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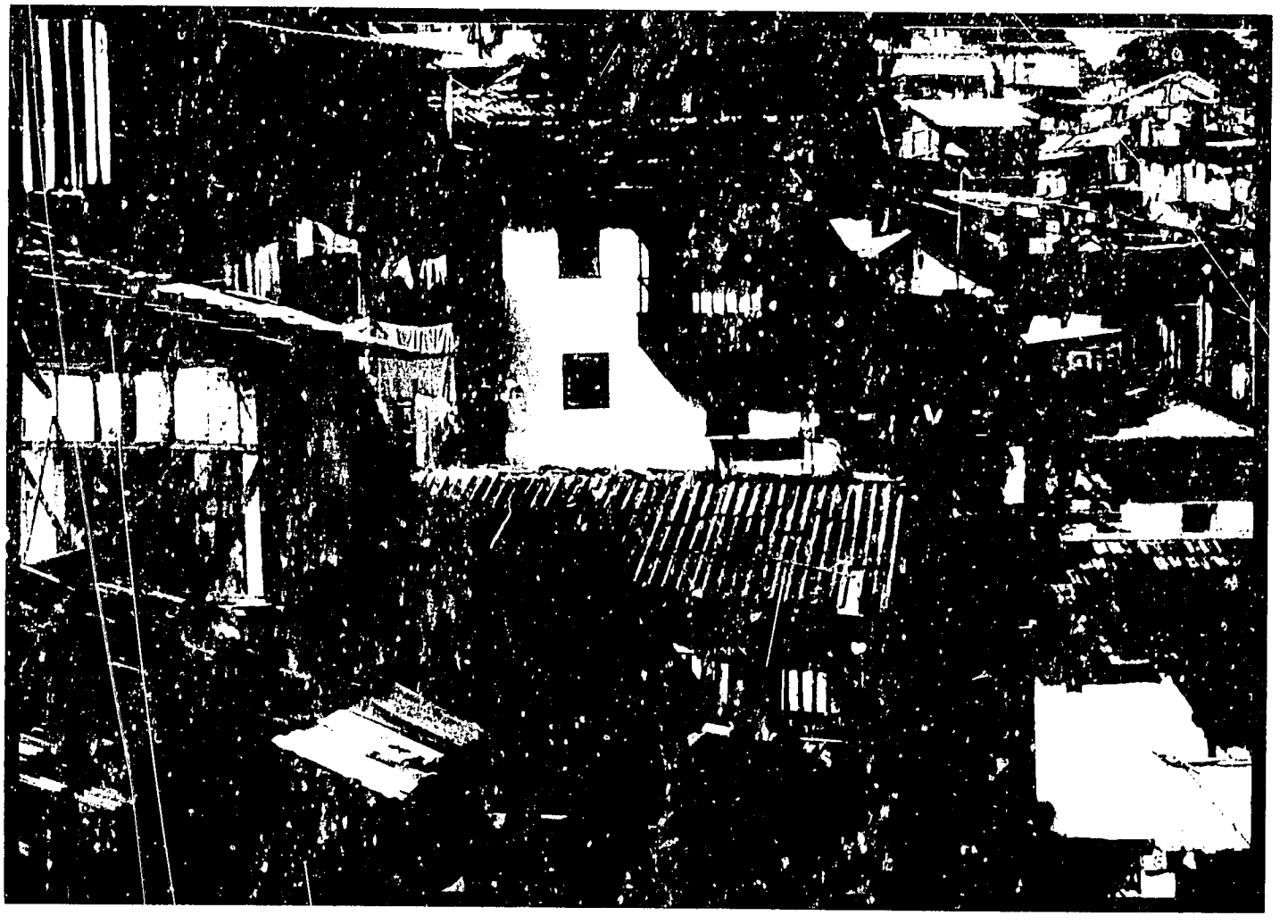

Shelter Policy and Planning In Developing Countries

American Planning Association

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SYMPOSIUM: SHELTER POLICY AND PLANNING IN DEVELOPING COUNTRIES

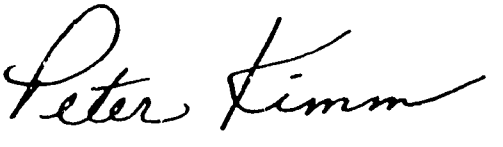
Cover: This *favella* in Rio de Janeiro, Brazil, has a variety of architectural styles characteristic of that city's low-income neighborhoods. As with many such areas in Rio, this one is located on steep terrain that complicates the process of home improvement and service upgrading. The diversity of styles reflects the creativity of the residents' self-help efforts to improve their housing despite their limited resources or, in many cases, extreme poverty. (Photograph by Shari Kessler)

Foreword

The Office of Housing and Urban Programs of the U.S. Agency for International Development is pleased to have helped support the preparation and distribution of this APA symposium on "Shelter Policy and Planning in Developing Countries." We hope that it will broaden our understanding of the shelter problems of developing countries and stimulate professional debate about the relative effectiveness and efficiency of alternative policies and strategies to meet that need.

Our 25 years of experience in this sector have led us to the conclusion that, despite the seeming enormity of the need, the shelter problem in developing countries is not a bottomless pit. It can be solved if governments create an environment that encourages and facilitates private action. We believe that governments should refrain from the costly and inefficient activity of building housing. Instead, they should adopt policies that will promote rational land development and ownership, increase the quality of infrastructure and urban services, and expand the availability of adequate credit. Individuals will then meet their shelter needs through their own initiative.

The articles in this symposium do not necessarily reflect AID policy, and no such attribution should be made. They have been included because of their professional and scholarly quality. We believe that the kind of critical analysis they contain is important to advancing our ability to work with developing countries to help them achieve self-sufficiency in the shelter sector. We hope that this AID contribution to the International Year of Shelter for the Homeless will move us closer to effective solutions.



Peter Kimm
Deputy Assistant Administrator for
Housing and Urban Programs
U.S. Agency for International Development

Shelter Policy and Planning in Developing Countries

Introduction

Howard J. Sumka

The United Nations General Assembly has designated 1987 as the International Year of Shelter for the Homeless (IYSH) to draw attention to the problems of inadequate housing for the poor, especially in developing countries. By doing that, the U.N. hopes to stimulate consolidation and sharing of technical knowledge that in turn will lead to the development and demonstration of new techniques for meeting the housing needs of low-income families. Those objectives are being pursued through a variety of IYSH activities being undertaken by numerous countries (de Boer 1985). In addition, a series of international conferences and regional seminars will review progress since the 1976 Habitat Conference in Vancouver and help chart the course for meeting shelter needs to the year 2000. This symposium is a contribution to IYSH that the *JAPA* editors and I believe will contribute to the formulation of effective strategies for housing and related shelter needs. This symposium will also introduce and sensitize planners to the scale and scope of the world shelter problem and to the opportunities they have to contribute to its solution.

At best, the statistical projections of population growth and urbanization in the developing world are sobering cause for reflection. At worst, the prospects of dramatically increasing numbers of megacities unable to provide minimal services to large populations of impoverished slum dwellers can seem overwhelming. Despite the diversity of the less developed countries (LDCs), the challenge facing policy makers, planners, and urban managers can be summarized with a few basic facts. In the next two decades, urban populations in LDCs will double, and more than half the poor of those countries will be urbanized. Squatters, who constituted about 40 percent of the urban residents in 1981, will account for nearly two-thirds by the turn of the century (United Nations 1986). Africa, the poorest and most rural of the world's regions, is urbanizing at a rate of 5.2 percent annually, more than twice the world rate and considerably above the figures for most of Latin America, the Caribbean, and Asia (World Resources Institute 1986).

Urbanization, however, poses a set of paradoxes. Cities are the locus of highly visible poverty and unemployment, but urban agglomeration supports productive activities critical to economic growth. Moreover, policies designed to improve agricultural productivity reduce the demand for farm labor and themselves contribute to urbanization. Continuing urbanization is thus an inevitable correlate of development and an essential component of economic growth.

The need for shelter, a package that includes land, housing, and related basic urban services, is one of the most visible aspects of the concentration of poverty in cities. Sprawling squatter settlements, unserved by water or sanitation and subject to fire, flood, and epidemics, have come to symbolize the urban condition of the developing world, despite more than two decades of attention to the problem. The elusiveness of solutions is fundamentally the result of profound poverty. LDCs are categorized by the World Bank (1984) as being low income or middle income depending on whether their annual per capita gross national product exceeds $410. Haiti's $300 figure in 1982, for example, was less than three percent of the per capita income of the United States. In 1982, there were 56 countries with GNPs below $1,000 per capita, and another 20 in which it was below $2,000. Disposable household incomes, and the shares available for housing, are correspondingly low, as are the local public resources for investment in housing.

I will use this introduction to define a number of basic concepts and help to set the political and policy framework within which the symposium papers should be read. This context can best be understood from a review of policy changes over the past 25 years, during which international organizations and bilateral donors have played an active role in the formulation and evolution of LDC shelter policies. I should point out quite clearly that I write this largely from the policy perspective of the donors and international organizations. Although many LDCs agree with the donors on fundamental issues, policies vary considerably among countries; I have not attempted to encapsulate them.

Sumka is an urban development officer in the Office of Housing and Urban Programs at the U.S. Agency for International Development. He is responsible for research and program development on issues related to urban infrastructure, land, and municipal management in developing countries. He holds a Ph.D. in planning from the University of North Carolina, and has taught at the universities of Kansas, Maryland, and Virginia.

The World Bank, which developed an urban programs focus in the early 1970s, is the single largest source of capital for urban projects and plays a key part in helping to set the policy agenda. Since the late 1970s the U.N. Centre for Human Settlements (Habitat) has served as an implementing agent for research and technical assistance projects funded primarily through the U.N. Development Program and voluntary national contributions. It also provides a forum for policy debate and dialogue among the donors and the LDCs. The U.S. is the most prominant bilateral donor in the shelter sector; the Housing Guaranty program of the Agency for International Development (AID) has authorized $2 billion in shelter loans since its inception in 1962. Few other donor countries are directly active in the sector, many having been discouraged by projects they judged to be ineffective and inefficient. Recently, however, at a meeting of the Development Assistance Committee of the Organization for Economic Cooperation and Development, a number of donor countries expressed interest in supporting urban development and shelter projects because of the scale and inevitability of the need.

Policy evolution from public housing to basic needs

During the 1960s and early 1970s, shelter policy in LDCs mirrored that of the industrialized countries. That was a period of active slum clearance and public housing construction. LDC governments viewed spontaneous settlements (a generic term for various illegal and quasilegal communities, which Lim defines more precisely) as signs of failed economic and social policy. They attempted to eliminate the housing problem by bulldozing slums and constructing, with donor financial and technical assistance, publicly-supported housing projects.

Those projects were built to very high standards relative to the quality of the existing stock of housing, and even the moderate-income families to whom most were made available required large subsidies to take advantage of them. That strategy exacerbated the housing problem. Governments destroyed more housing than they built, and spent scarce resources on projects that were difficult to maintain. The residents of publicly-supported housing projects were far from the economically most disadvantaged (Mayo et al. 1986). Often, in fact, governments targeted projects to middle-income households as a means of solidifying political support.

In the early 1970s, donor agencies recognized the inefficiency and counterproductive nature of slum clearance and public housing and introduced what are known as basic needs strategies. Program attention turned more directly to the very poor, and the agencies introduced and promulgated a variety of new concepts as cost effective solutions to the problem; many of these are still being used.

First tried in the late 1960s, sites and services projects are one such solution. In these projects the government takes a parcel of land, subdivides it into individual plots, and provides water, sanitation, and feeder roads, then allocates the plots to individual households. The recipients build their own homes or contract to have them built. Additional support may be made available in the form of construction financing or building materials loans. Program details regarding building standards, maximum time for completing construction, or pricing, for example, vary from project to project, but the basic advantages are clear: the cost is low; incremental building can occur at a rate commensurate with the families' ability to earn and accumulate funds; and it allows significant opportunities for self-help (Rondinelli 1986).

Core housing projects are a variation on the theme. With core housing projects, the government builds a rudimentary shelter of perhaps 20 square meters on the site prior to the sale to the household. Often this is no more than a roof and four walls with water and sanitation available at each unit or communally. Under the *pisotecho* scheme used in some Latin American countries, the "house" is literally a floor and a roof; the residents add the walls later. The advantages of core housing are that it allows for quicker completion of the basic unit and that it permits faster occupancy than sites and services. The cost is still relatively low, and the owner can make incremental additions to the unit.

Neither sites and services nor core housing strategies directly address the problems of existing and growing low-income neighborhoods, whether legal slums or spontaneous settlements, that lack minimal services and basic urban amenities. LDC governments and donor agencies turned their attention to this problem partly because of the extensive and obvious need and partly because slum upgrading is a cost-effective way to improve the living conditions of large numbers of people since it capitalizes on the housing investments already made by residents. In general, upgrading schemes involve the provision of basic water and sanitation, as well as some road grading and paving. They also may include other elements, such as mapping parcels or providing public spaces, electricity, and facilities for productive activities. Generally, the upgrading and provision of services stimulates self-help housing improvement (Rivkin and Rivkin 1984).

Policy dialogue and reform

Sites and services, core housing, and upgrading are still the main thrust, at the project level, of most donor-supported efforts to meet the housing needs of

the urban poor. In recent years, however, the donor community has concluded that solutions are not being generated at a scale anywhere near commensurate with the problem.

The majority of new projects still require donor financing, but the lingering problems in the international economy and pressing needs for other developmental assistance threaten to reduce the availability of such support. In fact during 1980–83, total urban assistance (which includes projects other than shelter) fell from $950 million to $830 million per year. That includes assistance to LDCs from all bilateral donors and all the multinational and regional development banks, and it amounted to only about two percent of all the assistance they provided (Office of Housing and Urban Programs 1986).

Even an infusion, within reasonable limits, of new donor resources could not begin to build or finance adequate shelter for growing urban populations. A simple computation makes the need–resources imbalance clear. By far the largest bilateral donor program in the shelter sector is AID's Housing Guaranty program, under which about $150 million in loan authority is made available each year (Office of Housing and Urban Programs 1985). If that level is maintained for the next 20 years, it will provide three dollars of assistance for each of the one billion people that are expected to be added to the LDC urban population during that time (United Nations 1986).

The realization that the project-oriented, basic needs strategy could not begin to address the shelter problem on a scale commensurate with the need for housing has led to what might be termed a policy dialogue phase of donor assistance. Donors now view assistance not simply as a resource to build projects but as a vehicle for generating additional changes in shelter policy in LDCs. Achieving policy changes is one of the four "pillars" of current AID development programs, along with institutional development, private sector involvement, and technology transfer. The dialogue centers on such issues as reducing standards for housing, recovering project costs through user charges, and reducing the direct involvement of government (U.S. Agency for International Development 1985).

Among the donors and the international organizations, a remarkable policy convergence has emerged on the overall theme of working with LDCs to help them find better ways to mobilize and deploy their indigenous resources. Major policy statements by senior officials at the World Bank and the U.N.'s Habitat all advocate the same essential policies as does AID. Whether those policies prove to be notably more productive and effective than past policies remains to be seen, but they have considerable validity on their face. Moreover, correct or not, the dominance of the field by AID, the World Bank, and Habitat is likely to assure that these policies carry us into the next century.

Perhaps the most profound aspect of the policy convergence is the view that governments should no longer be seen as providers of shelter, but "as a facilitator, mainly responsible for . . . support[ing] the settlement development process" (Ramachandran 1986). Coming from the director of Habitat, a U.N. Agency that traditionally has looked to the governments for solutions, this statement carries all the more import. In his view, urban settlement has taken place in a "policy vacuum" over the past decade and the continuing ability of LDC cities to function reflects "the resourcefulness . . . of the urban poor in building a future for themselves. . . ." The implication is that governments should realize that the vast majority of housing has always been, and will continue to be, provided by the private sector. The policy statements of the World Bank and AID are explicit in arguing that government resources should be used to leverage and support private activity by entrepreneurs in the formal and informal sectors, as well as self help by households and community groups.

A second point of unanimity among the donors is the need to foster LDC self-sufficiency in housing and urban development through training and technical assistance to national and local government institutions and to the private sector. One objective is to increase local authority to generate revenue, set infrastructure standards, and deliver local services. This requires both national policy reform and targeted training in municipal management (Loh 1986). The donor agencies see a parallel focus on strengthening housing finance institutions, national housing agencies, and private financial intermediaries as key to increasing the availability of credit, an essential input to housing provision (Kimm 1986). A major objective is to demonstrate that low-income families are reasonable credit risks, provided they receive affordable housing and have an appropriate incentive structure.

Strategies for project development

To give practical substance to the policy dialogue, the donors have focused on the appropriate roles of government and the establishment of project implementation strategies that rely primarily on the private sector. Governments can constructively contribute to shelter provision in three areas: providing land with secure tenure, because this is fundamentally a legal issue that must be resolved in the public arena; assuring available infrastructure, which generally requires major capital investment and involves both economies of scale and public health benefits; and assuring adequate credit, which is intimately related to national economic policies and the system of financial regulation.

Of these, secure tenure is perhaps the most important element from the standpoint of mobilizing private

resources. Individuals hesitate to invest in improving their housing because they fear they will be evicted from land that they occupy in spontaneous settlements that have been illegally subdivided or have clouded title. Evidence suggests that increasing the security of tenure can have a dramatic impact on the rate at which households invest in their housing and, consequently, on the quality of their lives, their productivity, and capital formation (Mayo et al. 1986). Often, security can be established simply through the provision of services, even while title remains unclear. At a minimum, that assures families that the government recognizes their right to occupy the land.

The second substantive aspect of the policy dialogue focuses on implementation policies that will lead to project replicability on a large scale (Urban Edge 1985). Replicability requires the establishment, institutionalization, and active pursuit of cost recovery policies (U.S. Agency for International Development 1982). First, project costs must be reduced to levels that are affordable by the intended residents. That necessitates the use of appropriate technologies that require local rather than imported materials, are labor intensive, and do not involve sophisticated and costly maintenance. It also requires policies that accept lower minimum standards, which may mean reducing lot size in a sites and services project, making core houses smaller, or providing communal water standpipes rather than supplying water individually to each house.

Cost reduction is only the first step in achieving cost recovery; proper pricing of housing and public services is equally important. User charges, betterment taxes, and other methods can recoup the cost of providing services to project residents. Prices for lots and houses can be set at full market value, and credit for home mortgages or improvement loans can be made available at interest rates that reflect the real cost of money in what are often highly inflationary economies. If standards are sufficiently low and costs are kept to a minimum, a substantial portion of the poor will be able and willing to pay for the shelter that is provided. It will not, of course, be possible to serve the very poor and achieve full cost recovery. Where households need subsidies, donor policies argue for keeping them to a minimum and targeting them carefully to well-identified beneficiaries (Cohen 1986).

Issues addressed by the symposium

In 1976, the international community produced the "Vancouver Declaration," 65 recommended government actions to increase the availability of acceptable housing for the poor and to improve planning and management of human settlements. A decade later, the inclination of the international community is not to look so directly to the government, but to recognize that shelter goals will be realized through the actions of the private sector, the self-help energy of individuals, and the coordinated efforts of community organizations. This theme is echoed repeatedly in the symposium papers. Collectively, they make an eloquent case for appropriate and limited government involvement in the provision of housing.

