by the community. In Orangi, each lane was able to choose whether it wanted to participate and if so when, to raise the funds needed, and to undertake the work at its own pace. In Yamuna, too, since the community was responsible for the
internal component; people had a choice of materials that would be used, where they would be procured, and level of services that would be implemented.

When the community is involved in the internal component, the community may also assume responsibility for taking decisions. In Orangi, lane managers who were lane residents allowed the lane to manage itself. In the Yamuna Apartments, the organization that was formed to manage the development continued to manage the community once the project was completed.

In both Orangi and the Yamuna Apartments, substantial cost reduction was achieved. By undertaking construction management and, in the case of Orangi, implementation the middle-men were cut out. Material were procured cheaply by the community using many sources. In Orangi the cost was a fifth of what it would have been if the government has provided the services. In Yamuna the construction cost per square meter was almost half the normal private-developer rate.

Dividing the project into its external and internal components is not without disadvantages, however. Resistance from the development agency and financing agencies, lack of adequate planning and design to allow for optimization of the internal process as evidenced in Khuda-ki-basti, and increased time of construction are some of them. It has taken ten years to install services in Orangi and over three years in Khuda-ki-basti even to start installation.

Implementing External and Internal Division of Projects

Flexibility in programming on part of both the development agency and the local groups involved in the development process is essential if a project is to be divided into separate external and internal parts. How site planning and the infrastructure are developed and what systems are introduced determine its success.
New technologies that are both innovative and cheap are being introduced all over the world. In Orangi, technological innovation was achieved with the introduction of one-chamber soak pits until secondary and primary sewerage systems could be laid. In northeast Brazil a “condominial” system treats the block like a horizontal apartment building. The result is a layout radically different from the conventional system with a shorter grid of smaller and shallower “feeder” sewers running through backyards and with the effects of shallower connections to mains rippling through the system. These innovations cut construction cost to between 20 and 30 percent of a conventional system. Since the “feeder” sewers runs through back yards, community consensus and participation are essential to its success. 7

For such innovations to work they have to become an integral part of the planning and development process. Whether in new housing, old neighborhoods, or squatter settlements, the system by which solid and wet waste is collected and disposed of may have to be redesigned, and the way project planners envisage such projects might need to change. In addition to adding flexibility in programming, development and financing agency officials have to change the standards used and their expectations of project quality.

For the community to be involved in developing the internal component, the community as well as the work must be further divided into small manageable groups and segments. The success of the Orangi Pilot Project lay in reducing its infrastructure project to small pieces that could work independently of each other for a number of years until secondary connections were in place. The project was very large, but the planning and implementation module was only the size of a lane. When bigger block sizes are used, as in Khuda-ki-basti, the increased number of people in each block means that the chances that problems might arise increases
exponentially, as does the complexity of work. In Khuda-ki-basti a much larger block size--300 families for its internal development program was used, and it failed. Getting that many people to agree on any aspect of the work to be done was too difficult. Also, because of the large block size, the amount of work to be done in each block was greater and cost more, and these become both practical and psychological barriers. The lane size was longer than Orangi; therefore the total length of pipes to be laid was longer. Even though there were more people in each block to do the work, the larger distance was perceived as a problem. Limiting block sizes and developing clusters that house about 100 families seem to be optimal for community participation, though the optimal number may differ from project to project. What is important is to design the physical plan so that the project can be divided into small independent pieces involving small groups of people. The design must be such that these independent projects, as they are added on, become part of a larger whole.

Time is an important factor. Most housing developers are under pressure from both politicians and financing agencies to finish construction and occupation as quickly as possible in order to limit cost overruns. When projects are divided into their external and internal components, the internal components usually take much longer to complete, particularly if the community is involved. Even though the savings achieved by using this approach in Orangi were significant, developing the infrastructure to reach all of the people has been going on for over ten years and is still not finished.

Phasing the project sequentially so that one part of the project is completed and occupied before work on the other part starts is one approach. In Aranya phasing was done by dividing the project among several contractors who worked on parts of it simultaneously. But this meant that all parts of the project had to be completed at
a given time so the pieces could be connected. However, if each phase is treated independently, then coordination can be deferred until all phases are completed.

**Enhancing the Role of Small-Scale Building Contractors**

Low-cost building technology becomes most efficient when it is able to adapt to already existing technologies. If technology is improved on the site and small manufacturers are involved, improvement has an immediate impact. In Orangi, the improvement to local houses were made by improving the technology used by the local *thallawalas*. This approach was three pronged: OPP first refined the manufacturing technology in use by the contractors, for example, by increasing the strength of sun-dried bricks rather than replacing them with kiln-fired bricks; OPP then introduced a wider range of building components to enhance existing product line, making the local *thallas* in the long run more competitive and providing a wider range of choices to the community. OPP did not compete with *thallas* in marketing these new building materials; it only provided research and technical assistance to local contractors. Technology was improved not to achieve cost reduction in construction, but to improve the overall quality of the technology used in the community so that the overall quality of housing construction would go up. Even though the unit cost of the new materials were higher, in the long run savings will be achieved through infrequent repair costs and the strength and permanency of the new materials.

The use of the newly improved technologies was not limited to a few building contractors. The housing program was seen as an opportunity to introduce improved technologies on a much wider scale. At first, however, a few test *thallas* were selected to work out the kinks and other *thallas* were encouraged to try it. As the *thallas* became interested, other outside building suppliers also started
introducing their version of the improved technology, thereby increasing the competition. The net result was that the community has more choice and a wider range of products to select from.

Improving local technologies is, however, only one part of the equation. To ensure that improved technologies will lead to improved construction, a training program for masons was also developed. In addition, OPP offered planning, design and construction management services to the community at no cost, so that quality control was maintained and confidence in the community developed. This strategy is the contribution that the OPP housing program has made to future urban development programs.