Lim provides an overview of the scale of the problem and develops a useful schematic typology of the housing market and the variety of low-income settlements in LDC cities. His review of current shelter policies leads him to recommend that we revise some basic norms that underlie them. He argues for further reductions in standards, encouragement of rental arrangements, and less emphasis on "one-step" regularization of the market. Campbell focuses on the provision of water and sanitation services. For service provision to keep pace with mounting needs, he argues that LDCs will have to redefine the responsibilities of state water authorities and put increased reliance on self help and community participation in building, operating, and maintaining infrastructure. He sees low-income communities as sources of energy that can be harnessed for the task under the right circumstances, particularly if they are given increased security of tenure.

Fass directs our attention to the problem of the ultra-poor, the segment of LDC society that faces a daily struggle for survival and whose primary concern is the cost of obtaining food. He suggests that housing policy and design standards should directly account for the need of these families to use shelter in producing income, rather than as a consumption good. His example from Haiti illustrates the ingenuity of program beneficiaries in converting inappropriate government housing projects into more usable benefits.

Three shorter papers use case examples to illuminate various aspects of the LDC shelter problem and policies. Lacey and Owusu examine Liberian housing policy, making clear the social and political obstacles to policy reform in many LDCs and demonstrating by implication the inefficiency of excessive government intervention. Yonder describes the political and institutional contexts for establishing secure tenure in Istanbul. She provides insights into the options for, and difficulties encountered in, overcoming this major barrier to the investment of private resources in improved housing and argues that secure tenure must be supplemented by credit for households and regulation of developers. Kim describes the housing conditions in China, where population growth has far outpaced recent efforts to substantially increase housing investment, leaving a major segment of the urban population inadequately housed. He explains the basics of shelter provision in China, including the unique system of communal ownership by the work unit, and the system of finance. Finally, the symposium includes a special Planner's Notebook article by Struyk that

describes a computer-based methodology for estimating housing needs in LDCs over a 20-year planning horizon. The development and implementation of the model was supported by AID as one of its contributions to IYSH.

The need for shelter for the poor in developing countries is enormous. Under the combined pressures of population growth and urbanization, countries will have to adopt innovative policies to assure that housing production keeps pace with the growing need. This is a task for which planners are especially well-equipped. The *JAPA* editors and I intended that this symposium help us better understand the problems faced by the world's most disadvantaged and lead us toward some potential solutions. I believe that the authors have made an important contribution to this goal.

Author's note

The conclusions and opinions expressed here are solely those of the author and do not necessarily reflect those of the U.S. Government or USAID.

References

de Boer, Yvo. 1985. The International Year of Shelter for the Homeless. *Cities* (November): 340–49.

Cohen, Michael. 1986. Speech to the 17th World Congress of the International Union of Building Societies, Vienna.

Kimm, Peter M. 1986. Evolving shelter policies for developing countries. Address to the Second International Shelter Conference, Vienna.

Loh, Ping-Cheung. 1986. Policy and programs for urban and shelter lending: The next decade. Address to the Second International Shelter Conference, Vienna.

Mayo, Stephen K.; Stephen Malpezzi; and David J. Gross. 1986. Shelter strategies for the urban poor in developing countries. *Research Observer* 1, 2 (July): 183–203.

Office of Housing and Urban Programs. 1985. Annual report, fiscal year 1985. Washington: U.S. Agency for International Development.

———. 1986. Development cooperation and urban development. Washington: U.S. Agency for International Development.

Ramachandran, Arcot. 1986. An agenda for the next decade. Opening address to the ninth session of the Commission on Human Settlements, Istanbul.

Rivkin, Goldie W., and Malcolm D. Rivkin. 1984. Upgrading: Concepts and examples. Occasional Paper Series. Washington: Office of Housing and Urban Programs, U.S. AID.

Rondinelli, Dennis A. 1986. Shelter, infrastructure, and services for the poor in developing countries. Research Triangle Park, NC: Research Triangle Institute.

United Nations Centre for Human Settlements. 1986. Habitat background paper: The urban explosion. Nairobi: U.N. CHS.

Urban Edge. 1985. Making shelter projects replicable, Vol. 9, No. 10, December. Washington: The World Bank.

U.S. Agency for International Development 1982. *AID policy paper: Recurrent costs*. Washington: Bureau of Program and Policy Coordination.

———. 1985. *AID policy paper: Shelter*. Washington: Bureau of Program and Policy Coordination.

World Bank. 1984. *World development report 1984*. New York: Oxford University Press.

World Resources Institute. 1986. *World resources 1986*. New York: Basic Books.

Housing Policies for the Urban Poor in Developing Countries

Gill-Chin Lim

A large proportion of the urban population in developing countries lives in informal settlements due largely to rapid population growth and widespread poverty. Traditional regulatory measures—price control, minimum physical standards, eradication of squatter settlements, and urban growth control have failed to improve the housing conditions among the poor. More recently, international donor agencies have encouraged new policies based on affordability for consumers, and many developing countries are shifting their priorities to upgrading existing informal settlements and to sites and services projects for low-income settlements. Both traditional and recent government policies are guided by three key norms—unique occupancy, minimum physical standards, and one-step regularization—which are not in line with the individuals' behavior in the housing market. Therefore, governments and donor agencies need to critically examine the impacts of these norms and to consider alternative strategies such as multiple occupancy, adaptable shared housing, and multistep housing development.

The current world population of five billion will probably increase to 6.4 billion toward the year 2000, roughly two billion of whom will reside in the cities of developing countries.[1] A large proportion of these urban dwellers will lack adequate means to meet their needs for housing and other daily sustenance. Furthermore, the cities in which they live, ill-prepared to support their needs, will suffer from a chronic shortage of resources to provide necessary services. Many of these urbanites will sleep on streets, build shacks illegally, or double up in the existing squatter settlements.

The essential features of the housing problem of the urban poor in developing countries have been fairly well recognized among policymakers and researchers (Dunkerley et al. 1978; Oberlander 1985). Policymakers employ a mixture of traditional regulatory measures along with a few relatively new programs such as sites and services,[2] the combined effects of which are poorly understood. The countries sometimes also receive conflicting advice from the international donor agencies that provide financial assistance for their housing programs.

Several underlying norms are shared by both traditional and more recent housing policies: unique occupancy, minimum physical requirements for housing units, and one-step regularization of the housing market. They shape the crucial elements of housing programs such as type and size of housing, and investment targets. These norms originated in developed countries, however, and have been applied to developing countries with varying success. Their validity in the context of developing countries has not been seriously questioned. This paper examines traditional and more recent housing policies and proposes new directions for housing policies for the urban poor in developing countries.

The paper begins with a review of the nature of the housing problems in developing countries, emphasizing three distinctive features: the large proportion of illegal settlers, heterogeneous physical stock, and diverse tenure arrangements. Second, a model of housing markets defines various housing submarkets and explains the behaviors of individual consumers in the housing market. Third, the paper describes traditional government policies and evaluates evidence that they have not succeeded in alleviating housing problems. Fourth, it summarizes some notable recent shifts in shelter policies and their effects, with attention to the activities of major international donor agencies

Lim teaches in the department of urban and regional planning at the University of Illinois, Urbana-Champaign. His area of interest includes comparative urban development and complex decision making. He has advised a number of international and national agencies and written on housing, land use, environment, and planning theory.

and to policy changes in developing countries. Fifth, the paper analyzes the underlying norms of housing policies universally shared by the traditional and more recent approaches—unique occupancy, minimum physical standards, and one-step regularization. Theoretical and empirical evidence indicates that these norms lead to misallocation of resources for housing. Finally, new directions in housing policies are discussed. In particular, the paper proposes a shift away from traditional regulatory measures, increased investment in adaptable shared housing for multiple occupancy, and the establishment of policies to facilitate multistep transition in the housing market.

Nature of the problem

Between 1970 and 1982 the average annual rate of urban population growth was 4.4 percent for low-income developing countries and 4.2 percent for middle-income countries (World Bank 1984). The population in cities over 100,000 in developing countries reached 480 million in 1975 and is likely to rise to 1.4 billion by 2000 (Council on Environmental Quality and Department of State 1980). As Table 1 illustrates, toward the beginning of the next century, many cities in developing countries will have more than doubled their current size, becoming super-agglomerations.

During the last two decades the economies of developing countries have also grown substantially. Between 1960 and 1982, low-income developing countries recorded an average annual growth rate of 3.0 percent in GNP per capita. The rate was 3.6 percent for lower middle-income countries, and 4.1 percent for upper middle-income countries (World Bank 1984).

Table 1. Estimates and rough projections of selected urban agglomerations in developing countries

City	Population (millions)			
	1960	1970	1975	2000
Calcutta, India	5.5	6.9	8.1	19.7
Mexico City, Mexico	4.9	8.6	10.9	31.6
Greater Bombay, India	4.1	5.8	7.1	19.1
Greater Cairo, Egypt	3.7	5.7	6.9	16.4
Jakarta, Indonesia	2.7	4.3	5.6	16.9
Seoul, Korea	2.4	5.4	7.3	18.7
Delhi, India	2.3	3.5	4.5	13.2
Manila, Philippines	2.2	3.5	4.4	12.7
Tehran, Iran	1.9	3.4	4.4	13.8
Karachi, Pakistan	1.8	3.3	4.5	15.9
Bogotá, Colombia	1.7	2.6	3.4	9.5
Lagos, Nigeria	0.8	1.4	2.1	9.4

Source: Council on Environmental Quality and Department of State (1980), p. 242

An important aspect of economic growth in developing countries that should not be overshadowed by the achievement of the overall growth rate is income distribution. Income distribution becomes more unequal as a poor nation moves toward the middle-income bracket (Kuznetz 1955) and, in fact, the share of household income in the lowest two quintiles of poor nations remains significantly smaller than that of the comparable segments of rich nations (World Bank 1984). Consequently, despite the general increase in per capita income, a large proportion of the population in developing countries lives in severe poverty (Linn 1979). The World Bank (1980) estimates that more than 200 million people in cities in developing countries lived below the absolute poverty line in 1980. The great majority of poor people simply cannot afford to purchase through market mechanisms a quantity and quality of housing adequate to sustain a decent standard of living.

The inability to afford a regular housing unit leads the poor to find unconventional solutions to their housing problems, and some of these solutions are even illegal in certain contexts. In particular, three distinctive features of housing for low-income population in developing countries deserve a special note. These features are not common in housing markets in developed countries. First, many people occupy land without due permit of the owner or due process of subdivision. The proportion of such informal settlements in large cities of developing countries is extremely high—ranging from 32 percent in São Paulo to 85 percent in Addis Ababa (Table 2; U.N. Center for Human Settlements [U.N. CHS] 1984).[3]

The second distinctive feature is the variety of building materials and physical structures the poor adapt to housing. In industrialized countries, construction material for housing is fairly standardized. However, in developing nations, the very poor who cannot purchase regular housing units rely heavily on temporary materials. For example, poor inhabitants of Bombay, India, may use gunny sacks and wooden boxes (Municipal Corporation of Greater Bombay 1984). In other countries, flattened cans, mud bricks, and cardboard are also used. Dwelling units built with temporary materials usually violate three central elements of building codes: minimum required standards for construction material, minimum lot size, and minimum floor area.

Renting and multiple occupancy are the third important aspect of accommodation for the poor.[4] The low level of income and the lack of financing mechanisms prevent many people from owning a home as a unique occupant.[5] The proportion of renter occupants was 75.7 percent in Hong Kong in 1971, 30.0 percent in the Republic of China in 1975, 66.9 percent in Malaysia in 1975, 34.0 percent in Mexico in 1970, and 36.5 percent in Korea in 1975 (Korea Research Institute

Table 2. Estimates of the percentage of city populations residing in informal settlements

City	Population in 1980 (thousands)	Estimated population in informal settlements	
		Number (thousands)	Percentage
Addis Ababa, Ethiopia	1668	1418	85
Luanda, Angola	959	671	70
Dar es Salaam, Tanzania	1075	645	60
Bogotá, Colombia	5493	3241	59
Ankara, Turkey	2164	1104	51
Lusaka, Zambia	791	396	50
Tunis, Tunisia	1046	471	45
Manila, Philippines	5664	2266	40
Mexico City, Mexico	15032	6013	40
Karachi, Pakistan	5005	1852	37
Caracas, Venezuela	3093	1052	34
Nairobi, Kenya	1275	421	33
Lima, Peru	4682	1545	33
Sao Paulo, Brazil	13541	4333	32

Source: U.N. CHS (1984), p. 9

for Human Settlements [KRIHS] 1981).[6] The extent of multiple occupancy is clearly demonstrated by the data on housing supply ratio—the number of housing units divided by the number of households in a country. The ratio was 73.6 percent in Hong Kong in 1973, 78.2 percent in the Philippines in 1977, 68.5 percent in Korea in 1980, and 85.1 percent in Colombia in 1973 (KRIHS 1981; Lim, Follain, and Renaud 1984).[7]

In sum, cities in the developing world contain a large number of poor living in accommodations that do not meet the conventional Western definition of home—a housing unit that meets all legal requirements and is occupied by a single household. This is an imposed definition, and in many cultures, occupation by several generations is the norm, not necessarily a problem.

A model of housing markets[8]

The three main features of low-income housing markets described above suggest that the housing market in developing countries should not be discussed only in terms of formal production and consumption. A more appropriate model can be developed by translating these features into basic criteria by which to classify housing submarkets.[9] The model serves two important functions: to define various housing submarkets and to gain clearer theoretical insights into the behavior of consumers.

Submarket structure and definitions

The first classification criterion is the legality of land occupancy. Legal occupants use land in accordance with legal provisions concerning property rights and development, while illegal occupants do not have legal title or have violated subdivision regulations. The second criterion concerns the legality of physical characteristics of the individual units—whether or not they meet the minimum government standards for building material, lot size, and floor area. The third criterion is the status of tenure. Some households are owners with unique or multiple occupancy, while others are renters with unique or multiple occupancy.[10] The classification system generates eight types of housing submarkets (Figure 1).

Box A in Figure 1 represents the *regular* or *formal* housing market. A housing unit in this submarket is owned or rented by a household with legal title to the land and building, and the unit meets the building codes and other government specifications for a legal dwelling unit. Box B is the *slum* housing market, which consists of units built on legally owned or rented land but which do not meet the legal minimum standard for physical characteristics. Some units of *gecekondu* in Turkey and *panjachon* in Korea fall under this submarket. Box C is the *invasion* housing market in which dwellers occupy land illegally or live in illegal subdivisions. Their units, however, conform to the minimum physical standards. Some invaders may occupy land as if they were owners and rent spaces to tenants.[11] *Barrios piratas* in Colombia and *colonia ilegal* in El Salvador are examples of the invasion housing market. Box D represents the *squatter* housing market, where housing violates both the legality of land occupancy and physical standards. *Favelas* in Brazil and *tugurios* in El Salvador are squatter settlements. Boxes B, C, and D can be called the *nonregular* or *informal* housing market as opposed to the regular or formal housing market.[12]

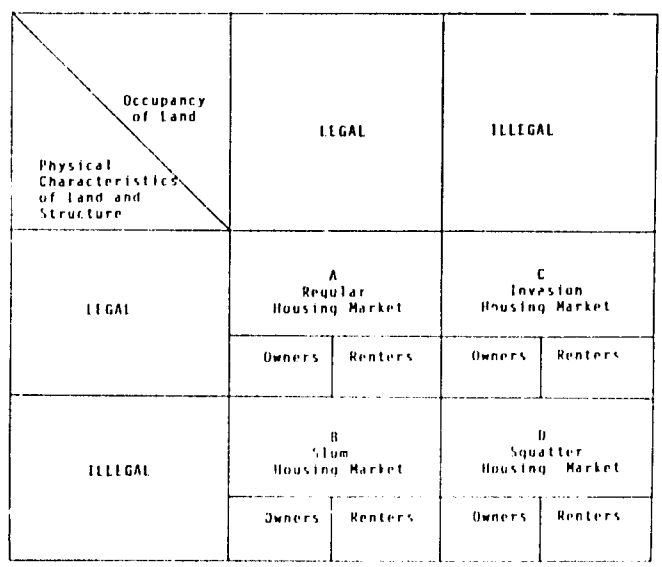


Figure 1. Structure of submarkets for housing

Long-term multistep transition model

The submarket structure can be used to develop theoretical insights into the behavior of consumers in the housing market. First, it suggests that the poor normally have to make a multistep transition through different submarkets to improve their housing condition (Figure 2). Individuals may make this transition either by moving to different locations or by changing their housing characteristics at a fixed location. A household can skip some stages or move in either an upward or a downward direction during the transition. A person who arrives in a city as a street sleeper may move through different submarkets step by step with the possibility of eventually becoming an owner of a regular housing unit. A squatter on a piece of land without legal title and in violation of building codes may in the end pay for the legal title and also have his structure improved to meet the code requirements. A one-step transition from the squatter to the regular housing market would be possible but it is unlikely among the poor.

Second, in the submarket structure, it would usually take considerable time for the poor to move from the informal to the regular housing market. Rarely can a street sleeper afford to turn into an owner of a regular housing unit within a short time. Some may stay in one submarket for a long time, because their demand or need does not change.[13]

Traditional housing policies

Key housing policies

Until recently governments in developing countries dealt with the problems of housing primarily by regulatory measures. One of the most popular policies is control of land and housing prices. The rationale is that land or housing is too expensive for the poor, and therefore freezing the prices will make land and housing more accessible to them. The second pervasive regulatory measure is to set minimum physical standards for individual land and structure, in the hope that they will prevent people from building low-quality housing that the governments believe to be unsafe and unhealthy.

Third, some governments have attempted to eradicate informal settlements—particularly those occupied by squatters—only sometimes providing a site for relocation. The logic behind the eradication policy is that physical removal of squatter or other informal settlements would reduce their number in urban areas. Although not as widely practiced as it used to be, it is still employed in some cities, and supported by the courts.[14] In most developing countries, however, squatter and other informal settlements are generally tolerated, if not recognized by law.

The fourth regulatory measure that developing countries sometimes adopt is large-scale development restriction. The best-known measure of this type is the greenbelt. Supporters of the greenbelt argue that the delineation of the boundary of a city by a greenbelt will limit urban growth, effectively putting a ceiling on invasion and squatter settlements.

Fifth, there have been overall attempts at the national level to encourage population decentralization. These attempts are based on the notion that balanced distribution of population among regions would reduce the demand for housing in large metropolitan areas, and thus alleviate urban housing problems.

Negative impacts of the traditional housing policies

Given the critical shortage of housing, the housing policies in developing countries should focus on facilitating the supply of housing and increasing effective demand at stable prices. Traditional housing policies, however, run counter to these objectives.

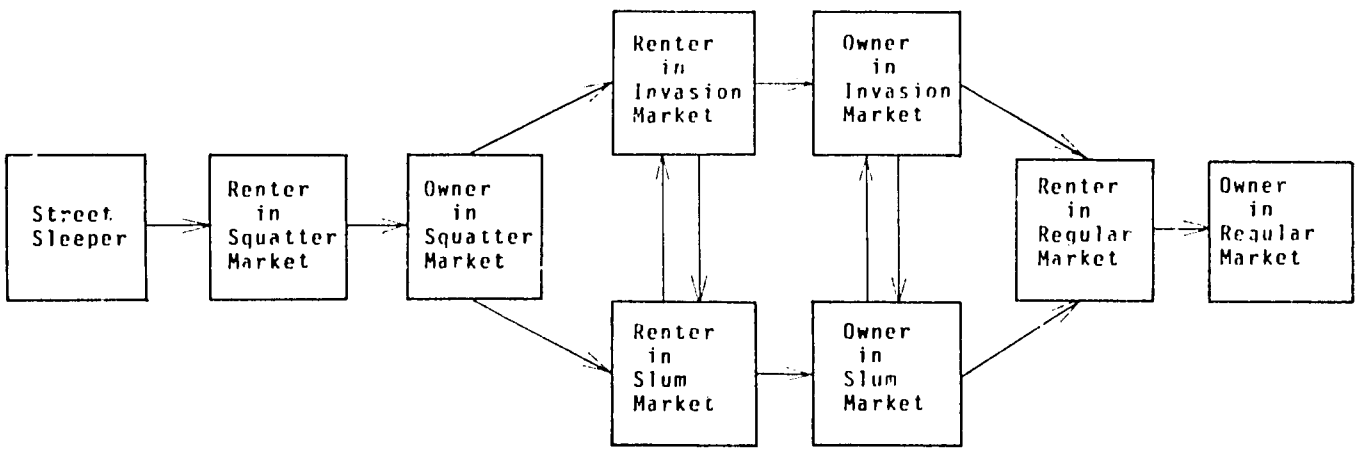


Figure 2. An example of a multistep transition in a housing market

All five measures described here exert harmful influence on the housing condition of the poor. Because price control discourages suppliers of housing from entering the market or expanding their output as the demand increases, housing shortages also increase. A black market for housing may develop. In addition, the government must decide how to allocate housing among individuals who want more than what is available. A high minimum physical standard raises the price of regular housing units, making them even less affordable to the poor, who therefore remain in the nonregular housing market.

Eradication of squatter housing destroys units that the poor have built with little public expenditure.[15] Removal of squatters from specific areas, however, does not decrease the demand; it simply creates new squatter areas somewhere else. The greenbelt and other forms of development restrictions limit the supply of land in a city. As the population and income of the city increase, the physical constraints on development will cause the price of housing to rise sharply, particularly near the growth control areas. Decentralization, if implemented successfully by incentives, can reduce the demand for housing in large cities. But, if decentralization is accompanied by restrictive measures such as building permit control, it will increase the price of housing.[16]

To summarize, there are strong theoretical reasons to question the effectiveness of traditional urban housing policies. They tend to limit the supply significantly and drive up prices.[17] Many experts on housing problems agree on the counterproductive effects of many traditional policies such as price control (Mayo, Malpezzi, and Gross 1986; Mills 1980), minimum physical standards, eradication of squatter housing, development controls (Doebele 1983; William Lim 1983; Mayo, Malpezzi, and Gross 1986), and greenbelts (William Lim 1983; Mills 1980). Studies that examine the effects of specific policy measures also support the main theoretical argument proposed here. For example, Wheaton (1981), in his study of Egyptian housing policy, explains that any system of price and quantity controls is likely to be circumvented through a form of black marketing that may result in sectoral distortion, inflation, and regressivity. Kim, Mills, and Song (1986) demonstrate the undesirable effect of greenbelts on housing markets.

Recent shifts: International agencies and country experiences

Criticism of traditional urban housing policies over the last few decades (Cohen 1983; Doebele 1983; Mills 1980; Turner 1977) has been accompanied by a gradual shift in orientation. For example, sites and services projects are now widely accepted as a viable means to provide housing for the low-income population. International donor agencies have played an important role in initiating this shift (U.N. CHS 1983; 1984; U.S. AID 1985; World Bank 1975; 1980).

Consensus and conflict in recommendations

The most important consensus reached among major international donor organizations such as the United Nations, the U.S. AID and the World Bank is that new housing policies must acknowledge and emphasize the positive contribution of the informal housing sector. This emphasis has been translated into programs such as squatter and slum upgrading, self-help housing, and sites and services projects.

Donor agencies have also recommended changes in minimum physical standards of housing and use of the affordability concept in designing programs. Traditionally, developing countries invested primarily in housing units with very high physical standards, but these have been beyond the reach of the poor. To make new housing programs available to more poor people, it has been recommended that the minimum physical standard be substantially lowered. Currently, the design of residential development projects that receive assistance from the international donor agencies is based on affordability—the ability of the household to pay for housing.

An area that lacks consensus among international agencies is the role of the public sector in land development. The United Nations, on the one hand, recently stressed the need to increase public intervention in the process of land development for housing (U.N. CHS 1983; 1984). Specific policy suggestions include public land acquisition and disposal through preemption, appropriation, readjustment, and nationalization.

In contrast, the World Bank's policies in recent years have underscored the importance of the private sector in the development process (World Bank 1981). Because the Bank believes that the current public policies are major barriers to the supply of shelter it does not advocate the public land development approach (World Bank 1980). In fact, the results of research conducted at the Bank strongly favor a reduction of public intervention. Its research proposes the lifting of various regulations and recommends policies based on consumer behavior in the free market (Mayo, Malpezzi, and Gross 1986). Specifically, it warns against policies that result in counterproductive outcomes. These policies include, according to the Bank, unrealistic building codes and zoning regulations, slum removal, public housing, and unfocused systems of subsidy for shelter and infrastructure.

Country experiences

The acute shortage of housing and the widespread occupation of land without legitimate tenure are per-

ceived as potential sources of political instability and social unrest. These internal political circumstances and pressure from the international community have been responsible for several important changes in housing policies in developing countries. Most notable among these changes is a gradual acceptance of squatter and slum upgrading, self-help housing, and sites and services projects as key housing programs. Such projects are typically aimed at low-income populations that cannot afford to buy housing in the regular housing market, and they feature revised minimum physical standards that are lower than traditional minimum standards. For example, in a housing project for Madras, India, financed by the World Bank, the minimum plots were reduced from 40 square meters to 35 square meters (World Bank 1985). In Bogotá, Colombia, the revised physical standard was adopted to deal with illegal settlements in the entire city (Kingsley 1982).

During the last decade, a number of countries have also increased their land or housing development activities through their public land or housing development agencies.[18] Although the creation or expansion of these development agencies is not necessarily a result of recommendations by international organizations, many receive technical advice or financial assistance from them. These housing development agencies are given special legal power—eminent domain, expropriation, preemption, and tax credits—to carry out large scale housing development.

In an increasing number of countries, housing development is shepherded along by a long-range national housing development plan ultimately intended to provide a separate unit to every household in the nation. A typical long-range national housing development plan can be described by the following steps: First, policymakers define the minimum physical standards for land and structure. These standards are not necessarily derived from an affordability analysis. In fact, they are frequently based on a needs concept that exceeds the affordability standard. Then, using population projections, the number of existing housing units, the attrition rate of housing, and the target housing supply ratio, the development agency calculates the amount of new housing needed for the projected population. In the third step, this gross housing and land development target is allocated over a span of years, yielding annual housing and land development needs. Sometimes, the agency also calculates the total financial requirements for reaching the target.

For example, in Korea a long-range land development plan estimates that a total of 958.7 square km will be needed by 1995 to achieve the housing supply ratio of 84.4 percent. This long-range plan adopts a minimum land size of 264.5 square meters for large units and 82.6 square meters for small units (Korean Land Development Corporation [KLDC] 1981). The World Bank (1980), using a similar method to estimate the investment required to satisfy the housing need for the world, suggests that about $160 billion (in 1975 value) will be needed to provide a basic unit of shelter for each household living in poverty in the year 2000.

Impacts of recent policy shifts

The recent shifts in housing policies mark a significant advance beyond the traditional approaches and reflect the enhanced priorities for the housing sector in the national development planning process. For instance, during the 1970s and 1980s, Indonesia, Malaysia, and Korea incorporated sectoral plans for housing as a major element in their national development plans (Yeung 1983; Lim 1985a).

These shifts have affected institution building in developing countries. Changes in legal standards for housing programs and efforts to implement large scale projects through direct public sector involvement have compelled the public sector to undertake various institutional changes. Unified housing agencies (Yeung 1983)[19] and financing institutions were created (Renaud 1984). New administrative divisions of housing and regional planning were set up in national planning agencies. These experiences have enlarged the institutional capacities of developing countries to deal with public projects.

Overall, the new programs based on lower minimum standards and affordability to consumers have embraced a large number of the urban poor who previously were not able to participate in regular housing programs. Most notable have been the World Bank's shelter projects. Through 1982 the World Bank started 90 projects in 50 nations—in the form of either upgrading or sites and services. Between 1975 and 1980 it spent $1.3 billion with an estimated 10 million beneficiaries (World Bank 1930). The Housing Guaranty Program of U.S. AID authorized $1.395 billion for 146 projects in 39 countries as of September 1985 (U.S. AID 1985).

Critical examination of underlying norms of housing policies

As the achievements of recent housing programs become more widely publicized, it is likely that they will be recommended by experts and international agencies as superior to traditional programs. Several underlying norms shared by both traditional and recent programs, however, need to be examined critically for their effectiveness in providing housing for the poor in the long run.

Probably the most important of these norms is that of unique occupancy, which indicates that each house-

hold must have a single dwelling unit.[20] Traditional housing projects, new programs such as sites and services, and long-range plans all purport to allocate one dwelling unit to one household. This goal is based on a crucial assumption about the behavior of consumers in housing markets: that they prefer unique occupancy. However, as the discussion of the submarket structure indicates, it is quite possible that individuals will opt for multiple occupancy—that is to share housing with others—perhaps to qualify for more space or other attributes of housing, or because of cultural traditions.

An empirical study for Korea shows that as income grows, individuals spend more to enjoy their physical space than to move to separate occupancy dwellings (Lim, Follain, and Renaud 1984). People may want to enjoy larger housing space while sharing a house with others. The popularity of *mesones* in El Salvador is further evidence of consumer preference for multiple occupancy. The *mesón* is a group of 5 to 50 rooms built around one or more central patios. The traditional *mesones* are converted from middle class houses, but the new ones are being built because of increasing demand. The main reason for the high demand for *mesones* is their convenient location in the center of the city. Most families rent a single room, which is shared, on average, by 2.8 persons (Fernandez-Palacios and Bamberger 1984). The norm of unique occupancy thus may impose an allocation decision contrary to consumer preference and cause misallocation of resources for housing.

International donor agencies have begun to recognize the limits of effectiveness of the unique occupancy approach. A proposed housing project designed by U.S. AID incorporates rental rooms as a basic element of a housing unit to allow multiple occupancy.[21] The World Bank also notes the possible benefit of renting a part of a housing unit to other households (World Bank 1980; Mayo and Gross 1985; Bamberger, Gonzalez-Polio, and Sae-Hau 1982). This recognition notwithstanding, use of rental systems for multiple occupancy by low-income people is not an important element of recent housing programs, and the majority of current housing projects in developing countries are still guided by the norm of unique occupancy.

The second norm shared by housing policies is the minimum physical standard prescribed by the government. This is what the government believes to be the desirable physical structure and minimum size of a housing unit. The concept of a minimum standard is arbitrary in the sense that its determination depends on the economy as well as the culture of a particular society. The acceptable minimum standard varies across societies and changes over time. When a high physical standard is enforced along with the norm of unique occupancy for reasons of safety and general welfare, the proportion of the population able to join the regular housing market is greatly reduced. It creates an impediment for a large number of people in entering the regular housing market.

Traditional housing policies have set unrealistically high minimum standards, making a large quantity of housing illegal. Even new programs planned with the affordability analysis and lower physical standards are beyond the financial capabilities of many poor people. Ayres (1983) and Payer (1982) criticize the World Bank's affordability standards as too high for the poor. The Bank's own finding indicates upward bias in affordability and physical design standards (Mayo and Gross 1985).[22]

The third norm is one-step regularization of the entire housing market—the effort to transfer households from the slum, invasion, and squatter housing markets to the regular housing market in single step. While traditional housing strategies try to regularize all housing market operations by enforcing building codes and other rules or by removing informal units, recent approaches instead change the definition of regular housing, lowering the legal minimum standard.

The norm disregards an important dynamic aspect of the housing market structure described earlier (see Figure 2)—the long-term multistep transition by households from the squatter housing market to the regular housing market. Certainly the long-run policy objective is to provide regular housing units for all members of the society. But hastening the transition—forcing squatters to skip intermediate steps of housing improvement or not giving them enough time to make transitions—lays undue financial burdens on them or governments. It is dysfunctional, because it is not in line with the intertemporal consumer behavior.

The World Bank's experience with sites and services projects provides important empirical evidence to support this point. Many poor people in developing countries cannot buy or rent housing units designed according to affordability assumptions—usually substantially reduced from the conventional standard. Only some can do so, with a large subsidy from the government. Some initial participants in such sites and services projects sell or sublet their units, relinquishing the status of single owners in the regular market (Keare and Parris 1982; Mayo and Gross 1985).

Suggestions for new directions

To provide better and more low-income housing without undue burden on the poor and on the governments, new housing policies must address not only the recognized problems inherent in traditional policies but also the potential sources of misallocation embedded in recent policies. Several key policy recommendations can be drawn from the analysis in this paper.

First, traditional regulatory measures that limit the supply and increase the costs of housing should be

abandoned or significantly modified. This is not to argue against supporting public land or housing development agencies that address the imperfections of housing markets. The critical issue is not so much whether developing countries should have public development institutions as what functions these institutions should perform. They can redefine their role as providers of land and housing information, advocates of regulatory relief, assessors of development impacts, inducers of private investment, and mediators of development conflicts.[23] Second, eradication of informal settlements should be stopped, and national plans for granting legal status should be prepared. Allowing the poor to have security of tenure is the first step toward upgrading. Third, national housing policies should emphasize expanding the amount of housing space while maintaining flexible tenure arrangements for the poor. The norms of unique occupancy and minimum physical standards should be relaxed to accommodate those who have strong preference for space or other attributes over unique occupancy. Builders should be encouraged to consider construction of adaptable shared housing that can be remodeled easily for unique occupancy as income increases or needs and preferences change.[24] Offering incentives to builders and occupants of shared housing should be examined. Fourth, housing programs should be developed in the multiple stages of the transition process shown in Figure 2, allowing participants to make the transition from informal to regular housing over time. Although the ultimate long-term goal is to provide regular housing units to all dwellers, an effective policy should support gradual improvement toward the regular housing market, not one-step regularization. Fifth, housing policies in developing countries need to be flexibly designed with attention to segmented housing markets. The distinct needs, affordability, and consumption behavior of families in each submarket should be accounted for in designing appropriate policies.[25]

In sum, long-range national housing plans need to be based on different norms and strategies than we use now. New plans should pay attention to the dynamic and fragmented nature of the housing market and should be consistent with the behavior of individuals. A plan with several stages of housing development for different submarkets would be much more effective than current plans formulated by one-step regularization and unique occupancy.

Author's note

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Notes

1. Sources of statistical information used in this paper include: Council on Environmental Quality and Department of State 1980; Linn 1979; World Bank 1980; 1984. Some of the data presented here do not pertain to all developing countries; the paper focuses on developing countries with market or mixed economies.
2. Sites and services projects refer to the provision of land with essential services to meet the basic housing needs of low-income populations. Allottees of sites and services projects normally build the physical structures through self-help construction (World Bank 1974). The earliest such projects began in the 1940s and 1950s and were implemented without external assistance. Large-scale projects with assistance from international donor agencies started in the late 1960s and early 1970s (Mayo and Gross 1985).
3. The literature on housing in developing countries uses various terms—squatters, slums, and informal settlements—to describe different types of housing submarkets. These terms have been used without a systematic classification scheme, and the definitions are not exact. U.N. CHS (1984), which presents the data cited here, defines "informal settlements" as follows: settlements that are developed by the process "outside the legal framework and regulations that prescribe the way land ought to be developed and buildings ought to be erected" (pp. 8–9).
4. Multiple occupancy is defined as the occupancy of a dwelling unit by two or more households. On the other hand, unique occupancy refers to the occupancy of a dwelling unit by a single household.
5. See Renaud (1984) for issues related to housing finance in developing countries.
6. The renter statistics are for the entire population. Large cities usually have a higher ratio of renters than rural areas. The proportion of renters in developed countries are as follows: 35.3 percent in the United States in 1976, 38.2 percent in Canada in 1976, and 46.5 percent in the United Kingdom in 1977 (KRIHS 1981).
7. In sharp contrast to developing countries, many developed countries have more than 100 percent of housing supply ratio—111.7 percent in the United States in 1979, 102.8 percent in Canada in 1976, 107.9 percent in Japan in 1978, and 117.4 percent in France in 1975 (Lim, Follain, and Renaud 1984).
8. Conceptual difficulties may arise in discussing housing markets and housing policies because of the impact of other policy areas on decisions in housing. For example, interest rate policies, which are in a large measure concerned with the performance of the macro economy, affect the housing sector. This paper focuses on explicit housing policy issues, and therefore the model presented here deals with the internal structure of the housing market. See Lim (1985a; 1985b) for a study of the impact of implicit land policies on land markets.
9. Other criteria can be used to classify submarkets; for example, a land market can be divided between public and private submarkets, or classified by conformance to locational requirements such as zoning. This paper, however, does not use the other criteria because the main features of the land market in developing countries can be described satisfactorily by the three criteria discussed.
10. Unique or multiple occupancy could have been used as a separate classification criterion, resulting in sixteen submarkets. But for the convenience of discussion it is incorporated in the third criterion.
11. Occupants in this group do not own their housing in the legal sense. They may own the physical structure but not the land, although they often claim the right to it. Occasionally, they rent all or some of their unit.