Once the thallas were convinced about improving existing technologies, OPP introduced new and refined products in the form of batten-and-tile roofing systems and pre-fabricated staircases. These new products were developed to be applied on a small scale by the local building contractors. The market for the new products was not guaranteed, but grants and loans were made available to purchase the equipment needed to produce the new components.

OPP then set about forming a thalla cooperative so that the thallas could function more effectively in purchasing raw material and marketing their goods, but this failed. That failure turned out to be a blessing in disguise. Without the cooperative the thallawallas are left to function as individuals; they now have a choice of augmenting their products and technology from sources other than OPP, and as a result competition has increased and new products are coming into the market more quickly. If the cooperative had been a success it would probably have taken more than the four years it has taken to introduce the technology on this scale. It is also possible that the cooperative might have been perceived as an extension of OPP, or
that those who did not join would feel left out and continue to market the old inferior products. Success would then not have been so dramatic.

All this shows that product improvement can be achieved by improving existing technologies and manufacturing standards. Older products need not be replaced by newer products. Construction standards will improve if manufacturing quality is controlled and maintained. New technologies can be introduced as a means of increasing product range. For example, some of the building contractors supplied roofing materials but did not manufacture it. OPP developed simple prefabrication technology and gave assistance to building contractors to manufacture it. Retaining the individuality and competitiveness of building contractors is important in expanding the use of the new technologies and products. Grant recovery can be achieved if the technologies introduced prove successful and when building contractors begun to make enough money to pay back their loans.

Optimizing the Range of Choice Available to the Community
For a development program to be equitable and sustainable, it is essential that choices on a wide range of decisions be made available to the community. Only though choices can they make knowledgeable decisions about their living environment and participate in those aspects of the project that may be most beneficial to them. In order to provide a wide range of choices, a number of conditions first have to be developed. Those who are initiating, planning, designing and managing the development process needs to understand the client group better. The client group that is served has to be broadened and other groups be considered to include women, youth, and the elderly. Planning and design decisions based on the male-headed family are no longer necessarily appropriate. Family lifestyles have changed and so have their requirements and preferences.
Who is to live in a house and whether there will be rental tenants are important factors in its design. In a typical housing project one plot is provided per family whether the family is extended or nuclear. The extended or multi-family organization is a good economic survival strategy, and it should be reckoned with in planning new housing projects.9

The requirements of a single-family plot can also differ. A nuclear family can organize its house plan into the kind of narrow frontage plot developed in Aranya, but a wider frontage or bigger plot that can be subdivided for rental or commercial use might be required by others. Even a plot with more than one side exposed to give separate access to different sub-units of the family may be necessary.10

Not only families need shelter, there are also single mothers, widows, the elderly, and the young unmarried, both male and female. At the present time these are, in general, not considered to have any particular space needs. The elderly are expected to be cared for by their family; others are expected to be taken care of by the society without any special effort on the part of planners or designers. Only single blue-collar workers have been catered to by the market in single-room tenements or in rental accommodations in squatter settlements, but today even single white-collar workers are searching for accommodation in squatter settlements, as the cost of apartments rises far beyond their reach.

The plight of the elderly was recently highlighted in a leading Indian magazine: “A silent revolution, a coup of sorts, is taking place. The patriarch, the matriarch, the eldest son, the aging boss, the village elder are being elbowed aside. The youth are moving in.”11 The elderly are being forced out by their children; they have no place to go; their earning capacities are minimal. Because of improved heath conditions, they are living longer, but they are spending a considerable amount of
that extra time looking for a decent place to live or, having no choice, living on the streets.\textsuperscript{12}

Plots sizes in new housing projects should reflect these kinds of changes in society. The Madipur Housing for widows is a step in that direction, though separating the widows out from the rest of the society into specialized projects is not the ideal answer. These groups have to be housed in projects built for families but perhaps in separate clusters. Creating homes for the elderly may give them a separate place, as has been done in the United States, but it isolates them from the rest of the community. Even in the United States this has been recognized as a problem, and over the last decade a number of new housing projects have incorporated special-needs and elderly housing into general developments.\textsuperscript{13}

The elderly do not require large houses, but they may require spaces to earn additional income. Many may be able to work in the home, selling groceries or sewing clothes, for instance. One elderly couple started a shop in their house in Aranya. Locating elderly housing along a major roadway with access from the street would encourage others to do the same. Locating the elderly and families with small children on upper level of apartments should be avoided both for lack of ground access and because it may impede the ability of the elders to make money. Families with children also dislike using stairs. Children are outside more if they live in dwellings with ground-floor access, and supervising their play is easier for their parents. In Aranya, Artiste Village, and Bodella, the clusters were used by children to play in. Particularly for small children clusters are safe places to play. In Orangi and Khuda-ki-basti, where there are no clusters, small children have to use the streets, and the streets were being used by older children who could deal with the occasional traffic that ventured into them.
For single parents, cheap child-care facilities in close proximity to the home are important. In Aranya, schools for children are privately run and cost over Rs 25 a month per child. Some single women could be encouraged to start day-care or creche services in their homes to gain income and provide a service which otherwise would have to be provided by an outside agency. Houses designed for single-parent households should also be located near open and safe play areas. Most design and planning decisions leave such issues to the market when they should be anticipated and planned for.

Even if design becomes responsive to the needs of these special groups, unless a community development program is in place in each housing development, the target groups in the community may be unable to benefit from it.