12. Some of the examples here do not fall exclusively under one submarket. For example, some *panjachon* units are slums while others are squatter settlements. For the purpose of policy-making, further distinction beyond popular description may be necessary.
13. The long-term multistep model has not been subject to a full empirical test. Some relevant empirical evidence is presented later in the paper. The model is used to conduct a conceptual analysis of key policy issues in housing.
14. Squatters in Bombay, India, were removed as recently as 1985. The removal was upheld by the Indian Supreme Court (Gibney 1986).
15. Jimenez (1982) shows that squatter dwellings have economic value in the market.
16. For a discussion of decentralization in developing countries, see Lee (1983).
17. However, it should be noted that some regulations could serve useful functions. For example, zoning can be used to deal with negative externalities.
18. Such agencies include: Housing Land Agency, Tunisia, established in 1973; Chilean Urban Development Corporation, established in 1964; Korea Land Development Corporation, established in 1979; National Housing Authority, Thailand, established in 1973; National Housing Board, Ecuador, established in 1973 (Kitay 1985).
19. Unified housing agencies combine a wide range of roles essential in housing development. Their roles may cover land acquisition, project financing, planning, construction, sales, and management for housing.
20. Provision of one dwelling unit for every household has been the prime objective of housing policy in most countries. Developed countries have pursued this objective for several decades. The 1945 Housing White Paper of the United Kingdom stated, "The government's first objective is to afford a separate dwelling for every family which desires to have one." In the United States, the Housing Act of 1949 declared "a decent home and a suitable living environment for every American family" as a national goal (Lim, Follain, and Renaud 1984).
21. Pamela Hussey U.S. AID, April 1986, personal communication; Howard Sumka U.S. AID August 1986, personal communication.
22. Alternatively, it is possible to increase the participation of the poor in the regular housing market by drastically lowering the physical standards. In the short run, this approach can achieve a big improvement in the housing supply ratio. In the long run, however, a very low minimum physical standard based on what the poor can currently afford may not be adequate. Recent studies suggest that income elasticity of demand for housing in developing countries is about .70 (Follain, Lim, and Renaud 1980; Ingram 1984; Malpezzi and Mayo 1985). That is, if household income doubles, demand for housing will increase by 70 percent. The dwelling units built now with a very low standard will become substandard housing in the long run. They may prove to be a public investment for large scale ghettoization. Such housing units would not be demanded and would have to be demolished, if income of the poor increases steadily.
23. KLDC (Korea Land Development Corporation) is a good example. It maintains comprehensive information on land availability, has suggested relaxation of greenbelts, and has conducted environmental impact assessments for large scale housing developments.
24. The total size of an adaptable shared housing unit should be based on minimum standards acceptable for unique occupancy in the future.
25. To design effective submarket policies, the policymaking capacities of local governments must be carefully examined. This raises a difficult question about political decentralization and local autonomy in developing countries.

References

Ayres, Robert L. 1983. *Banking on the poor.* Cambridge, MA: The MIT Press.

Bamberger, Michael, E. Gonzalez-Polio, and U. Sae-Hau. 1982. *Evaluation of sites and services projects. The evidence from El Salvador.* World Bank Staff Working Paper No. 549. Washington: World Bank.

Cohen, Michael A. 1983. The challenge of replicability: Toward a new paradigm for urban shelter in developing countries. *Regional Development Dialogue* 4, 1: 90–99.

Council on Environmental Quality and Department of State. 1980. *The global 2000 report to the President. Vol. 2, The technical report.* Washington: U.S. Government Printing Office.

Doebele, William A. 1983. The provision of land for the urban poor: Concepts, instruments and prospects. In *Land for housing the poor,* edited by Shlomo Angel, R. W. Archer, S. Tanphiphat, and E. A. Wegelin. Singapore: Select Books.

Dunkerley, Harold B., et al., eds. 1978. *Urban land policy issues and opportunities.* Vols. 1 and 2. World Bank Staff Working Paper No. 283. Washington: World Bank.

Fernandez-Palacios, Marisa, and M. Bamberger. 1984. *An economic analysis of low-cost housing options in El Salvador.* Discussion Paper No. UDD-55. Washington: World Bank.

Follain, J., Gill-Chin Lim, and B. Renaud. 1980. Demand for housing in developing countries: The case of Korea. *Journal of Urban Economics* 7: 315–36.

Gibney, Frank, Jr. 1986. Down or out in Bombay. *Newsweek* (January 13): 27.

Ingram, Gregory. 1984. *Housing demand in the developing metropolis: Estimates from Bogota and Cali, Colombia.* World Bank Staff Working Paper No. 663. Washington: World Bank.

Jimenez, Emmanuel. 1982. The value of squatter dwellings in developing countries. *Economic Development and Cultural Change* 30: 739–52.

Keare, Douglas, and S. Parris. 1982. *Evaluation of shelter programs for the urban poor: Principal findings.* World Bank Staff Working Paper No. 547. Washington: World Bank.

Kim, Kyung-Hwan, E. S. Mills, and Byung-Nak Song. 1986. Korean government policies toward Seoul's greenbelt. Mimeo.

Kingsley, Gordon F., Jr. 1982. Political constraints on housing provision: The *normas minimas* program in Bogota, Colombia. Bachelors thesis, Princeton University.

Kitay, Michael G. 1985. *Land acquisition in developing countries.* Boston, MA: Oelgeschlager, Gunn and Hain.

Korean Land Development Corporation (KLDC). 1981. *Long-range land supply plan.* Seoul, Korea: KLDC.

Korea Research Institute for Human Settlements (KRIHS). 1981. *Housing statistics handbook.* Seoul, Korea: KRIHS.

Kuznetz, S. 1955. Economic growth and income inequality. *American Economic Review* 45: 1–28.

Lee, Kyu Sik. 1983. *Decentralization trends of employment location and spatial policies in LDC cities.* Urban Development Discussion Paper No. 20. Washington: World Bank.

Lim, Gill-Chin. 1985a. Land markets and public policy: A Korean case study. Planning paper No. 85-6. Urbana, IL: Department of Urban and Regional Planning, University of Illinois at Urbana-Champaign.

———. 1985b. Land markets and public policy: A conceptual framework. Planning Paper No. 85-5. Urbana, IL: Department of Urban and Regional Planning, University of Illinois at Urbana-Champaign.

———, J. Follain, and B. Renaud. 1984. Economics of residential crowding in developing countries. *Journal of Urban Economics* 16: 173–86.

Lim, William S. W. 1933. Land acquisition for housing with Singapore as a case study. In *Land for housing the poor.* edited by Shlomo Angel, R. W. Archer, S. Tanphiphat, and E. A. Wegelin. Singapore: Select Books.

Linn, Johannes F. 1979. *Policies for efficient and equitable growth of cities in developing countries.* World Bank Staff Working Paper No. 342. Washington: World Bank.

Malpezzi, Stephen, and S. Mayo. 1985. *Housing demand in developing countries.* World Bank Staff Working Paper No. 733. Washington: World Bank.

Mayo, Stephen K., and D. Gross. 1985. *Sites and services—and subsidies: The economics of low-cost housing in developing countries.* Discussion Paper No. UDD-83. Washington: World Bank.

Mayo, Stephen K., S. Malpezzi, and D. Gross. 1986. Shelter strategies for the urban poor in developing countries. *Research Observer* 1: 183–203.

Mills, Edwin S. 1980. *Procedures for allocating land in Korea.* Korea Development Institute Consultant Paper Series No. 6. Seoul, Korea: Korea Development Institute.

Municipal Corporation of Greater Bombay. 1984. *Report on the revised draft development plan for greater Bombay, 1981–2001.* Bombay, India: Municipal Corporation of Greater Bombay.

Oberlander, H. Peter. 1985. *Land: The central human settlement issue.* Vancouver, Canada: University of British Columbia Press.

Payer, Cheryl. 1982. *The World Bank: A critical analysis.* New York: Monthly Review Press.

Renaud, Bertrand. 1984. *Housing and financial institutions in developing countries.* World Bank Staff Working Paper No. 648. Washington: World Bank.

Turner, John F. C. 1977. *Housing by people: Towards autonomy in building environments.* New York: Pantheon Books.

United Nations Center for Human Settlements (U.N. CHS). 1982. *Survey of slum and squatter settlements.* Nairobi, Kenya: U.N. CHS.

———. 1983. *Land for housing the poor.* Nairobi, Kenya: U.N. CHS.

———. 1984. *Land for human settlements.* Nairobi, Kenya: U.N. CHS.

U.S. Agency for International Development (U.S. AID). 1985. *Annual report; Fiscal year 1985.* Washington: Office of Housing and Urban Programs, Agency for International Development.

Wheaton, William C. 1981. Housing policies and urban "market" in developing countries: The Egyptian experiences. *Journal of Urban Economics* 9: 242–56.

World Bank. 1974. *Sites and services projects.* Washington: World Bank.

———. 1975. *Housing: Sector policy paper.* Washington: World Bank.

———. 1980. *Shelter.* Washington: World Bank.

———. 1981. *Economic development and the private sector.* Washington: World Bank.

———. 1984. *World development report 1984.* New York: Oxford University Press.

———. 1985. The Madras experience: Hard-won successes in sites and services, upgrading projects. *Urban Edge* 9 (December): 8–10.

Yeung, Yue Man, ed. 1983. *A place to live: More effective low-cost housing in Asia.* Ottawa, Canada: International Development Research Center.

Applying Lessons from Housing to Meeting the Challenge of Water and Sanitation for the Urban Poor

Tim Campbell

The pace of investments in water and sanitation lags far behind urban population growth in Latin America and the Caribbean. The health consequences of this shortfall amount to hundreds of thousands of deaths annually. This article suggests that a sociotechnical strategy is required, based on the housing experience of the past few decades, to reduce costs of producing sanitation and to minimize the risk of disease. The strategy involves fundamentally altered assumptions about state responsibility for water and sanitation. Concomitantly, beneficiaries must do more to build, operate, and maintain water and wastewater systems.

The prospects for meeting water and basic sanitation goals for 1990 are rapidly diminishing in Latin America and the Caribbean; major revisions in the conventional strategies for investment are now imperative. Urban populations in Latin America could number 220 million by 1990, about 40 percent of them poor and subject to serious health risks. Water-borne diseases could claim hundreds of thousands of lives a year among children.

The challenge by the turn of the century is to extend service to three times as many urban residents as are served today (Campbell 1984). Under conventional approaches, the needed facilities could cost $37 billion (U.S.) by 1990 and $50 billion more by the year 2000 (in 1980 prices; Campbell 1984). Those resources are not likely to be available.

This article argues that a new long-range strategy is needed to meet water and sanitation needs and that this strategy should build on the housing experience of the past two decades. As in housing, many prevailing assumptions regarding conventional technologies and centralized delivery of service are inappropriate for low-income communities. A long-range strategy for water and basic sanitation should include revised (lower) standards of service, phased investments, and the use of new, low-cost technology. Community participation and self-reliance must be greatly increased to coordinate service improvements with household economic and resource conditions, as well as to protect water and wastewater systems from decapitalization through neglect. Participation of low-income settlements in water and sanitation projects is an opportunity that has only scarcely been tapped in Latin America.

Lessons from the housing sector

The experience in the housing sector over the past two decades contains much of what needs to be known for a new water and wastewater strategy. First, the housing experience has helped to discriminate among the variety of low-income settlement types. Second, within those types we have learned that it is important to understand the conditions governing investment decisions by households. Third, policymakers must find ways to trigger households' investments and form partnerships among households and water utilities to expand services.

Diversity of settlement types

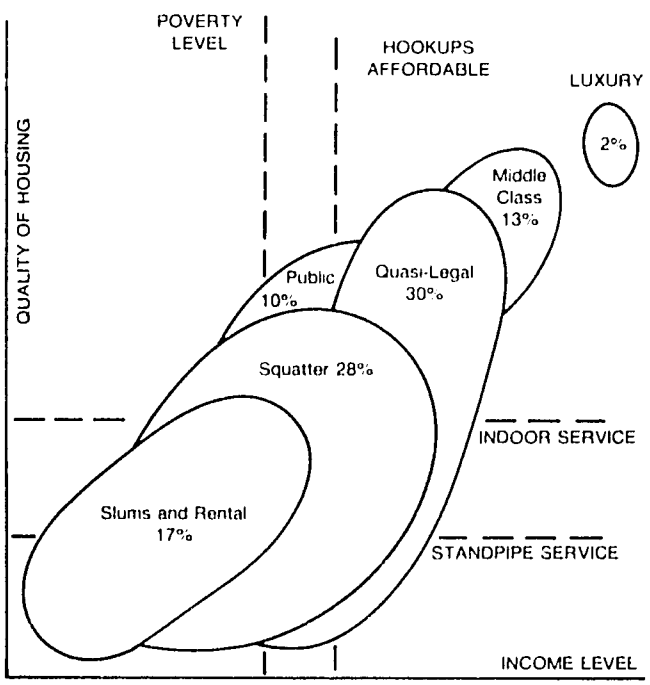
Low-income areas vary in their ability to pay for water and wastewater services and to organize self-help efforts. The most important settlement types include squatter settlements, which everywhere share an ambiguous or outright illegal jural status; quasi-legal settlements on official streets but without complete compliance with building or subdivision codes; and slums or *tugurios* characterized mainly by extremely

Campbell is a research associate at the Institute of Urban and Regional Development, University of California, Berkeley, and a consultant in urban studies and planning. He received a Ph.D. in urban studies and planning from M.I.T. and a master's in city planning from the University of California, Berkeley.

poor conditions and an evolutionary trajectory that is basically degenerative, i.e., decapitalizing.[1] As illustrated in Figure 1, those three settlement types encompass approximately 75 percent of the urban population in Latin America. Public, middle class, and luxury housing comprise the remaining 25 percent.

Figure 1 also relates these settlement types to key variables in basic sanitation. Many residents of "quasi-legal" settlements, for example, can afford water and wastewater service. Perhaps 10 million to 15 million urban residents without indoor water or standpipe service fall into this group of homeowners who bought their dwellings with the expectation of having standard services, or at least of not having to organize and participate in service improvements. The future water and wastewater needs of this group can be met, in part, by using the administrative and police powers of local government to set conditions on land developments or require building permits to ensure the inclusion of basic infrastructure such as sanitation facilities. City authorities may also be able to lower standards to ensure that privately organized settlements are served, for example, with standpipe or trunk line services and some basic or low-cost infrastructure. But this would vitiate whatever legal, moral, or political leverage authorities have over developers in these circumstances.

Squatter settlements, by comparison, get organized to various degrees in the process of settlement and they lack the cloak of legitimacy of quasi-legal settlements: they are illegal outright. Over the years, many



Source: Author

Figure 1. Schematic map of housing and facilities by income level

have become familiar and have been accorded a status of worthy adversary by local governments. They are sometimes parties to good faith negotiation with authorities over matters of housing and infrastructure improvements. A thin corporate air is even detectable in some squatter settlements, especially older ones, where the common struggle for survival has infused residents with a sense of cohesion. Above all, a generative process is visible in squatter settlements marked by progressive improvements in shelter and infrastructure. A viable strategy based on experience with self-help and upgrading in housing would be to tap the organizing energies intrinsic to many squatter settlements. In those settlements local participation is relatively easy to elicit. Projects can be executed by special municipal teams collaborating with water utilities, and with local residents and their organizations.

In both quasi-legal and squatter settlements, some form of subsidy is vital to keep monthly utility payments in line with the fluctuating and small incomes of the poor. Thus, more vigorous cross-subsidization may be required, with wealthier customers charged higher rates to help defray costs of low-cost sanitation improvements.

Rarely are cohesiveness or self-help investments found in slums. The intense poverty there, as well as their transitory nature and lack of internal organization, make slums a difficult grouping to improve through self help.

Household investment decisions

Households living in low-income settlements are capable not only of adapting to generally adverse economic, employment, and political conditions, but also of investing in housing and sanitation despite them (Campbell 1980). Experience in housing has shown that low-income households can be induced to make these investments by manipulating two factors that are characteristic features: 1) the variety of resources, both monetary and nonmaterial, in the urban environment and 2) uncertainty. Households may be seen as small production centers that transform this variety of resources, both to offset uncertainty and to meet their basic needs (Turner 1968; Leeds 1974; Marris 1974; Campbell 1980; Strassman 1982; Gilbert 1983). Before committing resources to improvements, households must be sure that investments will not be lost because of the sometimes intermittent nature of their income, vagaries of health, natural catastrophes, or, in squatter settlements, eviction. To reduce uncertainties, households must be able to decide how much of their time and effort should be dedicated to generating and evaluating nonmonetary resources—such as rumors about evictions, tips, suggestions, folklore, and accumulated experience.

Many experiments in low-income settlements in Latin America and the Caribbean reaffirm that reducing

uncertainty encourages households to mobilize significant monetary and nonmonetary resources and over time to transform them into what are normally public sector goods. In one of the most careful studies of its kind, for example, Strassman (1982: 157) found that by installing water connections to illegal plots in low-income settlements of Cartagena, Colombia, the government "released a zeal to transform and expand" housing and facilities that led to a doubling of housing value across a broad cross-section. The squatters' investments were unleashed when uncertainty was reduced by having sanctioned water provided to illegal plots, thereby effectively conferring a kind of legitimacy. Improvements included roofs, rooms, paint, and kitchens; in 25 percent of the houses, toilets or septic tanks replaced latrines (Strassman 1982: 105). That experience has been replicated in scores of cities, among them Rio, Lima, Santiago, Bogotá, and Mexico City (Cohen 1983; Burns 1983). Extension of water and other services to squatter settlements in Manila resulted in 60 to 85 percent increases in property values (Keare 1983; see also Jimenez 1982).

Ironically, materials and tools are not decisive in this improvement process. New and appropriate technologies, even if cheap, also do not normally trigger household investment, although lowering costs always helps. More important, the household needs to know that whatever resources it commits will not be lost. A second decisive factor is that the cost in terms of personal time and effort must fit the household's budget and organization. Sponsored efforts to improve will fail if they disrupt normal allocations of tasks, jobs, money, and time within a household. This applies equally to individual toilets and do-it-yourself community sanitation systems.

Triggering household investment

To summarize, the most important factor governing the mobilization of dormant resources in low-income communities is uncertainty and the risk of losing resources. The relative success of self-help efforts in expanding housing quality and infrastructure in the past serves as a guide, but not a blueprint, for extending a self-help strategy to the water and wastewater sector. Low income residents are willing to work, and are even able to specify with whom they would collaborate (networks of kin, friends, associates), specifically on sanitation facilities (Elmendorf and Buckles 1980). But to trigger those investments, national and local authorities must be willing to take the difficult steps of acknowledging the legitimacy of the settlements and of helping organize participation by residents to build and maintain systems. Authorities and sponsoring institutions can help mobilize private resources and household investments in a number of ways, including partial investment in infrastructure or symbolic recognition of the legitimacy of settlements. Recognition can take many forms, including the open engagement of authorities with local settlements through meetings, and letters of acknowledgment, or in the most diluted form, neglect through which authorities decide not to remove settlements over a long period of time.

The groundwork for institutional change

A variety of routes and mechanisms of official sponsorship can accelerate and magnify community participation in self-help efforts to improve the sanitary environment in low-income communities. But there is a great deal of policy and institutional distance to cover. Public utilities must improve their attitudes toward low-income settlements. National governments must give utilities more autonomy, and utilities have to strengthen their management operations. The key lesson from the housing experience in the past decade, however, is that public utilities must learn techniques of community organization and must incorporate household participation in project design and development.

Changing public utilities' attitudes toward low-income settlements

The limited technical and financial resources available to public water and wastewater utilities put them in a position roughly analogous to that of housing agencies 20 or 30 years ago, before self-help and upgrading strategies were formulated. Also, housing institutions then, and public utilities now, do not discriminate among settlement types. Whether squatter settlement or slum, they are seen as urban cancers, "disordered," rapidly growing places of "marginal" populations, incapable of or unwilling to pay for services. From the standpoint of public utilities, low-income populations are as much contributors to a poor sanitary environment as victims of it. They are the locus of lost water and lost revenues through clandestine connections and therefore are perceived as bad investment risks due to theft and the poor prospects of cost recovery.

Cities have grown faster than most public utilities could extend service. The high cost of conventional water and wastewater technologies has forced utilities to abandon master plans, if indeed they ever had them, and concentrate first on extending water to wealthier areas, which are often technically easier to serve and which can pay for service. (In Recife, for instance, low-income settlements occupy swampy terrain classified in the sewerage master plan as "difficult" or "impossible to sewer," i.e., technically or economically unfeasible.) For similar reasons, operations and maintenance of systems are made even more difficult

Squatter settlement in Bogotá, Colombia. (Photo by Shari Kessler)

due to poor access, irregularity of lot layouts, personal threats to utility personnel, or vandalism.

The better water utilities serve perhaps 25 percent of the poor and meter service to most of the wealthier customers. But most utilities have to struggle not only to read meters regularly, but also to transfer data, bill customers, and collect revenues. Arrearages of 20 percent to even 50 percent are not uncommon. Also, the tendency of national authorities to keep rates artificially low for political reasons means in many cases that revenues to utilities do not cover operation and maintenance costs, much less depreciation and interest. Unmetered customers, mainly the poor, are normally charged a "minimum" tariff, which covers about 15 cubic meters (about 3800 gallons) a month, even though many low-income customers actually use far less due to a lack of demand, failure of pressure in the system, or leakages. Unaccounted for water ranges from 25 to 50 percent of the amount pumped into the system. In short, water utilities lose much of the water they produce, cannot bill customers by unit consumption, and in the end, collect revenues for far less than half of all the water they deliver.

For these reasons, water agencies are usually not inclined to mount large campaigns to extend service to the poor.

Loosening central government control

A strong hand at the national level dampens the responsiveness of public utilities to local problems. Most Latin American countries have a national authority or institution that is responsible for policy regarding services, including tariffs. In small countries, a single national authority has overall authority. Elsewhere—in Brazil, Mexico, Colombia, and Peru, for instance—national authorities set norms and standards that cover state or local agencies. Sometimes, as in Brazil, credit is made available to encourage local companies to build and expand services. A national tariff board in Colombia rules on all rate changes and, until recently, was reluctant for political reasons to approve increases. Thus, genuine desires to improve water and sanitation services for the poor are hampered by national financial and perhaps political constraints. There are many variations on this form of control, but with sharp exceptions, such as Medellin in Colombia and Monterrey in Mexico, the pattern of national authority over cities with less than about a million in population holds generally true across Latin America. If those problems are resolved and utilities are strong enough financially, they will be in a better position to mount a sociotechnical approach to extending services to low-income settlements.

Sharing responsibility with low-income settlements

For many years, international borrowing has been a lever to improve management, financial practices, and technical procedures in public utilities. Ironically, although borrowing money from international sources has led to many improvements, it is the debt burden that has triggered change in attitudes toward low-cost sanitation, at least in Brazil. Brazil cannot afford to provide conventional sanitation for some 20 million

low-income urban residents, despite an existing investment program backed by dedicated internal financial resources and heavy borrowing from the World Bank. This means that, as with housing, low income communities must share the task of supplying water and wastewater services with the government and must assume more responsibility for construction and operation of water and sanitation facilities.

Lessons from Brazil in low-cost sanitation

Numerous pilot projects underway in Brazil are widening the experimental path toward alternative solutions using low-cost technology (Campbell 1986). In dozens of cities, such technologies range from simple pit latrines with hydraulic seals and pour flush toilets to simplified sewerage systems. Those systems are being put in place by state companies, cities, and other executing agencies with significant participation by beneficiaries. City governments have initiated action in many instances because the new "democratic opening" in Brazil with free municipal elections recently has reinforced the political ties between low-income settlements and their local governments. But public utilities invariably get involved because they develop water supplies, wholesale and retail them, treat sewage, and have the most complete engineering expertise.

About 40,000 users in a score of Brazilian cities now benefit from new technologies that cost from a third to a half the cost of conventional wastewater systems. In the Baixada Fluminense, a low-lying area of three million persons in the metropolitan area of Rio de Janeiro, the state water company, CEDAE, has offered condominial sewerage connections[2] to 4,000 residents and intends to connect most of the rest of the local housing to condominial networks. CEDAE requires that neighborhood groups be organized so that the company can explain the technology, gain access to rear yards, and marshal unskilled labor for the excavation and backfill. This experiment started in Natal, in the Northeast of Brazil, where some 8,000 low-income people were connected to condominial systems developed by the city working with engineers from the state water company and a technician sponsored by the World Bank and the United Nations. The Natal experiment led to similar efforts in many other parts of the country, and the World Bank is considering a large loan to support a full program of low-cost sanitation in the context of Brazil's national water and sanitation plan.

Another, cheaper, experiment is underway in Recife where on-site solutions—improved, ventilated pit latrines—are being built along with drainage improvements in three low-income communities. They can be built for about $55 (U.S.) per capita, not counting sheds, collection, and treatment. That compares to about $125–$230 for conventional sewerage with treatment (depending on how much treatment capacity is included). Collection and treatment costs of on-site solutions have not yet been established on an operational basis, i.e., when a fleet of vacuum trucks is operating routinely to service urban pit latrines. Authorities in Recife made only little use of unskilled labor, but they did concentrate on sanitary education and training of users in operation and maintenance.

Those experiments are promising but are still only the precursors of operational models that still must be developed. Operational models must overcome several problems that the early experiments uncovered. For one, state water companies have been timid in experimenting with technologies, tending to adhere closely to the condominial model from Natal. Another serious problem is that users of a condominial system in Rio can actually end up paying more up front for low-cost alternatives because CEDAE prorates the costs of excavation for connection and collector lines to a user population proportionally much smaller than the number of users of equivalent conventional sewerage.

Although the Brazilian experiments are developing hybrid technological and institutional formulas, the experiments leave much room for increased local responsibility and control. The most consistently successful record on this score seems to be the water cooperatives organized by the Rural Basic Sanitation Program (RBSP) in Colombia's National Institute of Health. Over the past 20 years, RBSP has refined an operational routine that incorporates community organizational efforts, which result in an average of more than a 20 percent contribution by beneficiaries. Nearly 2,000 rural water systems are successfully operated and maintained by local water boards, which set and collect their own tariffs and maintain average bank balances of $500. Gradually, RBSP must consider extending its operations into small towns and cities, just as the Brazilians must begin to extend more responsibility to local users.

Thus, one of the most important lessons from Brazil is that the first step in adopting alternative approaches is not necessarily a grand change in national policy regarding the poor. Self-help efforts in housing also went on for ten years before national policy began to change in Mexico, Peru, Brazil, and elsewhere. Of course, legal, financial, and policy reforms are needed. But it is equally important to begin transforming local utilities. They will require new skills in planning, technical, and socioeconomic areas not required at present by conventional technologies. Utilities must greatly expand and refine their information on low-income and hard-to-sewer areas so that they can take advantage of new and emerging technologies that can cut costs by a third. Utilities need to understand the capacities of low-income populations to pay, their

ability to participate in the design, implementation, and operation of wastewater disposal systems, and the importance of education and follow-up.

Conclusions: Toward alternative strategies for water supply and wastewater disposal

Financial resources are not available to meet less developed countries' goals for water supply and wastewater disposal. I have argued that governments and the professional community must make fundamental changes in assumptions concerning standards, approaches, and technologies. Many national and international institutions have combined efforts to develop and improve the engineering, but not yet the commercial, feasibility of alternative, low-cost technologies suitable for low-income urban areas. At least seven major components of a technical, institutional, and socioeconomic nature must still be tackled to mount more effective programs. These are:

1. Formulate a national policy on low-cost water and sanitation together with an investment plan and institutional mandate to mount a program and identify geographical and technical areas of action.
2. Expand the skills and expertise of public utilities to handle the special social and economic characteristics of the urban poor in relation to organization, local participation, and cost recovery.
3. Lay plans for low-cost technology suited to the circumstances of place and population. Most sanitation master plans are geared to conventional sewerage and are unrealistic about the financial feasibility of investment plans. A new kind of streamlined, strategic sanitation plan is needed to bridge the gap between master plans and national program budgets and to reconcile budgetary constraints with the need for improved water and sanitation at the city and district levels.
4. Assess the social, economic, and institutional aspects of technology options so that more informed choices can be made by local decision makers.
5. Experiment with forms of local participation in construction, operation, and maintenance, but also with operations, tariff collection, and administration.
6. Develop more imaginative repayment schemes to reconcile the intermittent nature of income among the poor with the requirements for steady payments to crediting institutions, and establish subsidies to keep costs for the poorest households within the accepted standards of five percent of monthly household expenditures.
7. Develop minor technologies, such as vandal-proof spigot for public standpipes, and designs for drinking water, laundry, and personal hygiene integrated into a single facility so that local communities can control, expand, and administer it.[3]

Perhaps the most important innovation needed is modification in the *unwritten* standards regarding water and sanitation service. Universal house connections, water-borne sewerage treated at remote sites, and centralized control—of planning and administration by professionals and of captation of water and delivery to individual faucets—constitute unwritten and expensive standards of service, which may not be viable financially or politically. The barely perceptible shifts of power that accompany decentralized control are perhaps what make central authorities most anxious about self-help.

The sociotechnical approach advocated in this article embodies a challenge to those standards. In housing, the challenge was stiffly resisted at first because political leaders were reluctant to give *de jure* responsibility, even if *de facto* they abrogated their obligations to provide shelter. The challenge was resisted also because self-help means lower standards, in accordance with individual and community abilities to pay, and a time frame for finishing stretched out over a long period, at least insofar as achieving conventional service standards is concerned (Turner and Terner 1972). A sociotechnical approach, in effect, sacrifices written and unwritten standards in the interest of short-term gains. Yet housing efforts of the past, and Brazil's low-cost water and sanitation program today, suggest this shift need not be disruptive. In the end, new strategies for water and sanitation must incorporate users to elicit community resolve, handle the minutiae of decisions in, and the unpredictable staging of, household investments so as to fit the delicate balance of household resources.

Notes

1. Others include rooming houses (*cabeca de proco*, or *casas subdividas*); one and two room rental units with shared facilities (in Mexico, *callejon*, in Chile, *conventillo*); temporary government housing; multiunit developments (*unidades vecinales* in Lima, and *conjuntos* in Rio); and proletarian or popular housing (*vilas* in Brazil and *Ciudad Kennedy* in Bogotá) (Leeds 1974).
2. *Condominial* systems refer to an intermediate type of collection characterized by backyard connections that avoid expensive breaking of streets, reduced or zero excavation, user maintenance, and individual cleanouts, and sometimes reduced-diameter pipe. *Simplified* sewerage in Brazil refers to conventional sewerage networks but with reductions in depth of excavation, pipe diameters, and inspection boxes.
3. Work should also be done on biological waste disposal systems such as the Mexican SIRDO (Schmink 1984). The SIRDO (Systema Integrado de Reciclaje de Dishechos Organicos), under study in several locations in Mexico, can serve the waste disposal requirements of between 50 and 150 persons in clusters of households for a cost 40 percent below standard, water-borne sewerage systems. In addition, the SIRDO has the advantage of integrating organic waste, thereby reducing solid waste collection and at the same time producing a high-quality humus fertilizer for sale on local markets. Relatively intense organizational and educational efforts are required to launch this system, although organizational requirements may be expected to diminish as experience and knowledge increase.

References

Burns, L. 1983. Self-help housing: An evaluation of outcomes. *Urban Studies*, 20, 1093: 299–309.

Campbell, T. 1980. Resource transformation in squatter households—a system view of urbanism. Ph.D. Dissertation, Department of Urban Studies and Planning, MIT.

———. 1986. Alternative strategies for low-cost urban sanitation in Brazil. A background paper, WUD World Bank. Draft. Processed.

———. 1984. The challenge of water and basic sanitation for the urban poor in Latin America and the Caribbean for the year 2000. Keynote address to the PAHO regional symposium on supply of drinking water and disposal of wastes in urban marginal areas, Santiago, Chile, November.

Cohen, M. 1983. *Learning by doing*. Washington, DC: World Bank.

Elmendorf, M., and P. Buckles. 1980. Appropriate technology for water supply and sanitation. Washington, DC: The World Bank.

Gilbert, A. 1983. The tenants of self-help housing: Choice and constraint in the housing markets of less developed countries. *Development and Change* 14: 449–77.

Jimenez, E. 1982. The value of squatter dwellings in developing countries. *Economic Development and Cultural Change* 30, 4: 739–52.

Keare, D. 1983. Affordable shelter and urban development. *The World Bank Research News* 4, 2: 3–14.

Leeds, A. 1974. Housing-settlement, types, arrangements for living, proletarianization, and the social structure of the city. Pp. 66–99 in *Latin American Urban Research*, edited by W. Cornelius and F. Trueblood. Beverly Hills, CA: Sage Publications.

Marris, P. 1974. *Loss and Change*. New York: Pantheon.

Schmink, M. 1984. Community management of waste recycling: The SIRDO. University of Florida at Gainesville.

Strassman, W. P. 1982. *The transformation of urban housing*. Baltimore: Johns Hopkins University Press.

Turner, J. 1968. Housing priorities, settlement patterns, and urban development in modernizing countries. *Journal of American Institute of Planners* (34): 354–63.

Turner, J. and I. Terner. 1972. *Freedom to build*. New York: Macmillan.

Housing the Ultra-Poor: Theory and Practice in Haiti

Simon Fass

Third World cities like Port-au-Prince contain low-income populations so poor or so heaviiy engaged in generating income from self-employment that planners may find it difficult to design policies and programs that can make an appreciable difference in the way these people house themselves. For the ultra-poor, housing characteristics are shaped by the price of food. For the self-employed, the characteristics are shaped by the need to use resources to produce rather than to consume earnings. Efficient planning for shelter improvement in such cases requires design standards and measures of progress that do not differ too much from what these households may already regard as satisfactory.

A challenge facing planners in the Third World has been the development of housing policies and programs for low-income people that are consistent with both the scarcity of public resources available to implement them and with the scarcity of private resources available to families who can take advantage of them. Although the practice still lingers, the idea that governments should provide relatively large, high-quality, and high-cost dwellings at heavily subsidized prices has given way to the notion that policies and programs should be more modest. Recent actions include efforts to gradually lower the relative price of land, construction, and finance, making improved housing more affordable to more and more low-income households over time (Linn 1983: 142–85).

Programs also take the form of low-cost efforts like "sites and services" schemes, wherein plots with minimum services such as water, sanitation, and access roads are sold to households at affordable and cost-recoverable rent–purchase prices. As their incomes increase, families can gradually build, expand, and upgrade dwellings on their plots. In "slum-upgrading" schemes governments extend such basic services as water and sanitation into low-income residential areas, provide families with land tenure, and establish construction credit funds, then charge families an affordable levy that simultaneously permits access to them and allows governments to recoup their investments, thereby extending the effort into more and more areas (Grimes 1976: 102–3).

Although these newer approaches to low-income housing have much to commend them, they are sometimes difficult to implement. In some instances, certain characteristics of the urban poor are such that premises underlying the policies, and the standards applied, seem far removed from the economic circumstances of the poor.

One of these characteristics is extreme or "ultra-poverty." In general, this characteristic describes a circumstance under which households place highest priority on food consumption. They do so because they survive in a precarious balance between caloric intake and caloric energy required to earn money to buy food. Any increase in earnings or lowering of costs is used almost exclusively for food. Thus efforts to reduce the price of housing for such a population may not yield any appreciable improvement in shelter conditions.

A second characteristic, distinct from ultra-poverty, is self employment. In this case the potential use of an increase in income to improve housing is tempered by the need for households to reinvest the additional resources into their market activities. Again, policies and programs for housing improvement may not yield desired outcomes. Although these characteristics don't necessarily need to keep governments from establishing policies and programs to improve housing, they do imply that design and planning standards should be far lower than current thinking suggests.

After reviewing the meaning and implications of

Simon Fass is an assistant professor of planning at the Hubert H. Humphrey Institute of Public Affairs, University of Minnesota. He has carried out research and has served as a consultant in several major cities of Africa, Asia and the Caribbean.

ultra-poverty and self employment in the context of economic theories about household consumption and production, I analyze a housing project in Haiti that demonstrates that many or most ultra-poor and self-employed low income households will derive little benefit from shelter improvements that stray too far from what they already have.[1]

Theories of household production

Until recently the standard economic theory of household behavior, the theory of consumer behavior, held that an individual, household, or other "consumption unit" derived utility from consuming goods and services, and attempted to maximize utility subject to budget constraints. This conceptual framework explained demand for housing in terms of its utility as a "final" consumed commodity.

Useful as this theory has been for a variety of analytical purposes, its simplifying assumptions proved unsatisfactory to economists and others interested in understanding intra-household production and consumption behavior associated with activities like food preparation, fertility, and child care. For these purposes Becker (1965), Lancaster (1966), and others developed what has come to be called a "new" household economic theory, which introduces the idea of two stages in household behavior.[2] In the first stage a household behaves in a fashion similar to a firm by combining goods, services, the time of household members and capital to manufacture abstract things like nutrition and health, which Evenson (1976) calls "consumables."[3] In the second stage, essentially the same as the standard theory, a household attempts to derive maximum utility from the consumables. For example, a household does not simply consume and derive utility from the foodstuffs it purchases. It combines the foodstuffs, the time of a cook, a stove, and energy to produce a meal, and then derives utility from the nutrition, taste, and other valued attributes associated with consuming the meal.

Although this new theory incorporated the idea that households were producers as well as consumers, it limited the scope of production to those things from which households could derive utility. As far as their place in the general economy was concerned, they were still consumers who offered only their labor in exchange for earnings. This delineation was never satisfactory to agricultural economists like Chayanov (1966), Jorgenson and Lau (1969), and Barnum and Squire (1979), who sought to understand the behavior of farming households. With respect to the economy such households were producers and consumers at the same time. The new theory could enrich understanding of the consumer dimension of families in agriculture, but not the producer dimension. The researchers therefore developed a theory of the "farm-household," generalizable as a theory of the "household-firm," in which households decide how to allocate income between activities pertinent to the production of earnings (e.g., saving part of the crop for seed, selling part of it, buying fertilizer, building a storage silo, etc.) and activities pertinent to consumption (e.g., eating part of the crop, buying food, spending on entertainment, etc.). That is, such households must decide on the optimum use of all available factors of production to maximize production efficiency and consumption utility at the same time.

In a framework that unites the new theory with the theory of the household-firm, the demand for housing can be explained in two ways: in terms of the things it contributes as an "intermediate" good, or factor input, to a household's production of consumables that offer utility; and in terms of things it provides as a factor input to the production of earnings. This framework is useful for at least three reasons. First, because the concept of production invokes the law of diminishing returns, the framework implies that there are limits to how much of any one factor input a household can use for efficient production (of earnings and/or of consumables). There are points beyond which improvements or additions to housing may be inconsistent with household production needs. Because housing standards and prices that lie beyond these points may result in waste, the framework is helpful in drawing planners' attention to the advantages of identifying the points before engaging in housing improvement schemes.