*Changing the Allocation System to an Equitable System*

The second issue which needs attention is how and when the potential beneficiaries are selected. The number of potential beneficiaries eligible for plots in a public project is always much larger than the number of plots available. The most common way of solving the problem is to draw lots, a system that provides the plot but does not allow beneficiaries to select the location of their plots or to choose their neighbors. For a housing project to be successful, it is imperative to develop an allocation system that is much more responsive and sensitive to issues of community formation, especially choice of location. In the projects surveyed, it was found that people had in most cases no choice of where they could live and, in cases where they did have a choice, it was very limited. People complained that they were located in the interior and amongst neighbors with whom they could not associate. In Aranya, for instance, one person who ran a shop to earn part of his
livelihood was given a plot in the interior of a cluster, where few customers would venture, and he could not sell his goods.

To develop an allocation system which is equitable is difficult without seeming to favor one group over another. Therefore development authorities are not too keen to get involved in any allocation process that leaves any room for choice. However, decentralizing allocation is necessary if an equitable environment is to be developed.

People who are going to live in a residential environment must be given a choice of location. In small projects allocation can be easily undertaken by the community itself. In large projects as in the case of Aranya or even Artiste Village, the development authority along with an NGO must develop a system by which an equitable choice in plot selection is guaranteed.

Any allocation system that is undertaken must be initiated at the project planning and design stage, and not after it is completed. A short list of selected beneficiaries drawn by lottery could then be used as the basis for developing an equitable and open allocation system. Under this system the development authority would undertake a preliminary lottery to identify and select the beneficiaries. Plots would not be allocated at this time. Once the lottery has been established and beneficiaries selected, a second, more refined round could be undertaken among the beneficiaries, based on family ties, family life style, and occupation. In the second round the selected beneficiaries would be asked to complete a form which would ask for (a) family ties, kinship and language; (b) family status—that is whether they have young children, are elderly, are single parents, single workers, etc.; and (c) whether they need to work out of their house and, if so, the kind of work they intend to undertake.
This survey would also assist the designers in filling the needs of the group that will be living in their project. To date, in most projects, needs have been determined by extrapolating from already existing settlements. Using the proposed system a more accurate picture will emerge, and this will result in efficient planning for the level of facilities needed. The designers and the NGO would be able to assess community needs. The number of plots for the elderly, families with children, families needing work space, and others with special needs could be determined. A new lottery taking all this into consideration could then be held to determine the allocation of plots in each neighborhood or sector. It would be important to bear in mind that the neighborhood size remain small and not exceed more than a hundred households, in order to keep the process manageable. Once the list of allottees with their sectors and plots has been established, plots could be exchanged to accommodate those who would like to live next to particular groups of people or would prefer another location. An NGO could be given the responsibility of looking after the allocation process and plot exchanges. The development authority is likely to be dragged into the internal politics if it takes on this responsibility, and this situation is bound to become worse once the process of exchanging plots is underway.

Using this system, equity would be maintained. Needs--economic and social--would be recognized. Areas for every group would be designated within each sector, so that no one sector was developed only for the elderly or families with children, or ethnic groups, or a particular religion. Different ethnic, religious, and other groups would be mixed, but income groups would not.

In an equitable open system, exchange and transferring of plots would be controlled to ensure that the process did not get out of hand. Exchanging plots could involve a fee levied by the NGO which would then be used to establish the
community cooperative. A fixed fee would be levied if the exchange is made in the same neighborhood or block, but if households wanted to exchange plots between blocks or to move into different house types, then the cooperative would receive a fee amounting to a certain percentage of the difference in the price of the plots. Care would have to be taken that beneficiaries are satisfied with the process. If conflicts arose they would have to be resolved impartially and quickly; otherwise those dissatisfied with the process might refuse to cooperate, making it difficult to undertake other community development work. In smaller projects the community could undertake its own allocation process and decide who gets which plot.

The equitable open system proposed above would allow the development authority, NGOs, and the beneficiaries to make decisions regarding the allocation of plots and houses in an equitable yet controlled manner. Using these techniques of allocation after agreement has been given by the community, rather than selective rules enforced either by the development agency or the NGO, might lead individuals to veto the process and weaken the powers of the development agency and the NGO to enforce solutions that stress the common over the individual good.

Supporting Egalitarian Housing Developments

The amount of urban space that an individual controls today is assumed to be directly proportional to one's status and/or income. It is always assumed that the higher the income the larger the plot demanded and conversely the lower the income the smaller the plot. Rybczynski et al., in their studies of squatter settlements in Indore, show that there is actually no particular correlation between family income and plot size. They found that size rather than income was the decisive factor: larger families had larger plots, suggesting that variety in terms of both plot sizes and income must be provided if a community that is representative of society is to
develop. What is not clear from their studies is whether larger families had larger incomes and therefore were able to afford the larger plots, because in reality, with the high cost of serviced urban land there has to be some direct correlation between affordability and plot size.

In Orangi, for example, the plot sizes vary from 80 sq. yds. to 420 sq. yards. In the late 1970s when the settlement was being developed, the rate was Rs 1 per sq. yd. and the slightly better off and the astute paid Rs 80 to Rs 420 and bought up to four plots for speculation. Today these same plots are worth fifty times more: an 80 sq. yd. plot with services costs anywhere from Rs 60,000 to Rs 100,000, depending on location. Therefore to argue that plots should be provided according to family size or family needs without taking affordability into consideration could only be done if there were no cost to serviced land, and land were not part of the economic system. That is hard to imagine, given present political and socio-economic conditions.