A second helpful property of the framework is that it allows a broader range of answers to the recurrent question: What things do households produce with housing? As far as tangible things that might relate to the efficient production of earnings is concerned, one obvious answer with almost universal applicability is health. Health maintains or improves the productivity of labor, and since most kinds of work in the Third World are labor intensive, especially among low-income populations, housing plays a part in the production of earnings.[4]

Also, in many cities a significant proportion of workers employ themselves in "informal sector" activities. These activities are also labor intensive, but generating earnings from them requires more inputs than labor. A dwelling may contribute to earnings through its function as store, warehouse, factory, or office. Perhaps more indirectly, but equally important, are the ways by which a dwelling can influence earnings by rendering the production of consumables more efficient. A house is a warehouse in which households store the food they will eventually consume, for example; it is also the factory in which foodstuffs are transformed into meals.

In this context, a third advantage of the new framework is that it considers the implications of

different sources of housing demand. If effective demand for housing derives as much or more from its role in the production of consumables, and if households seek an optimum combination of earnings production efficiency and maximum consumption utility, then demand for space, quality, or other housing attributes may be different than if housing had little bearing on earnings production.

Consider, for example, a family with income only from wages and which received a raise. In deciding whether to purchase a larger or better dwelling, it would assess the benefits of such a move against the opportunity costs of foregoing other consumption. A family whose earnings come only from self-employment in, say, "cottage" manufacturing, would also consider the opportunity costs of reinvesting the increase in the enterprise to raise output and earnings. This family may operate more like a firm than like a consumer. If the gains from reinvestment exceed the immediate benefits of improved housing, it may not respond to the increase in the same way as wage-dependent families. In cities where the level of self-employment is high, the structure of housing demand may, therefore, be different than in cities where it is low.

A point worth emphasizing here is that these theories about household behavior draw their empirical substance from observations of "normal" populations. The theories have rarely been superimposed upon the "ultra-poor," a category that Lipton (1983: 58) suggests typically includes 10 to 15 percent of the population in a low-income country. The ultra-poor have such low income that over a five-year period they run considerable risk of severe malnutrition. In general, members of this category of households spend 75 percent or more of their incomes to generate an average nutritional intake from minimum cost diets of 1500 calories or less per "adult."[5] They may or may not have housing, but calories, hence health, takes precedence over every other form of expenditure, and an increase in income or a decrease in the price of any other commodity results in basically one thing: more calories consumed.

The implication of ultra-poverty is that some segments of the urban population may not be in positions to benefit from housing. Given a plot of land or a dwelling at no charge, they might immediately sell it or rent it out to finance higher nutrition. The behavior of such households may be explained entirely through the theory of the firm. Such households do not derive utility from anything they consume. Rather, every good or service they purchase is a factor input to the production of additional income, like expending 1400 calories in a day of work to obtain earnings that can purchase 1500 calories the next day. Any object that renders their production of calories more efficient will take precedence over any other item. Depending on their circumstances, these items may include a cooking pot or a house, but if they are self-employed, items may also include tools, raw materials, or stocks that can increase earnings and thereby yield higher subsequent nutrition and health.

In Third World countries where the ultra-poor represent small fractions of the urban population, and where efforts to improve the housing conditions of the "normal" poor are sufficiently challenging that attention to a small minority may be postponed, there may be no compelling reason to adopt a different theory or to look at housing in a different way. But in a few countries, like Haiti, the ultra-poor represent such a large segment of the urban population that policies and programs for housing improvement must include them.

Income, income production, and housing

Almost 70 percent of Port-au-Prince households had incomes below $40.00 (U.S.) a month in 1976, and 40 percent at less than $20.00 (Fass 1978: 165). Useful statistics about how these households produced income are not available for the population as a whole, but the pattern in one neighborhood, St. Martin, was indicative. Households in St. Martin derived all or most of their income from labor earnings (Fass 1980: 37–67). About 32 percent of the workers were regular wage employees in such occupations as building maintenance, construction, domestic service, mechanical repair, and skilled and unskilled factory labor. The rest were self employed. They included service providers, 11 percent of the total, working in such fields as contract construction, customs brokerage, herbal medicine, taxi driving, and lottery-ticket vending. The others were either traders (i.e., market and street vendors), 25 percent of the total; or "cottage" manufacturers, 32 percent, working with varying amounts of fixed and working capital.

The distribution of these different types of workers was relatively uniform. Among households with incomes below about $40.00 per month, more than 80 percent had at least one trader and one manufacturer. Among those with incomes above $40.00, the proportion of traders and manufacturers was closer to 60 percent. The majority of houses therefore served not only as residences, but also as offices, stores, warehouses, or factories. More important, most low-income households derived earnings from use of capital in trade and manufacturing. That is, to greater or lesser extents, households operated business firms and therefore had to make daily decisions regarding how much of their earnings to devote to their enterprise and how much to other things.

The "other things" contained little variety. The minimum cost of obtaining 1500 calories daily and 30 grams of protein per "adult" with cornmeal and beans

purchased daily and prepared in a shared pot was $20.00 per month for an average household of 4.3 adults.[6] Thus 40 percent of the population did not earn enough to consume 1500 calories without spending more than 75 percent of their income, and another 30 percent would have had to use at least 45 percent of income. Most residents of Port-au-Prince were poor, and most of the poor, all those in families with less than about $27.00 per month by Lipton's criteria, were ultra-poor.

One fundamental meaning of ultra-poverty in this kind of economy is extraordinary sensitivity of a household's finances to the health status of its members. Production of income is a direct function of the productivity of labor. Any decline in the physical or mental capability of a worker resulting from lowered nutrition or illness can significantly depress earnings, particularly if current consumption is 1500 calories or less. Less direct but equally important, if any household member is seriously ill and needs medical attention, payment of medical fees—whether taken from current food budgets, market capital, or borrowed funds—must have a short- or long-term negative effect on earnings.[7] Even without such payments, losing work time to care for another family member results in lower earnings. A day off means a 15 percent loss in weekly income. Such things happen to everybody from time to time. But for the ultra-poor the chain of events that follows upon any one happening can be disastrous. When earnings fall, nutrition falls, increasing the risks of lower productivity and exposure to illness, hence the possibility of a still further decline in earnings and an unstoppable downward spiral. Health may be a "consumable" from which households derive utility, but it is also a factor input with which they generate income.

A second meaning of ultra-poverty flows from the first: careful management of the details of life take on considerable importance. The minimum cost of obtaining 1500 calories (and 30 grams of protein) in 1976, $20.00, assumes that a family owned a pot and that it purchased only enough corn and beans to prepare food for one day. If a family did not have a pot, it paid 20 percent more to purchase the same amount of corn and beans from vendors of prepared food—an extra $4.00 per month. The $5.00 cost of a pot was about the same as one or two months of housing, depending on location and dwelling characteristics; but for a family without a pot or grain to store, buying them took on greater importance than paying for housing. Assuming no change in caloric intake, the pot would pay for itself in five weeks, and reproduce a saving of $5.00 for subsequent purchase of something else, like a dwelling.

After purchasing a pot, a household might further lower the cost of its calories by purchasing a two-week supply of grain (and fuelwood), which might result in an average saving of 15 percent, or $3.00 a month. But since such purchases require storage space, at this point a dwelling becomes a necessary complementary factor. Having a dwelling allows for more efficient production of nutrition, and through nutrition, of health and income. The same kind of sequence follows trade and manufacturing. At one stage other things generate greater earnings than a dwelling, at a later stage of family economic development, housing becomes essential. But expenditure for any one factor is subject to diminishing returns unless the household can at the same time make parallel additions in other factors. Once housed, a family need spend no more than absolutely necessary for the dwelling to serve its productive purpose. Interior space need not be larger than required to store goods, and perhaps also people, if no more efficient way exists to reduce health risks. Quality need only be sufficient to provide minimum protection from the rain, from theft, or from rodent attack on stored grain. A third meaning of ultra-poverty is therefore that housing characteristics of the population reflect in physical terms what less than 1500 calories reflect in physiological terms.

Thus among the households in Port-au-Prince whose income levels were below $40.00 a month in 1976, eight percent lived on streets and used downtown arcades and market buildings as protection from the elements. Another 20 percent had mud houses with thatched roofs; 40 percent lived in dwellings of scrap materials such as broken crate boards, flattened beverage cans, and cardboard, and had either thatched or corrugated roofs. Towards the upper regions of the low-income scale, the rest had wood plank or cinder block walls with metal roofs (Fass 1978: 167).

Depending on location, quality, and type of rental contract (i.e., prepayment for a week, a month, or six months), the 80 percent of this low-income population that occupied rental housing paid between $0.25 and $2.00 per square meter each month. A typical family had to limit space consumption to keep housing expenditure between 10 and 30 percent of income, or $2.50 to $7.50 per month. Dwellings were therefore quite small, providing an average of two square meters of habitable area per person.[8] Neighborhood population density was correspondingly high—an average of 900 inhabitants per gross hectare in one-story dwellings, and more than 1200 inhabitants per hectare for a quarter of the population, such as those in St. Martin (Figures 1 and 2).

The characteristics of income, income production, and shelter implied that policies and programs to address the housing needs of the poor in general might have to be somewhat different in Haiti than in other developing countries where household income might be slightly higher. But to know what is more

appropriate, policy and program designs have to be informed by more useful data than the general statistics and simplified case examples I have presented here. The information needs to indicate the circumstances under which possession of a dwelling can begin to make a productive contribution to a family's economy, and to indicate how much of any particular attribute, such as space or quality, a family might need. While too small to be truly representative of the general population, two surveys offer at least some of the requisite information. The first is a survey of the population living on streets.[9] The second is a sample survey of households in St. Martin that I introduced earlier.[10]

Households on streets

Excluding individuals sleeping on their own doorsteps because their dwellings were too small to accommodate all family members at once, the city's nonhoused population in 1976 was about 33,000 people (of an estimated total population of 640,000).[11] This population contained what seemed to be three distinct groups.

The first group, about 3,000 people, were rural–urban commuters who came into town for peak market days, slept outside for two nights, and then returned home. The group included 2,000 market women traveling into town with agricultural commodities. The rest were mostly market women who could buy and sell for cash after they arrived, and porters working the inbound trucks or seeking day jobs in the markets.

Figure 1. Low-income housing in Port-au-Prince. St. Martin shown in foreground, with Presidential Palace in background.

Figure 2. Principal "street" inside St. Martin.

Among the women with commodities, those with stocks valued at over $100.00 paid storage fees to house their goods in warehouses in and around city markets. Rates varied with location and with the type and bulk of the goods, but seemed to average $0.20 per night per $20.00 of stock, or one percent of wholesale value. For an additional $0.50 a night a woman could sleep inside the warehouses, but most apparently opted to save something by sleeping outside. This saving was not inconsequential. One hundred dollars in stock yielded an average gross margin of about $15.00 (Lundahl 1979: 152–56). This margin had to finance the return trip ($0.50), and the storage fee ($1.50).[12] Another dollar to house themselves, reducing the remaining $12.50 by eight percent, was perhaps not the best use of money. Paying a food

storage fee of $1.50 to protect the goods from spoilage or from pilferage and rodent attack was better. Besides protecting the commodities, paying the fee allowed a trader to sleep without worry and without having to awaken at the slightest suspect sound. This was important because success in fiercely competitive trade demanded a high level of mental alertness during the day.

Women with stocks valued at around $50.00, anticipating a margin of $7.50, rarely paid the storage fee. Return transportation and meals would bring the margin down to $6.50, and spending $0.75 or 12 percent to store goods, not to mention another 17 percent for shelter, was inefficient. Besides, a smaller volume of stock was easier to manage overnight. The risk of loss to pilferage or rodents was less. Not surprisingly, women with stocks valued at between $50.00 and $100.00 often paid the fee the first night and slept outside with the goods the second.

Market women and porters traveling without goods slept outside for what seemed to be similar reasons. The upper limit of what they could expect to earn from two days and nights of work was $2.00. Even if they could manage to spend half of what the others did for food, they would still have only $1.25 to take home. Spending 80 percent of it for housing contradicted the purpose of coming to town in the first place.

Commuters constituted less than 0.5 percent of the urban population, and only about 10 percent of the nonhoused population. What made them interesting for this analysis was the way they seemed to distinguish clearly between housing themselves and housing goods, or if they did not have goods, how they weighed personal housing against the benefits of saving earnings for other things upon their return. The commuters were not ultra-poor. Their earnings were generally enough to allow them 1500 calories at much less than 75 percent of income.

The second group, of about 18,000 people, comprised the poorest segment of the ultra-poor. A group with fluid membership of individuals and families reduced to their state by various financial disasters, they owned nothing but the clothes they wore. Able to obtain only irregular earnings from casual labor and able to make only irregular expenditures of $0.10 to $0.30 every few days, they could not invest in housing expenditures. Any savings they might be able to accumulate were destined first for food, pots, tools, trade stocks, and a range of other items eminently more productive than a dwelling. In fact, all the adult women in the survey indicated that their first order of business was to accumulate enough money to enter commerce. One dollar could produce $0.15 to $0.25 per day in trade. This was less than casual labor provided, but it was a regular stream of earnings, and that provided a basis for planning what to do next.

The third group, of 12,000 people, had possessions. Their goods included one or a combination of extra clothing, a cooking pot, a water bucket, grain for consumption or trade, dry goods for sale, tools, raw materials, finished products, fuelwood, etc. Some in this group had moved into the street because of financial misfortune, while some were upwardly mobile, passing into the group from the previous one and accumulating things as they went along. Still others had decided to save on current housing expenditures temporarily while they built up savings to prepay six months of rent and thereby obtain a 50 percent reduction in monthly housing costs. With goods to protect and manage, almost all of them were making "quasi-housing" expenditures in the form of boxes, baskets, and bags that kept rain and dust out and made travel about town somewhat easier. At the limit, a few had assembled enough cardboard to cover at least some family members as well as goods. They had established a first approximation of housing for themselves.

Households most likely to acquire housing in the near future proved impossible to identify with a single criterion such as volume of goods. But under some conditions the absence of a dwelling—a large box planted firmly on the ground—could serve as a constraint to a household's productive efficiency. Whether the family was producing consumables or earnings, the efficiency of one or more lines of production would invariably stop increasing, and could begin to decrease, unless the family changed its production technology by adding the housing factor.

Households in St. Martin

Households in St. Martin with incomes below the neighborhood average of $9.80 per month per adult, which for simplicity I will call the low-income population, obtained an average of only 1.3 square meters per adult, just enough to allow each of 4.3 "adults" in a family to sleep horizontally inside the dwelling (Table 1). Most of them occupied units of below-average or average quality in the relative scheme of housing types in the neighborhood (see Figures 3 and 4).[13] The 20 percent of income they expended for rent was not excessive in comparison to what families with similar incomes paid in other developing countries, but the opportunity cost of having an average of only $5.40 per adult left after rent could be very high, and around half the families had less than the average. Producing 1500 calories a day required $4.80 per month per adult with a minimum-cost diet of corn and beans. Most of these families were not "ultra-poor," but they were close to it and they kept demand for housing space and quality to what looked like bare minimums. For these families to use 20 percent of

Table 1. Rental housing and household characteristics in St. Martin

	Low-income households[1]	High-income households[2]	Difference of high- relative to low-income households
Households in category (N)	39	27	—
Housing characteristics			
Quality score[3]	1.7	2.3***	—
Habitable area—Total (sq. meters)	4.7	5.5**	+17%
—per adult	1.3	2.0***	+54%
Monthly rent —Total	$4.50	$5.40**	+20%
—per adult	$1.20	$2.00***	+65%
Household characteristics			
Number of adults	4.4	3.1**	−30%
Monthly income—per adult	$6.60	$15.40***	+133%
Rent as % of income per adult	20.0%	13.2%***	−34%
Disposable income per adult after rent	$5.40	$13.60	+152%

1. Households with income below the sample average of $9.80 per adult per month.
2. Households with income above the sample average of $9.80 per adult per month.
3. This is a subjective rating the author gave to each dwelling based on its closeness to the characteristics of "average-looking" dwellings in the survey area. Below-average units received a score of 1, average units a 2, and above-average units a 3 (see Figures 3, 4, and 5, and Note 13).

** Difference between means is significant at the 5% level.
*** Difference between means is significant at the 1% level.

income for housing implied that they perceived benefits in having a rudimentary dwelling over living on streets, in theory for the consumption utility they derived from it, for the production advantages it offered, or for a combination of reasons.

Families who earned more than $9.80 per adult a month (which, for comparison, I have labeled "high-income") had an average income 133 percent greater than low-income households; they spent 65 percent more for housing (per adult) and obtained a 54 percent increase in habitable space and dwellings which, in general, were of relatively higher quality (i.e., average and above average units of the types shown in Figures 4 and 5). According to consumer theory, high-income families housed themselves better than low-income families because, not facing as severe budget constraints, the opportunity costs of foregoing other forms of consumption, such as food, were less critical than for poorer families. Alternatively, or in addition, they may have housed themselves better because the productive advantages to be gained from more interior space and more protection from the elements, rodents, and theft (the essential meaning of "higher" quality), had not yet reached the point of diminishing returns.

Whatever the explanation, as Table 1 suggests, high-income households nevertheless behaved as if they believed that there were better uses for available resources than improved housing. The 54 percent

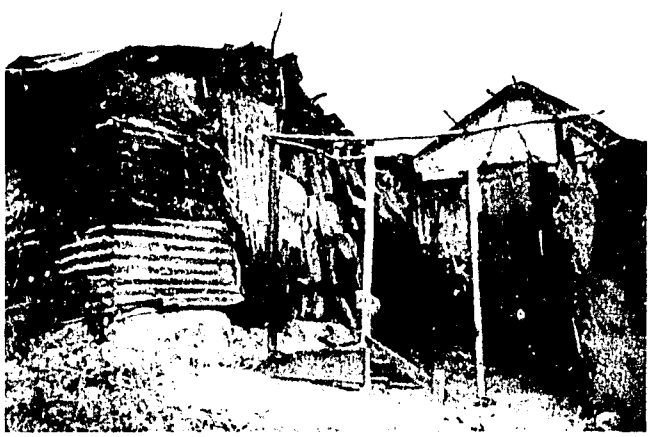


Figure 3. Housing of "below-average" quality in St. Martin.

Figure 4. Housing of "average" quality in St. Martin.

Figure 5. Housing of "above-average" quality in St. Martin.

increase in space looked substantial, but the base was so low that the result, 2.0 square meters per adult, represented only a very marginal expansion in absolute terms. And the difference in dwelling quality score, 1.7 vs. 2.3, meant that the majority of both low- and high-income families lived in "average" units that looked like the one in Figure 4. High-income families may have obtained better housing than low-income families, but they also constrained their demand for space and quality. They kept expenditure to 13.2 percent of income and, correspondingly, allowed themselves proportionately more scope to use resources for other consumption or production purposes.

Both the consumption and the production approaches could explain the observations in Table 1. However, consumer theory could not as readily explain the behavior of low-income households with respect to their choice of rental contract, shown in Table 2. All families in St. Martin had to opt for one of three available time packages. They could pay in advance for a week, a month, or six months; and the shorter the time package, the higher the unit price. Payment by the week cost 10 to 20 percent more in monthly rent per square meter than payment by the month, and payment for a month cost twice as much as for six months. But offsetting the higher unit cost was the advantage of lower cash outlays. To obtain a week of housing required an average prepayment of $1.55. A month cost $5.30, and six months, $18.90.