The problems faced because of high cost of serviced land are further compounded when new development projects are undertaken primarily for one income group. It may be difficult to change the land market, but a move towards a more egalitarian approach may be needed if we are to stop predetermining social and economic mix in neighborhoods across cities. This is not to say that income levels should be mixed indiscriminately, but a judicious approach, such as that taken by the designers of the Aranya Township, has both social and economic benefits, including cross-subsidy possibilities. In Aranya township the lower-income group is located along the periphery of the poorest clusters. The middle-income and low-income groups have much in common and can assist each other in the development of the settlement. Further mixing of income groups is bound to take place, and is already taking place, as houses are sold and re-sold. In Aranya for example,
several low-income houses have been sold for over Rs 80,000 to 100,000. At that rate, a poor person cannot afford to buy a built house even if it is only 35 m². If houses are being sold for over Rs 100,000, they can only be bought by those who can afford to pay this amount. In Orangi, too, family incomes of those living next to each other vary considerably and range from Rs 500 a month to Rs 25,000 a month in the same neighborhood. In Bodella as well plots were sold soon after its development; however, in the Artiste Village property values have been a little slower to rise, though that too is expected to change soon.¹⁶

In the design and development of mixed-income projects our attention should be directed toward that segment of the population that needs housing the most. The argument that, even when several income groups are accommodated in a project, they should still be segregated into different clusters in the project¹⁷ is contrary to what happens in traditional settlements where, regardless of income level, families from the same clan or religious group live next to one another.¹⁸ Mixing of plots to replicate a traditional system of either squatter settlement or pols (groups of people with the same socio-religious affiliations living together in an neighborhood; the pol has gates which can be locked and has its own religious and community spaces) or squatter settlements may not be totally possible. That level of community participation is probably unattainable in both state and private housing schemes. The expectations of the upper-middle- and high-income groups are different and so are their lifestyles. An example from Artiste Village exemplifies some of the problems that arise when income groups come into conflict.

Professor Wasan and his wife have invested all their life's savings in a 'C' type unit of a seven-unit cluster. For them living in the Artiste Village was a dream come true. The lovely courtyard in front of their house is paved with stone slabs and has a tree in the center that shades the court from the harsh sun. This courtyard that is shared by seven
units is Mrs. Wasan's pride. Their neighbor is Mr. Ahmed Khan, an artist, and his family; they have moved from a cramped upgraded squatter settlement in the city, and for them too it is a dream come true. They were tenants in the previous house and longed to own a house of their own. Mrs. Khan cooks in the common courtyard in front of their home, a continuation of her previous lifestyle. Mrs Wasan expressed her unhappiness over this to her neighbor, but got no response. This confrontation has aggravated over time and now the Wasans have complained to the police, further aggravating the situation.19

Conflict between families with different cultural and, in this case, ethnic backgrounds can result from an allocation process like that used by CIDCO in the Artiste Village. The Khans belong to the designated income bracket for the type of house. The Wasans' house is larger, and they were given the house after allotments were opened up to people other than artists. Correa regarded a mix of income as ideal because it typified a traditional Indian mixed-income settlement and avoided the rigid and inflexible “caste system” of today’s planned areas. But income mixing within each cluster or within a neighborhood or block nevertheless leads to problems in relationships between people, and it may thus interfere with effective community cooperation.

Income mixing in housing developments may be more successful if housing cooperatives manage it before the housing is designed, as happened in the Yamuna Apartments. A greater degree of compatibility is likely to occur if residents are allowed to live in developments of their own choosing. They may choose to live somewhere and with particular people for economic gains rather than socio-religious ties or other cultural affinities. In housing that is more or less forced upon residents it is unwise to count on neighborliness for the project's success.20 Mixed-income housing need not repeat traditional systems of socio-religious grouping to
create equitable and sustainable environments. A well managed community-based organization that is formed by the residents with assistance from either NGOs or other social organizations with clear aims can achieve the same goals, as was done in the Citra Niaga and Madipur projects.

Introducing Variety in Plot Sizes

In a typical project plot sizes are usually all the same because most development agencies regard this as constituting efficient and good planning. However, as we have seen, the space needs of families can vary considerably depending on factors such as size, structure, occupation, economic activity, presence of livestock, and so forth. The studies made of Indore show that plot sizes average around 32 m², close to the official government standard of 30-35 m² for the EWS category. However, their studies also show that no one size of plot predominated; plots less than 20 m² accounted for 25% of the total, plots 20-30 m² and 30-40 m² accounted for 22% each, and plots over 40 m² for 31%. In Karachi the plot sizes in the settlement varied from 80 to 420 m², giving families room to accommodate various activities within the individual plot without having to spill out into the street.

Variety in plot sizes becomes particularly important when the minimum standards are very low. In Aranya the plot size within each income group is the same (for example 35 m² for all EWS plots). When someone has been unable to afford to build a second story, they have instead roofed in the courtyard to gain more room, creating problems with light and ventilation. Although outdoor spaces have been provided by the houses they were meant to absorb some activities such as the keeping of cattle or the provision of shops.
A variety of plot sizes can be introduced which recognizes the varying resources of the poor family. Keeping the plot size the same and varying the level of services provided, as was the case in Aranya, where one type had a complete plinth and two rooms and cost more than the other which had only the WC and a partial plinth, is another way of doing the same thing. Another approach would be to plan for plot sizes ranging from 35-50 m² for EWS in order to accommodate a variety of family needs. Those who want a larger plot to augment family income or accommodate a large family would then have that option.

Promoting Elderly and Youth Involvement in Housing Development Programs

Both the elderly and the youth can be used as resources in community development; they need not be a burden to society. Children can participate in the design of play areas, look after the playgrounds, and assist in the maintenance of the projects. In the Artiste Village the main open space designed as the town square was also to be a play area, though in practice it was infrequently used. CIDCO, the development agency in charge of maintaining the project, has proved unable to maintain it, because it has such a large number of projects to look after. The youth who played there wanted to maintain it and use it for themselves, but CIDCO regards it as community property and not for the use by any special group. The result is neglect and the space goes to waste. The youth of the Artiste Village might have gone ahead without CIDCO’s approval, but assistance from an outside agency would have been needed to encourage and support them. Young people are not professional managers and they need external assistance. Once given a role and spaces designated for them they might be expected to use and maintain it. When a project is designed, play areas and community open spaces could be conveniently located within each neighborhood and clearly identified and designated. In Aranya,
Artiste Village. (Above, Fig. 7.7) Sketch showing appropriation of open spaces. Source: *Understanding Urban Housing Transformations*. p. 15. (Below, Fig. 7.8) Unused and ill-maintained central open space.
the playgrounds were placed next to schools and other communal facilities to ensure their use and maintenance by those institutions.

One role of the elderly might be to oversee and be responsible for the regular maintenance of the cluster. As elders they are respected, and may be in a position to act as mediators in community disputes. They might also act as watchdogs since they are on the premises most of the time.

Some of these things might happen in communities in any case—but only intermittently, over time and at their own pace. If both old and young people are to be involved when the community is being formed, when the physical and social environments are at their most changeable and their usefulness can be harnessed more effectively. The number of elderly is increasing. Particularly when they are living on their own they need community support and the feeling that they are contributing something. Allow them to play a role in management functions may provide them with a meaningful role and help consolidate the community at the same time.

**Integrating Site Design for Urban Development**

It has been argued that urban development is not a sector like other traditional sectors involved in the development of urban areas. The merit of urban development is the opportunity it affords to coordinate and integrate—based on priorities and plans—various components on an area basis. An issue is whether or not such coordination and integration is possible and practical, and whether there is a limit to such endeavors. In the formulation of a program and a project, along with functional linkages, institutional arrangements, legal framework and the efficiency of implementation also matter. In the context of this analysis functional linkages are being discussed.
Most new housing developments undertaken by government agencies are narrowly focused and do not take into account larger city or urban area development. The site and urban design parameters are set by local site-specific decisions. This study also shows that both large- and small-scale urban projects are designed to be self-sufficient. Cultural and commercial facilities are provided only for project use. Their relationship to neighboring developments is not taken into consideration. When projects such as Citra Niaga respond to city scale and local conditions, clear connections between city functions and relationships to adjacent sites can be established. Design and site-planning practice ought to recognize, incorporate and integrate conditions in the immediate vicinity.

A successful urban layout manages to incorporate in its design the requirements of various activities and functions and to respond at both the public and private level. The scale of the solid and void, the size of the blocks, the street network, both vehicular and pedestrian, the relationship between the residential and commercial areas, the provision of open spaces and the manipulation of various zones are important for the creation of a successful fabric.

Circulation patterns and modern vehicular systems have to be accommodated. Cars and other vehicles are important in today's society. In most developing countries they are also a prized possession that is protected and cherished. Conflict between cars and pedestrians has so far been dealt with by separating them into zoned vehicular and pedestrian systems, but vehicular roads are often too wide and act as barriers, and pedestrian paths are often unsafe. It is not what is possible but what is desirable that must guide our design efforts. Vehicular and pedestrian traffic can stay mixed if the speed of the vehicular traffic is controlled and through traffic is prohibited. The Aranya township has carefully worked out its circulation
pattern, mixing the two where required and separating them only in the interior of the project.

Movement patterns need not be organic to be successful: there is nothing inherently wrong with the grid system. Jaipur is based on a rectilinear capillary system, yet it is a successful traditional Indian city with all the vibrancy and qualities that traditional settlements are supposed to have.25 The Vieux Carré, the French Quarter in New Orleans, is another example of a city planned on a rectilinear frame, in which each street has a different character and its own vibrancy. Its most important characteristics are that it has a square faced onto a river frontage and that it has a hierarchy of street widths, not a regular grid. A judicious mixture and overlapping of systems, such as that planned in Aranya, is required to develop a system that will suit the needs of everyone.

Most land-use plans continue to separate commercial and residential activities, although many have criticized this practice.26 However, most low-income and economically weak sections of the society depend for their livelihood on having commercial activity near their houses. The site plan of Aranya Township recognizes this need and has provided spaces that allow multiple activities to flourish. Unless such spaces are clearly identified and maintained by the people who will use them, however, the chances that these spaces will be appropriated or misused is high.

The Artiste Village was planned as a residential community. Inhabitants were expected to use the shopping area of the Belapur central business district one kilometer from the village for their major needs. As discussed above, this was not realistic. The architect had planned for small shops within the clusters, but instead, shops that sell household goods and videos have been opened by the residents flanking the internal main road. To do this they have covered part of the open
Artiste Village. (Above, left, Fig. 7.9) Units designed for shops. (Above, right, Fig. 7.10) Units transformed to accommodate shops along main roads. Source: *Understanding Urban Housing Transformations*, p. 14. (Below, Fig. 7.11) Front of house converted into a video store.
courtyard and encroached on the pavement. The result is change in the housing scheme which the architect did not envisage, and presumably did not intend to happen.

Such informal commercialization of residential building is typical among small storekeepers whose clientele is built up informally through neighbors, friends and relatives. In most housing projects, as in Artiste Village, commercial facilities are provided in the interior of the scheme, the idea being that they will become a focus for the community. The result is that no attempt is made to use these facilities to connect the project to other parts of the city. Instead, the housing colony is insulated by vehicular roads, in contrast to older parts of cities where there is a continuum of residential and commercial spaces linked by zones for movement and landscape.

Each part of the town normally develops in relation to the others. But Aranya, Bodela, Artiste Village and Khuda-ki-basti were all designed to focus inward on themselves, instead of using open and public spaces to tie them to the rest of the city. Drawing boundaries around a site and not looking beyond it is one shortcoming of our design and planning as it is practiced today.

Even when the shape which the city will take is controlled at the city-wide level by development authorities, housing projects must be designed in terms of what happens adjacent to them if we are to create public spaces that relate to the city. In Citra Niaga, the project was designed so that it provided not only a focus for public activities but also spaces that linked with the adjacent sites so the development did not become insulated. As a result Citra Niaga has become a catalyst for other developments and has created an urban structure that responds to the city. In order to integrate uses and activities, commercial and communal activities need not only to
be dispersed within a development, but some of the larger areas need to be located where the township or neighborhood meets the rest of the city.