In these circumstances consumer theory might predict that the opportunity cost of foregoing other forms of consumption would lead to an outcome wherein families with lowest incomes rented housing by the week while those with highest average incomes rented on a six month basis. The data in Table 2 do not sustain this prediction. Average income of weekly renters was $7.90 per adult per month, of monthly renters, $6.90, and of six-month renters, $5.80. Moreover, weekly renters spent the highest share of income,

Table 2. Rental housing and low-income household characteristics in St. Martin, by rental contract

	Term of rental contract		
	One week	One month	Six months
Households in category (N)	7	18	14
Housing characteristics			
Quality score[1]	1.5	1.8	1.9*
Habitable area—Total (sq. meters)	4.1	4.7	5.2**
—per adult	1.1	1.2	1.4*
Monthly rent —Total	$6.20	$5.30	$3.15**
—per adult	$1.90	$1.50	$0.85***
Household characteristics			
Number of adults	3.7	4.5	4.4
Monthly income—per adult	$7.90	$6.90	$5.80**
Rent as % of income per adult	24.0%	21.7%	15.0%**
Disposable income per adult after rent	$5.50	$5.50	$5.10
Income production characteristics			
% of households using market capital	83.0%	87.5%	78.6%
Amount of capital per household	$5.75	$21.40	$27.80
Earnings—capital ratio[2]	2.40	1.95	0.95***

1. See Note 3, Table 1.
2. This is the ratio of monthly net earnings from trade and manufacturing to the value of fixed and working capital used in the production of earnings.

* Difference between means of three columns is significant at the 10% level.
** Difference between means of three columns is significant at the 5% level.
*** Difference between means of three columns is significant at the 1% level.

24 percent, to obtain housing which, on average, offered less space (per adult) and lower quality than for monthly renters. Relationships between one-month and six-month renters were similar.

A partial explanation for this apparently contrary behavior (i.e., with respect to consumer theory) lies at the bottom of Table 2. The vast majority of these households derived some or all of their earnings from use of capital in trade or manufacturing. In principle, they had to choose between consuming more housing or food immediately, and investing earnings in their market activities to generate higher income immediately, thus deferring consumption.

The pertinent variable is the earnings–capital ratio, or the ratio of net monthly earnings from trade and manufacturing to the value of capital used in their production. Interpreting the ratio as an indicator of the productivity of household enterprises, and assuming at the risk of overestimation that average and marginal returns in such enterprises were about the same, one may posit that weekly renters had little incentive to save and invest in monthly housing because it was not profitable for them to do so. A dollar in savings not used for market production was perhaps $2.40 in foregone monthly earnings, while investment of such savings in housing could yield no more than a $1.00 monthly cost reduction. At the other end, $1.00 not used by six-month renters in the market may have involved an earnings loss of $0.95 per month, while their investment in long-term housing was paying a dividend of $2.15 each month. In between, monthly renters could use a dollar in the market to make $1.95, which was not significantly different than the $2.15 lower cost associated with six-month rental.

These calculations exaggerate what the differences in marginal returns might have been, but the essential point remains that so long as households could generate more earnings by using funds in the market than they would save by buying longer time packages, they were likely to buy shorter time packages. More broadly, given the relatively weak significance of differences in quality and space in Table 2, the utility derived from the consumption attributes of housing may also be secondary to the generation of market income. In brief, these households exhibited apparently contrary behavior because they behaved more like firms than consumers. They did not buy what was not essential to efficient production, and they did not have to be ultra-poor to behave in this way.

Although under some circumstances in urban areas consumer theory may not be the most satisfactory basis for explaining the demand for housing—particularly when urban households more closely resemble the "farm-households" that I mentioned earlier than pure consumers—the theory still retains explanatory value. For the high-income households in Table 3, for example, monthly renters had incomes of $14.30 per

Table 3. Rental housing and high-income household characteristics in St. Martin, by rental contract

	Term of rental contract	
	One month	Six months
Households in category (N)	15	12
Housing characteristics		
Quality score[1]	2.5	2.1
Habitable area—Total (sq. meters)	5.2	5.7*
—per adult	1.9	2.2
Monthly rent —Total	$6.70	$3.45***
—per adult	$2.30	$1.40***
Household characteristics		
Number of adults	3.3	2.9
Monthly income—per adult	$14.30	$16.30*
Rent as % of income per adult	16.8%	9.0%***
Disposable income per adult after rent	$12.20	$15.40**
Income production characteristics		
% of households using market capital	69.2%	54.5%
Amount of capital per household	$28.00	$23.60**
Earnings—capital ratio[2]	2.65	2.10**

1. See Note 3, Table 1.
2. See Note 2, Table 2.

* Difference between means is significant at the 10% level.
** Difference between means is significant at the 5% level.
*** Difference between means is significant at the 1% level.

adult, somewhat lower than the $16.30 of six-month renters. The difference in mean incomes is statistically less significant than the difference in earnings–capital ratios, which may indicate that consumer theory works better for households that derive income primarily from wage income. A producer approach may work better for households that derive income from joint use of labor and capital in entrepreneurial activities.

Implications

Two general implications flow from the foregoing. One is that in cities like Port-au-Prince where real income is generally very low, it may be an error for planners to assume that housing conditions result largely or exclusively from the relationship between household income and the price of shelter. The price of shelter is not inconsequential, but under conditions approaching ultra-poverty the prices of basic foodstuffs, cooking pots, and other life essentials give shape to the basic characteristics of housing.

For most households any cost saving that a lowering of land or dwelling prices might generate would probably result in higher consumption of other essentials, with little or no observable change in housing characteristics in the short term. Putting this in a more positive light, if planners wish to promote substantial improvement in housing conditions in such cities, they might better spend their resources on policies and programs to lower the price of food and other basic items.

A second implication is that even when income is not so low that it qualifies as ultra-poverty, in cities where the level of self-employment is high, especially where self-employment requires use of capital, households may treat housing more as a factor in the production of earnings than as a factor in the production or derivation of utility from its consumption. The willingness of households to improve their shelter conditions will depend to a certain extent on whether the improvement adds to or detracts from the production of higher earnings. In this instance a lowering of the price of food and shelter may result in the investment of such cost savings into market activities rather than into more food or improved housing. So again, what looks like inadequate housing may in fact be quite adequate for the households that acquire it. In this instance, as in the previous one, the positive implication is that the measure of what may constitute "improvements" in the eyes of planners should not differ too much from what households may regard as improvements. Simple structures to keep out the rain, habitable space allowing perhaps two square meters per person, and residential densities of 1000 or more people per gross hectare may not look like improvements, but if that is all that households require to do what they need to do, providing more only wastes scarce resources.

The potential importance to planning of these implications was exhibited by a shelter improvement project that failed to take them into consideration. In 1979 the government of Haiti, with assistance from the United Nations Capital Development Fund (UNCDF), launched a major "slum upgrading" project in St. Martin.[14] More than 900 households in the path of road construction were relocated to new, improved houses nearby. These families were little different from the ones included in Tables 1, 2, and 3. What they did with their houses served to confirm, in general terms at least, the thrust of my arguments.

By international standards, the housing design was quite modest. The residential density, though less than the 1500 people per hectare in the old part of St. Martin, was still a substantial 800 people per hectare, well above the 200–400 people range in other countries (Grimes 1976: 69). Similarly, the 12 square meters of interior space in small dwellings, and the 16 square meters in large ones, were substantially less than the minimum of 20 square meters in "sites and services" projects implemented in various countries with World Bank assistance. And for the quality and space provided by these houses, monthly unit prices of $0.60 per square meter for small dwellings and $0.40 for large ones were quite reasonable. Nothing comparable could be had in St. Martin at such prices.

But for many relocatees, monthly rent-purchase payments of $7.35 or $11.55 exceeded what they were willing to spend. If the dislocated families had kept up with inflation, if they were willing to spend the same share of income for housing as they had in 1976, and if the population of relocatees had general characteristics similar to the sample I interviewed in 1976, then the data in Tables 1, 2, and 3 suggested that perhaps a third would not have been willing to spend as much as $7.35 per month in net rent.

The price itself would not have been beyond any of the relocatees if the houses had been designed with more than one entry door, or with the possibility of introducing doors in exterior walls at a later stage. Such designs would have permitted households to subdivide small units into two or three dwellings of four to six square meters each; large units divided into three to five dwellings would offer similar amounts of space. Although the resulting units would certainly have appeared "substandard" from the project planners' point of view, they would have been appropriate from the households' point of view. Indeed, this flexibility would have provided a windfall benefit to relocated families. Average rent in the old part of St. Martin, i.e., for the dwellings described in Tables 1, 2, and 3, had risen to $15.00 a month by 1984. At that price the relocated households could occupy one part of a small subdivided house and generate $15.00

to $30.00 a month from tenants in the other one or two units, or $30.00 to $60.00 from a large subdivided house. Or they could have moved elsewhere, become absentee landlords, and collected an even larger rental income.

Unfortunately, except for end units, all the new houses were designed with common walls on three sides (Figure 6), and the project did not permit construction of new doorways in end units. Not surprisingly, by the time most houses were ready for occupancy in 1982, one-third of the relocatees had already elected not to move into them. Some sold their rights to the houses for $150.00 well before the buildings were complete. Others waited for completion and then sold at prices ranging from $800.00 to $1000.00, a practice leading to much confusion when buyers found out that they still had to pay the monthly rent-purchase charge for the next 15 years (and therefore another $630.00 or $985.00). Still others became absentee landlords, but faced with the impossibility of subdivision were able to collect only $100.00 to $130.00 in semiannual payments for the units, netting $65.00 to $85.00 every six months after meeting their own rent-purchase obligations. A survey of 30 of the dwellings in early 1986 revealed that 12 of the occupants were paying rent to absentee landlords, most of whom had moved back to (or had never left) the old part of St. Martin, and six were new owners who claimed to have purchased the houses from previous ones. Thus within four years of having been assigned new housing, perhaps 60 percent of the 900 families did not live in them.

The 900 intended beneficiary households did not all behave as project planners had anticipated, but almost all of them gained something. The 40 percent who remained in the houses assigned to them benefited from better quality, more space, and the promise of ultimate ownership at a monthly price well below what they could have ever imagined possible. The rest, largely the low-income households, received the windfall gain of an asset that they held onto as a productive source of rental revenue, or liquidated to support more productive uses including higher consumption of other things. Notwithstanding the beneficial outcomes, the essential lesson for planners was that housing projects of the kind implemented in St. Martin would not improve the housing of most of the low-income population of the city, which in the case of Port-au-Prince was around 70 percent of the population.

The basic problem was that although very modest by international standards, project standards did not fit the economic realities of most household economies. The opportunity cost of foregone production of earnings was too high. Occupancy of the house meant tying up resources in a relatively nonproductive enterprise. Departure meant receipt of $65.00 to $85.00

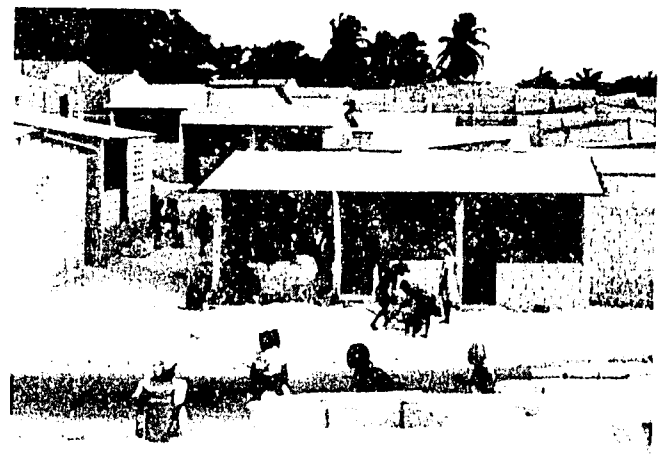


Figure 6. New housing for families displaced by improvement project in St. Martin.

twice a year, which could support some market activity that would substantially raise the household's level of consumption across a wide spectrum of goods and services, including housing. Sale of the house for $800.00 to $1,000.00 might mean instant passage to Miami or New York. This was perhaps the most productive investment a household could make, and was in fact what many of them did.[15]

I cannot say to what extent households in Port-au-Prince resemble those of other Third World cities, but nonetheless the issues I have raised here apply, if not in scale, then certainly in substance, to much of the Third World. Writ large, the conclusion is that housing programs conceived and carried out without reference to other aspects of economic and social planning associated with nutrition, health, employment, and other matters of fundamental importance to households may prove wasteful. In countries like Haiti, where public and private resources are extremely scarce and where survival of many households is very precarious, waste is the last thing planners should encourage.

Notes

1. The definition of housing can be broad or narrow. The broader concept may include the characteristics of the dwelling, its location, the land under it, and the complete range of urban services and amenities surrounding it. In this paper I use only a very narrow definition: the dwelling itself and its relationship to nearby dwellings (i.e., residential density). Therefore, I do not mean to imply the changes in location, access to land ownership, or improved urban services and amenities have little value to such households. Households may or may not value such things, but this paper does not pursue such matters.
2. The adjective "new" distinguishes this theory not only from consumer theory, but also from "old" home economics which defines household production more restrictively by including only unpaid work by and for family members (Reid 1934: 6).
3. In a recent paper, Muth (1984: 101) defines housing as a composite commodity or consumable, which households produce by combining space, energy, and other inputs. The theory therefore is adaptable to the purposes at hand. Housing can

be a purchased input to the production of something else, such as health, or can itself be a consumable produced by combining other factors.

4. Burns (1970) highlighted this relationship empirically in a study of housing improvement and its consequences on labor output in Korea and several other countries.
5. Here and in all further references to "per adult" statistics the unit of measure is adult-equivalent units. Since households may vary considerably in their composition of adults, adolescents and young children, "per capita" figures may sometimes be misleading. Standardization by assigning weights to different age groups (i.e., adolescents = 0.8 adults, children under 6 = 0.5 adults) is therefore useful. Average household size in Port-au-Prince is 5.3 persons, but after standardization, drops to 4.3 adults.
6. These costs are based on average retail market prices for corn, beans, water, and charcoal during 1976.
7. The average cost of secured credit in 1976 was 25 percent a month, simple interest. Unsecured loans cost 50 percent per month.
8. Abrams (1964: 6) reported similar space consumption and expenditure for Kingston, Panama, and Bombay; Hake (1977: 98) for Nairobi, and Dwyer (1975: 36-37) for Calcutta and Hong Kong. All these reports were for very poorest urban families.
9. I conducted the survey of 145 randomly selected households living on streets in 1975 as one of several pretests for the survey in St. Martin discussed in Note 10. The objectives of this exercise were: to determine some of the general reasons that people lived outside, in particular the share that did have access to housing but who slept on streets because the dwellings were too small to accommodate all family members at once; to determine, within the set of general reasons, the economic rationales guiding households to refrain from housing expenditure (by inquiring about their earnings and making inventories of all their assets), and to extract, with something resembling an opinion subsurvey in the questionnaire, a sense of their "basic needs" priorities. I employed five university students for fieldwork, all capable individuals, but with experiences so far removed from the daily circumstances of people like the ones interviewed that they had considerable difficulty in communicating questions and understanding answers. Because the data they produced were often unintelligible, this report lacks systematic quantitative data in the discussion of households on streets. The survey did yield two useful results, however. One, flowing from the list of respondents' priorities, was that the St. Martin survey would focus on the item at the top of the list: income. The second was my decision to conduct all further survey work myself.
10. For the St. Martin survey I used aerial photographs to stratify the 13 hectares of the neighborhood and its approximately 4000 households into 11 zones. In each zone I numbered each building (containing several dwellings), and then using a table of random numbers selected 12 buildings per zone in which to interview one household. As a practical matter, however, it proved impossible to match buildings on photographs with buildings on the ground. The area was too densely built-up to allow pinpoint accuracy. The best I could do was to start at my best estimate of sample point location and choose the first complete, or almost complete household that I could find at home during evenings. I interviewed 120 families, each for one to two hours, and was able to extract useable data from about 90 of them. These 90 families contained 470 people and 200 workers, and from them I tried to produce data that could answer three basic questions: How do families produce income? How much do they produce? What causes the differences in income? The thrust of the survey was therefore about the income-generation process, and if the data had any particular area of strength, it was reasonable accuracy in the matter of household income at the time. I interviewed every full-time or part-time breadwinner in each household, and from these discussions determined wage and employment rates, net profits of self-employment activities, amounts of inbound and outbound cash or in-kind transfer payments, and seasonal variations in all these sources of income. My efforts to obtain information on expenditures that did not seem directly pertinent to income production were secondary. I did obtain some data on basic foods consumed, water consumption, school enrollment rates and expenditure, and use of credit. With respect to housing I inquired about ownership, type and terms of rental contract, and length of residence in the dwelling. I measured the interior size of each unit, and then made a notation about the dwelling's "quality" rating (see Note 13).

    The 90 families who provided useable information comprised 8 resident landowners, 16 houseowners who leased land, and 66 renters. The data in Tables 1, 2, and 3 are for the 66 renters. This is a very small survey, and is not generalizable to the whole of the urban population (although it is a fair representation of the 300,000 or so people living in very similar neighborhoods in the downtown part of Port-au-Prince). However, even small data sets with reasonably accurate income statistics, with details on how the income is produced, and corresponding housing data, are uncommon. In this respect the data are useful and insightful notwithstanding the inherent drawbacks of small sample size.
11. The estimate was based on a one-week survey of downtown streets in 1975, carried out by staff of the Department of Public Works.
12. The food and water expenditure of $0.25 per day per person meant that the individuals consumed more than 1500 calories per day. The storage fee of $1.50 resulted from their paying for a full stock the first night, or $1.00, and for half the unsold stock remaining on the second night, or $0.50.
13. My early attempts to derive an indicator of "quality" from tangible elements like roofing material, flooring, and wall composition came to naught. What households meant by "quality" was the relative protection a house provided. Thus the absence of holes in roofs and walls, the presence of shutters and doors with solid padlocks, and the type and height of interior partitions separating dwellings within a structure combined to present images of higher or lower quality relative to what an "average-looking" dwelling provided. Thus a below-average quality score of 1 meant that the protection was quite poor, while an above average score of 3 meant that the roof had no leaks, the walls had no openings except windows and doors, interior partitions went up as high as the rafters, and the hardware to lock windows and doors was sturdy. I asked respondents whether they believed their units were relatively "good" or relatively "bad" compared to others in the area, and their responses were usually consistent with my rating system.
14. For a detailed description of this project see Fass (1986) and UNCDF (1984).
15. Reported by project staff and UNICEF evaluators in 1984.

References

Abrams, C. 1964. *Man's struggle for shelter in an urbanizing world.* Cambridge, MA: MIT Press.

Barnum, H. N., and L. Squire. 1979. An econometric application of the theory of the farm-household. *Journal of Development Economics* 6: 79–102.

Becker, G. 1965. A theory of the allocation of time. *Economic Journal* 75 (299): 493–517.

Burns, L. S. 1970. *Housing: Symbol and shelter.* Los Angeles:

Graduate School of Business Administration, University of California.

Chayanov, A. K. 1966. *The theory of the peasant economy.* Homewood, IL: Irwin (originally published in Russian, 1925).

Dwyer, D. J. 1975. *People and housing in Third World cities.* New York: Longman.