**Summary**

Given the weak capacity of governments to meet the growing requirements for developing sustainable and equitable environments for urban housing, development authorities need to draw on the full complement of human energy in the cities by encouraging participation of the private sector, the community, and the NGOs. The above assessment highlights some of the problem areas in planning and designing housing for the poor. It also highlights the factors required to reduced inequity and optimize community choice through community involvement. Until now community involvement was not seen as a factor in new projects in developing countries. However, the importance and effectiveness of community involvement in upgrading projects have been recognized for the last two decades. Several projects in various developing countries have successfully undertaken both small and large projects involving the community. In most new projects, however, it has been secondary. It is hoped that community involvement will become an integral part of new projects. Several international agencies are recognizing its importance in new urban development projects for the poor and are recommending that NGOs and the private sector play a much greater role in their development.²⁸

The factors identified in the case studies and show what the project planners, designers, managers and development authorities need to do in order to promote community involvement and to improve both process and product. Designers and planners have a particularly significant role to play in housing developments for the poor. Leaving all choices to the community is not the answer; instead the designers and planners should concentrate on developing and designing housing
environments that present clear choices to the community and are adaptable and understood by them. Ad-hoc choice tends to be misused, as the community does not comprehend uncontrolled alternatives. Total community involvement is also not possible since the community is made up of individuals each of whom has his or her own set of requirements. Individuals tend to want the most for themselves, but individual gain may not necessarily mean communal gain, and therefore controls have to be established.

The case studies show that controls are best established at the overall planning level by the development agency and at the community level by NGOs who can play an intermediary role. Besides establishing controls and guidelines, designers, planners and organizers of the development should also strive to inform the community about these controls and about what has been designed and developed, and where the boundaries between personal and collective spaces lie. They should also organize the community in terms of how community involvement will assist in making their neighborhoods into sustainable and equitable environments for the long run. Finally reducing inequity and increasing choice should not be viewed as ends in themselves but seen as important steps in creating conditions that foster, nurture and develop sustainable and equitable environments.
Notes to Chapter 7.

1. Chapters 1 and 2 cover the impact of government programs on housing and urban development in detail. Also, in chapter 2 key issues for reducing inequity were discussed.


4. In Chapter 5, this issue has been discussed in detail.


8. Arif Hasan, Kuda Ki Basti Incremental Housing Scheme (Karachi, 1990), suggested, based on his evaluation of the block sizes there, that 100 families represents a workable block size.


12. The average life expectancy in India is now 62 years, ibid.

13. Villa Victoria, designed in the late sixties in Boston, is one example. The elderly are located in a high-rise tower while the rest of the community live in townhouses. More recent projects have tried a more integrated approach.


16. Once the commuter train link to Bombay across the Panvel creek is completed next year, the property prices are going to appreciate significantly. Artiste Village was also not intended for the poorest people; a type ‘C’ house sells today for over 200,000 Rs.


24. Institutional arrangements and efficiency of implementation have already been touched upon in chapter 2 and will also be discussed in the concluding chapter.


Chapter 8. Program Implications for Developing Sustainable and Equitable Environments

During the past three decades, the number of the urban poor and, consequently deficiencies in urban housing and services in developing countries have increased rapidly. Governments in developing countries have used four interrelated approaches to provide shelter and services to the urban poor: on-site upgrading, sites-and-services schemes, granting security of tenure to residents of squatter settlements, and providing subsidized low-income housing. The success rate of each of these approaches has not had as wide an impact as was expected; nevertheless important lessons have been learned from the experience. These lessons, however, are in danger of being lost because most developing-country governments are only willing to support these efforts when international assistance has backed these projects. The result is that most projects have remained as demonstrations, and have never been replicated. It is now time to reassess the situation and move on to incorporate the lessons learned into national and local urban management strategies.

This study has shown that rapid urbanization is not productively seen as either a crisis or a tragedy. Since there is no way it will be halted, it is better seen as a challenge for the present and the future. But this study has also highlighted that controlling rapid urbanization and reaping its benefits are not easy and will require fundamental changes in approach by those involved in urban development. This study has also identified several factors that might lead to sustainable and equitable developments. These recommendations are meant to be strategic rather than project oriented; however, for any of the recommendations to succeed the locus of
the responsibility must rest within the cities themselves. The factors that lead to sustainable and equitable urban developments, however, run the risk of becoming ends in themselves and placed among a list of things to accomplish. But they are really building blocks to be used as part of a comprehensive approach that will develop conditions where inequity is reduced, choices are increased, and participation of various actors in the development process optimized.

For these factors to be used effectively, the conditions under which urban development projects are to be undertaken must change. The role of government agencies, private developers, financing agencies, NGOs, and the community must evolve from a situation in which these groups are used as cheap implementors to achieve a short-term goal to one in which each group becomes an integral part of the process of development which all civil societies undertake.

**Increasing Local Control**

Central governments in developing countries still continue to control most urban development administrative and financial policies. One can point to a growing number of instances where there has been participation of community, non-government organizations, and representatives of the private economic sector in decisions about their lives and livelihoods. But the sad fact is that these are nearly always exceptions to the normal decision making process, and there are few institutionalized mechanisms in place to guarantee that such involvement does occur. Urban policy for the present is made at best through representative democracy, with few opportunities for direct involvement, particularly for the poor.

Local control over administrative, financial, and redevelopment decisions is of high priority to ensure broad participation. Central government agencies are too far removed from conditions in particular cities where urban development takes place.
to perform that function. They are also unable to distinguish between, regions, sub-regions, cities and areas within cities. By increasing local control, local groups might stand a better chance of making appropriate decisions and taking quick action.

Another reason why local control is important is that urban management policy seems to be developing in the direction of broader participation. If local communities are expected to deliver, maintain and implement their own facilities then they must be permitted to help decide when, where, how and at what level of service this will be done.

Increasing local control is not easy. Political forces and institutionalized behavior of public bureaucracies are major impediments as are the many small and insulated decision-making structures that will have to be opened up. This aspect is demonstrated by the fact that, although a number of countries have an official policy of cooperation with non-government organizations, their true involvement in urban management and development decisions in those countries is minimal and mostly as cheap providers of services.²

**Training Urban Professionals**

Increasing local control over urban-development programs requires adequately trained government leaders and civil service officers from national and local governments, program managers and field officers; staff of NGOs and non-profit groups; community leaders; and planners and designers. All of them will have different roles and functions, and the content and method of their training must therefore be different.

Most urban-development officials do not have the necessary skills to work effectively with NGOs and community-based organizations. They need to be
retrained and their approach reoriented from rigid decision-making to a more flexible approach. In addition they need to learn to be more conciliatory, so they can work effectively with poor communities. Staff from non-government organizations, leaders from formal or informal community organizations and non-profit groups have to be trained in the process of planning, implementing, monitoring, and evaluating projects that use community involvement approaches.

Planners and designers have to be trained to understand the implications of design and planning on community involvement. As this study has shown, planning and design decisions play an important role in enabling or deterring community involvement.\(^3\) In addition planners also have to be trained to understand that actual community requirements and preferences might differ from their own perceptions of them.\(^4\) Flexibility at all stages of planning and design has to be built in to allow for changes to be made by the community itself.

Besides technical training, a program to improve the understanding of each group's ultimate goal--achieving local control over decision-making--needs to be instituted. In most cases, even with good intentions, most government officials, NGOs, planners and designers, and leaders of community organization adopt prescriptive measures for local control.\(^5\) In most instances where, how, and at what stages the community is involved are pre-determined, and limits to their participation are set. This determination is necessary. However, what is also needed is a process by which the community itself arrives at these limits. This is difficult to achieve and the process may not be the same in all cases. Nevertheless, it is only through repeated awareness reorientations that prescriptive measures for local-control can be avoided and a process for local-control developed.
Improving Interagency and Intercity Cooperation

Policies and programs aimed at providing housing and services require several organizations with different resources, skills, objectives, and procedures. Effective implementation therefore depends partly upon the effectiveness of interagency coordination. Besides interagency coordination, intercity coordination is also required. Intercity coordination might also allow for exchanges. Coordination between programs instituted in neighboring cities or parts of the same city is useful for determining what has worked and what has not.

Actions needed to facilitate such interagency and intercity cooperation include the creation and maintenance of open systems of communication and exchange of information. Approaches to ensure such cooperation include clear delineation of responsibilities, standardization of rules and procedures for implementation, and delegation of adequate authority. However, most of these necessitate another coordinating agency to be formed, and this may mean one more bureaucratic bottleneck. Frequent exchange of information between personnel from various programs including government officials, NGOs and community program leaders is a better solution. Each will then be aware of the steps the others are taking so that they may support one another in addressing common issues.

Improving Local Dialogue

To ensure that all segments of society are represented in urban development decision-making, regular and frequent communications between local authorities, NGOs, community organizations and other non-profit organizations is required. These discussions have to go beyond representative democracy to direct involvement of all groups.
City building involves careful planning, programming and the ability to resolve problems on the spot. In the complex situation of today this calls for a different kind of organization and level of communication, one that is non-hierarchial, more collegial, open to a variety of participants, and less burdened by regulation. It also calls for different technical and managerial skills. It is not just a question of replacing bureaucratic organizations in order to improve efficiency, but of allowing equal and non-hierarchical representation. Improving and facilitating discussion on a regular basis might be one such approach, but it will be difficult since it assumes a common base where power is shared equally by all participants. In reality, power is controlled by a few and those in power may not want to relinquish it. Those who gain power may not understand the responsibility that comes with it and may misuse it. Nevertheless, this risk must be taken. If some controls and regular local-to-local dialogue are implemented, the risk would be substantially reduced.

**Can Reducing Inequity and Increasing Choice Lead to Sustainable and Equitable Environments?**

The interest in developing policies which seek to reduce inequity and increase community choice in urban development programs is certainly lukewarm, but it is clear that reducing inequity, increasing choice, and developing conditions where local control can be established increases the probability of developing sustainable and equitable environments. As the case studies show, investigation in community involvement in housing is now directed at specific problems from within a particular frame of reference, which is acceptable and realistic to those who commission it. The need for research that is relatively unfettered by institutional constraints and does not make the formulation of policy paramount is also needed. However, unfettered research is not a definitive answer, since problems
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seem to arise because local organizations involved in urban development programs for the poor are unaware of research even when it has been done.13

Even though this study advocates increased participation of three groups: the community, the private sector, and NGOs, in urban development programs, it does not advocate this as a panacea. By having each of these groups participate, sustainable and equitable environments do not by definition result. It is precisely the notion that success will be guaranteed if the community, the private-sector, and the NGOs participate that this study has tried to dispel.

The roles of the government and of the private sector raise separate theoretical propositions. The political right eschews subsidy and sees state intervention as being less effective and less efficient than the operation of market forces. The political left sees the private sector as exploitative and only driven by capital accumulation. Between these extreme positions lies a large middle ground where research and practice offer solutions. It is within this middle ground that new approaches have been undertaken with good results, and it is precisely this middle ground that this study advocates.

However, to arrive at this middle ground, government agencies, private sector organizations, and the community have to change their notions about how urban development is undertaken. To practice in the middle ground, this study has identified three strategies: government agencies have to develop selective control mechanisms; private sector-organizations have to play a more productive role and work with the government agencies; and the community has to start accepting responsibility for undertaking and managing aspects of the program.

A diversity of approaches, systems and policies is being advocated. But in order to achieve this diversity, a series of conditions first have to be established. The conditions identified in the first half of this chapter are not easily achieved, and
there is no guarantee that once they have been achieved a level playing field where
effective power-sharing is possible will have been established. Conditions under
which each community, city, sub-region and region develop are distinct. Increased
local control may produce ideas and allow more voices to be heard, but unless the
best of these opinions are translated into development programs they will have no
meaning in the long run.

Problems that Arise with Private Sector, Community and NGO Involvement
Private sector, community and NGO involvement and the problems they bring have
already been discussed, but it must once again be emphasized that none of these
groups can be viewed as monolithic organizations. Within each there are
numerous sub-divisions, and what may be good for one may not be good for
another. Each have their own agendas that drive them to participate, and they are
all different.

The case studies show that private developers rarely function purely in the
interests of the community. Profit is what generally guides their participation.
Profit need not be the only motive, however. Some private developers, if given the
opportunity, work amicably with the government and the community to achieve
common goals.

Within the community too, there are sub-groups with needs that may conflict
with the others. In Citra Niaga, for example a choice was made as to who could
participate in the project and who could not. Those whose activities did not match
the purposes of the project were left out. Coercion and money had to be used to get
these groups to revoke their claims. As a result not all sub-groups were happy with
the project.
NGO involvement can develop over-dependency. Even though the Orangi project has been successful, OPP’s fundamental approach stems from the fact that the problems are still identified by them. A true measure of success will be when the services of non-government organizations are no longer needed. At that stage the community’s own organization would be able to identify and solve most problems. Unfortunately OPP has so far not worked very hard at developing the idea of self-sufficiency. Instead, it has identified problems and arrived at solutions using the community. To this extent it is no better than agencies that use NGOs as cheap implementors.

The involvement of communities, NGOs, and private sector organizations must not be viewed as a fool-proof solution. Instead, what this study has identified are development factors that involve each of these groups, their potential contributions and their shortcomings.

Concluding Remarks
As long as projects are undertaken with a clear understanding of the potential contributions and problems of community, private sector, and NGO involvement then the chances of sustainable and equitable environments increase. No approach guarantees success to all, and all approaches have their problems, but if these potential problems are identified and understood in advance, then the effect of the negative can be diminished and opportunities increased.

Community involvement is no substitute for professional or governmental intervention, but it must become an intrinsic part of it. Today, a coherent understanding of planning, design and participation is emerging--one which recognizes planning and design as a process rather than as the product. The process can go on only if it is helped along. It will cease if efforts are not
continually made to sustain it. The planning and design process can be an effective means of ensuring community involvement if they are used to improve efficiency of practice, make projects an integral part of urban development, and promote cooperation.15

The evidence set forth in the preceding chapters argues for the recognition of fundamental changes in our approaches to providing housing, especially for the poor. Many of the suggestions and proposals offered are seen as feasible ways of improving society's chances of solving its urban development problems. They are not blueprints, however, but simply ideas for strategies that might generate new approaches, help deal more adequately with the immediate, increasingly severe housing shortage, and provide actions for preventing difficulties that may otherwise arise in the future.

The housing shortage is growing and will continue to grow. The conditions in which the majority of our urban poor live are deplorable, partly because society has failed to recognize the shortcomings of the past approaches. New approaches, which utilize the resources of the community, the private developer, and the government can produce better results. The recommendations contained in this study are based on a critical evaluation of recent housing developments to determine how they might be improved—and how, from the beginning, they might have provided more equitable and more sustainable environments.
Notes to Chapter 8.

1. In Chapter 8, eight key development factors were recommended and discussed. They include establishing urban development through consensus; instituting conditions to promote private-sector involvement; increasing community accountability; promoting local self-management; introducing local control over development process; enhancing role of small-scale building contractors; understanding the needs of the broadened client group; and developing integrated site and urban designs.


3. Khuda-ki-basti is a clear example of where design decisions have had a clear influence on community involvement.

4. Aranya and Artiste Village are examples.

5. In Aranya, Khuda-ki-basti, Madipur and Bodella, development agency officials, planners and good designers had intentions, but problems arose in these projects because the process for self-control was prescriptive.

6. Aranya, Khuda-ki-basti and Madipur all highlight the complexity of developing new housing programs. The level of interagency coordination required is complex, and the managerial and persuasion skills required are intricate. In Madipur, interagency coordination was achieved by a single individual through her own dedication, persuasion and inter-personal skills. Aranya, on the other hand, highlights the complexity of such large-scale projects where several agencies are involved and the number of places where bottlenecks are possible increases.

7. In Indore, the settlement-improvement program which is city-wide and undertaken by the same agency, has problems in coordination between different parts of the city. The importance of information exchange between various sub-programs is equally important if such programs are to be successful.


9. Citra Niaga and Orangi are two examples where dialogue between the various groups was the key to achieving an open relationship which allowed the project to be implemented and successful.

10. The misuse of power by the local dalals in Khuda-ki-basti is a clear example of how such new found power can cause another set of problems.

11. Khuda-ki-basti and Citra Niaga are two examples where community involvement was directed and limited to particular aspects of the project. For a theoretical discussion, see International Research Workshop Seminar (IRWS), "Land Value Changes and the Impact of Urban Policy..."


13. In Indore, officials form the Indore Development Authority that were undertaking squatter-settlement upgrading were unaware of the Orangi approach. However, they were aware that a successful project had been undertaken by the Hyderabad Development Authority.

14. In Chapter 2 the advantages and risks with private sector, NGO and community involvement have been discussed. The case studies have also highlighted what the advantages and risks are.

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