Evenson, R. E. 1976. On the new household economics. *Journal of Agricultural Economics and Development* 6: 87–103.

Fass, S. M. 1978. Port-au-Prince: Awakening to the urban crisis. Pp. 155–80, in *Metropolitan Latin America: The challenge and the response,* edited by W. A. Cornelius and R. V. Kemper. Beverly Hills, CA: Sage Publications.

———. 1980. *The economics of survival.* Washington, DC: Office of Urban Development, Bureau for Development Support, U.S. Agency for International Development.

———. 1986. The St. Martin project: A decade of pain and progress in the evolution of an urban development institution. Pp. 231–56, in *Politics, projects and people: Institutional development in Haiti.* D. Brinkerhoff and J. C. Garcia-Zamor, eds. New York: Praeger.

Grimes, O. F., Jr. 1976. *Housing for low-income urban families.* Baltimore: Johns Hopkins University Press.

Hake, A. 1977. *African metropolis.* New York: St. Martin's Press.

Jorgenson, D. W., and L. J. Lau. 1969. An economic theory of agricultural household behavior. Paper presented at the Far Eastern Meeting of the Econometric Society (Tokyo).

Lancaster, K. J. 1966. A new approach to consumer theory. *Journal of Agricultural Economics and Development* 6: 87–103.

Linn, J. F. 1983. *Cities in the developing world.* New York: Oxford University Press.

Lipton, M. 1983. *Poverty, undernutrition, and hunger.* World Bank Staff Working Paper No. 597. Washington, DC: World Bank.

Lundahl, M. 1979. *Peasants and poverty: A study of Haiti.* New York: St. Martin's Press.

Muth, R. F. 1984. Energy prices and urban decentralization. Pp. 85–109 in *Energy costs, urban development and housing,* edited by A. Downs and K. L. Bradbury. Washington: The Brookings Institution.

Reid, M. G. 1934. *Economics of household production.* New York: John Wiley.

UNCDF 1984. *Evaluation ex post: Rehabilitation du Quartier St. Martin à Port-au-Prince.* United Nations Capital Development Fund, New York, October.

Self-help Shelter and Related Programs in Liberia

Linda Lacey and Stephen E. Owusu

In this article, we investigate self-help strategies that have been implemented in Liberia, a small West African country. Liberia, like other African countries, encountered problems in implementing self-help strategies such as sites and services projects and community-upgrading activities. High-ranking leaders were reluctant to support government officials seeking to gain acceptance for the sites and services concept. Housing providers also faced land acquisition problems in that they could not obtain large tracts of vacant land near employment locations for new shelter projects. Yet, when management, maintenance, and cost-recovery problems emerged in the midst of community-upgrading activities, government officials with limited financial resources found appropriate solutions to overcome them.

This article investigates the efforts of a small West African country, Liberia, to meet the shelter and related needs of its urban poor. Faced with limited financial resources, government officials are implementing self-help strategies, such as sites and services projects, core housing, and community-upgrading activities, to improve the residential environment of the urban poor. We examine the problems that the Liberian government encountered when it introduced alternative shelter and related programs, and discuss the solutions that emerged.

While self-help projects have been implemented in several African countries, we know little about the problems that accompanied the efforts. The few studies available suggest that many problems did occur. Housing providers encountered difficulties in such areas as finding sufficient technical personnel to coordinate and manage urban development activities, developing effective cost-recovery systems, and obtaining local political support for self-help projects. There were several delays in completing the serviced plots in the Dandora community in Nairobi, Kenya, for example (Chana 1984). City Council members there did not fully accept the various principles involved in building serviced plots; in particular they objected to low infrastructure standards, the use of temporary structures, and plot allocation procedures (Chana 1984: 33). Authorities also had a hard time reaching the poorest households. In some countries, serviced plots went to the middle class instead of to the poor. White (1985) indicates that 80 percent of the houses built on serviced plots in Dakar, Senegal, by 1984 surpassed the established standards, in part because families with much higher incomes had obtained the land.

When Liberia began to implement self-help strategies, the National Housing Authority had to struggle to gain widespread support for the concept of sites and services. High-level political leaders expressed concern about the quality of housing provided, and housing providers couldn't obtain large tracts of vacant land near employment locations, which they wanted for new shelter. Community-upgrading activities led to management, maintenance, and cost-recovery problems, but eventually government officials found appropriate solutions, in spite of their limited financial resources.

Lacey is an assistant professor in the department of city and regional planning at the University of North Carolina at Chapel Hill. She teaches Third World planning and is involved in several research projects related to population and development planning in Liberia and Nigeria, funded by the United States Agency for International Development. She and Owusu are currently investigating housing and population issues in three squatter communities in Monrovia. Owusu is a visiting professor in the regional planning program at the University of Liberia. He teaches housing and environmental courses and has taken part in a number of housing and urban sanitation research projects in Liberia and Ghana. In the fall of 1987 he will return to the Regional Planning Program at the University of Science and Technology in Kumasi, where he is an assistant professor and research fellow.

Shelter strategies in Liberia

Located on the west coast of Africa, Liberia has an estimated population of about two million. In absolute numbers, the capital city, Monrovia, experiences much of the urban growth and the highest concentration of urban poverty. In 1953 the estimated population of Monrovia was 27,000; in 1974 it had grown to 204,200, and in 1982 the city had an estimated 330,000 inhabitants (Republic of Liberia 1979: 104; The Futures Group 1983: 41). The World Bank estimates absolute poverty for Monrovia at $281 per capita per year Absolute poverty is defined as the income level at which a country-specific expenditure pattern yields minimum caloric requirements. For 1980 the World Bank estimated that 60 to 70 percent of Monrovia's population fell below that level (World Bank 1984).

The urban poor reside in makeshift housing built from wood siding, corrugated tin, and cardboard or in older wood-frame and concrete houses in an estimated 22 communities scattered throughout the city. Figure 1 shows an example of such makeshift housing. Facilities such as water, electricity, and sewerage systems have not kept pace with the rapid growth of Monrovia. Many residents in low-income neighborhoods either lack these services altogether or pay a disproportionate amount of their small incomes for inadequate services.

The first public efforts to meet the housing needs of the urban poor emerged in 1970 when the government established the National Housing Authority to plan and implement a housing development program for the country. Like most developing countries, the initial activities of the authority focused on establishing low-income housing in the capital city. Monrovia built five major housing estates between 1970 and 1980, on the periphery of the city since the core area did not have large contiguous tracts of vacant land and the only land available there was expensive. While Monrovia grew by more than 100,000 people during the ten years, the five estates provided only 1,500 housing units.

Figure 1. Makeshift shelter in the West Point Community, Monrovia.

The Liberian government financed four of the housing estates and contributed nearly $5 million toward land acquisition and construction to build the fifth, the Matadi Estate. The housing authority still had to borrow $10 million from Citibank to complete the project. Most of the units were expensive to build (see Table 1), a reflection of the high building standards. Units were constructed of bricks and/or concrete.

The National Housing Authority introduced two approaches to recover costs of building the estates. First, they decided to build housing for both low- and middle-income groups. The Matadi Estate, however, was built specifically for middle-income families. Spacious, high- and low-density units catered to the needs of professional families. Second, the government decided to rent the units rather than sell them to households, so that they could raise or lower rents as needed.

The cost-recovery system created a number of problems for the National Housing Authority. First, the rents have not generated the amount of revenues that the authority expected—about $1.3 million a year from the five estates (National Housing Authority 1981). Between 1979 and 1983 they collected only 60 to 70 percent of anticipated rents. Economic recession has led to business closings and the government, too, is frequently unable to meet payrolls. The results—unemployment in households, long waiting periods to evict tenants, and the inability of many government employees to pay rents—have contributed to the low levels of rents collected. In the Matadi Estate, where rent collections have been the lowest, only 30 to 35 percent are paying rent; most of the residents there work for the government. Because of the financial problems, government officials are not paid on a regular basis, so arrangements were made to deduct rents directly from employees' pay. By 1984, with more than 33 percent of tenants in both the public and private sectors on payroll deductions, rent collection became much easier (National Housing Authority 1984).

Another major flaw in the cost-recovery system relates to the selection of tenants, many of whom are middle-class families. For the government to recover costs from the units and develop a surplus of revenue to build new units, it had to find tenants with reliable incomes, and charge rents that would generate sizable revenues. Rents were far beyond the means of most residents in low-income communities in Monrovia (Tables 1 and 2). In West Point, the median rent is about $20, and 11 percent pay between $1 and $9 a month (National Housing Authority 1985). Surveys conducted by the authority indicate that many residents

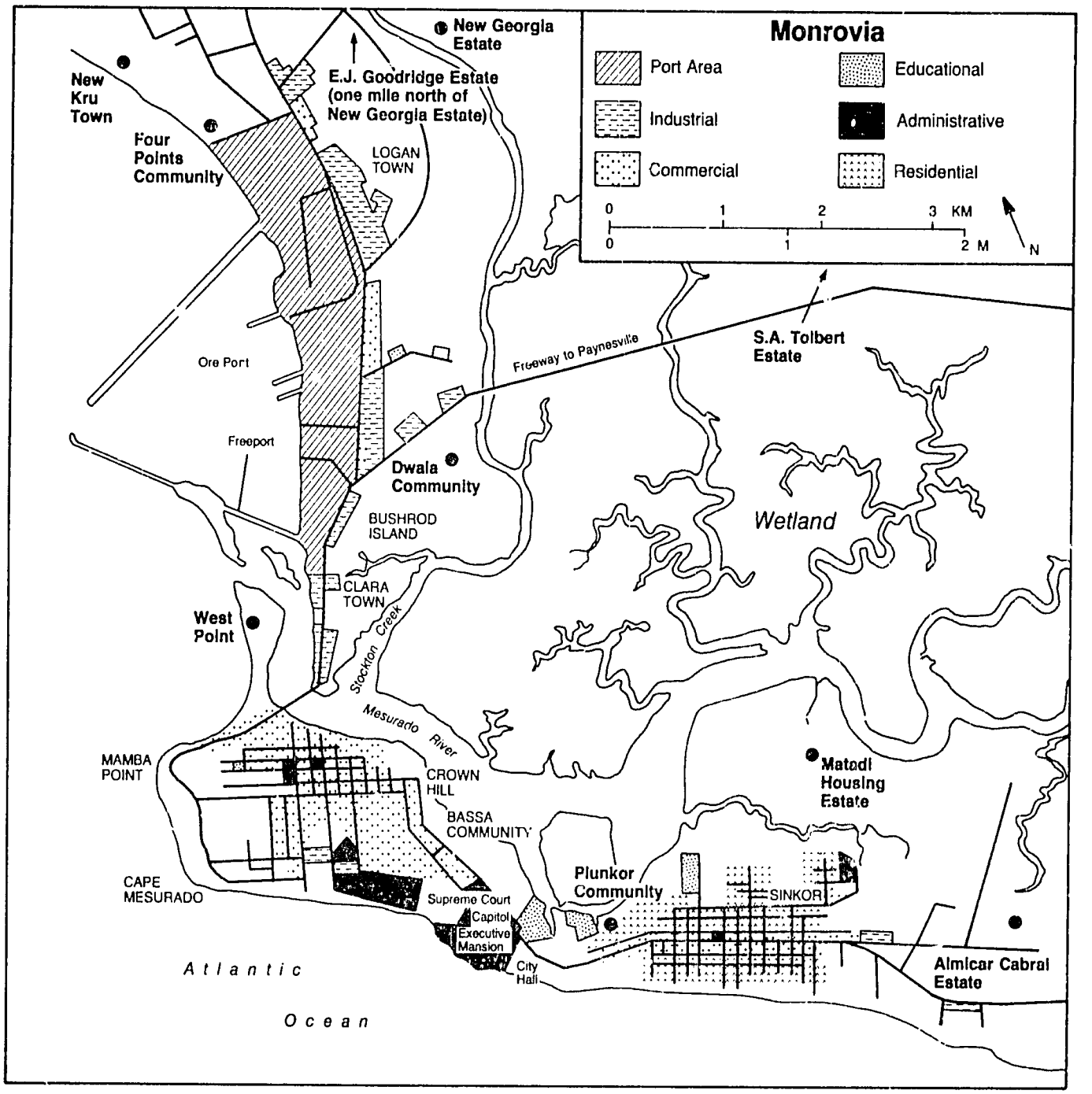


Figure 2. Map of Monrovia, Liberia.

do not pay cash rents at all, but render a variety of services in place of money.

The failure of the housing estates to meet the needs of large numbers of poor residents, the rapid growth of low-income households within Monrovia, and insights on innovative low-income shelter approaches by other African countries led to a major shift in housing strategies in Liberia. In the late 1970s, President Steven A. Tolbert, other high government officials, and staff within the National Housing Authority sought financial and technical assistance to begin low-cost, self-help strategies to improve the residential environment of Monrovia and other urban centers. They obtained financial and technical assistance from the United States Agency for International Development and the World Bank for two major activities—a sites and services project in the New Georgia Estate and community-upgrading activities in several communities in Monrovia.

Sites and services

Sites and services projects provide large numbers of low-income residents with shelter and related ser-

Table 1. Housing estates built by the National Housing Authority 1970–1980

Estate	Total # units	Numbers of Bedrooms 1 Bedroom	2 Bedrooms	3 Bedrooms	Average monthly rent	Estimated costs[a]
Amilcar Cabral	72	20	30	22	$ 38.61	$ 667,200
Stephen A. Tolber	414		147	267	60.94	5,588,640
E. J. Goodridge	576		70	506	56.00	7,741,440
New Georgia	226		226		43.96	1,802,000
Matadi	191		120	71	182.48	Not available

a. Costs in all tables are in U.S. dollars, the local currency. (Source: Republic of Liberia 1980. National Housing Authority Annual Report 1980)

vices. Governments obtain large tracts of land; install basic infrastructure such as electricity, water, sewerage systems, and roads; and then divide it into plots, which they allocate to households. Individuals and families must build their own structure, in some cases according to government regulations. Liberia extended this concept by providing households with the first room (core) of the house, to allow families to live in the room, or core, while they complete the rest of the home.

The National Housing Authority experimented with the sites and services concept before undertaking a large-scale effort. Members of both the Tolbert's administration and Samuel K. Doe's administration, which took office in 1980, balked at accepting the concept. When members of Tolbert's administration objected to having large concentrations of the poor located in one area, the U.S. AID and the authority introduced a mixture of shelter options with different plot sizes and core units for low- and middle-income families. President Samuel K. Doe, now in office, raised questions about the suitability of the project in providing safe and desirable housing to the urban poor; his concerns brought construction to a halt in 1982. To resolve the questions and convince the president and the public of the benefits of the sites and services project, the authority built a few demonstration units to show how the houses could be constructed in stages. They also instituted a number of educational programs designed to reach all levels of the political hierarchy—national, city, and community. To reach high-level officials, they developed a newsletter and disseminated it to private and public sector agencies. The authority also distributed information through its board of directors, which consists of high-level officials including the ministers of public works, national security, planning, and economic affairs, the mayor of Monrovia and the president of the National Housing and Savings Bank. To gain local community support, they produced periodic radio, television, and newspaper announcements and programs.

A series of meetings between the Liberian government and U.S. AID led to the revival of the sites and services project in 1984. U.S. AID and the National Housing Authority established the Project Implementation Unit to complete the project and to set regulations and standards to guide households in building their units.

Other problems emerged. For one thing, staff had difficulty acquiring sufficient land. Most of the vacant land in Monrovia consists of small, noncontiguous plots. Although deeds are registered and recorded in the National Deeds Registry Office, that office does not maintain an index of parcels and deeds do not contain a history of previous transactions. As a result, long and costly litigations arose from the transfer of invalid titles and disputes over joint family ownership of land. The authority eventually skirted the problems by using available land in the outlying New Georgia housing estate.

A second problem was the inability to find a lending institution that would provide small loans for home construction. Although the government established the National Housing and Savings Bank of Liberia in 1972, in part to make loans for home ownership, today, unfortunately, it, like most banks in Liberia, faces serious financial problems and can no longer offer small loans to families. Therefore families must

A housing unit in the S. A. Tolbert Estate.

Table 2. Household characteristics of select low-income communities in Monrovia

Communities	1980 Population	Household size	Median monthly income	Percent renters	Median monthly rents*
New Kru Town	19,727	4.85	$110.72	70.00%	$15.30
West Point	25,368	5.2	87.00	69.50	19.95
Plumkor	6,768	3.1	118.82	73.60	12.83
Dwala	3,560	4.43	153.87	69.37	18.33
Four Points	4,309	4.48	108.67	68.90	15.40

Sources: for New Kru Town and West Point, World Bank 1984; for all others, Republic of Liberia 1985

* In U.S. dollars. Some households also pay rent by providing services such as labor. Our figures here do not represent these households.

finance their own home construction. To ease the burden, the authority does not put a limit on the amount of time it takes for families to complete their units.

These and various other problems were finally overcome. The Housing Authority completed the sites and services project in the spring of 1986 on about 43 acres of land in the New Georgia Estate. The project provided 418 serviced plots, 100 core units with kitchens and bathrooms, and a few complete demonstration units (Figure 3). U.S. AID underwrote the construction cost of $2.2 million.

Serviced plots range from 1,750 to 2,555 square feet, and costs range from $1,500 for the smaller plots to $2,174 for the largest. Households must give a down payment of three percent and make monthly payments of $14.50 to $21.50 for a 20-year mortgage at ten percent interest. Families purchasing the core units in addition to the plots pay between $4,539 and $5,983, with monthly payments of $45 to $58.50. Core owners also pay three percent down and have a 20-year mortgage. The National Housing Authority receives payments for both the core units and the plots; residents pay an additional $2.50 per month for community services.

Figure 4. A core unit in the New Georgia sites and services project.

The Housing Authority set a number of requirements to select owners, including a minimum monthly income range for the primary wage earner of $100 to $226 for plots and $150 to $300 per month for core units. Residents can purchase only one unit. Participants in the program must be Liberian citizens and residents of Montserrado County for the past five years; they must start construction of the plot or core unit within 90 days, occupy the unit for a minimum of three years, and agree not to sell the unit for another three years.

The government provides guidelines, regulations, and technical assistance to assist households in building safe, reliable shelter and to maintain healthy living environments. For the plots, in particular, all buyers are required to: build flush toilets and bathrooms connected to the sewer line, use fireproof materials, limit the unit to two floors, finish and paint the outside walls, and build ceilings at least seven feet high in living areas. Households may operate businesses within their home provided they don't create noise or air pollution.

Services in the New Georgia Estate include three schools, three health-care clinics, several churches, two markets, a few shops, and two large football fields. Many of these facilities were built as part of the housing estate.

Community upgrading

While sites and services strategies create new housing for the urban poor, community upgrading improves the existing residential environment of low-income neighborhoods of various types—slums, private subdivisions, quasilegal subdivisions, and squatter settlements. If necessary, governments formalize land tenure rights in squatter settlements, align dwellings with organized thoroughfares, install drains and storm ditches, and provide latrines, piped water, and electricity, and in some cases, provide schools, health-care facilities, and income-generating activities. Community-upgrading programs are attractive to governments since they do not require residents to move away

from employment opportunities to obtain decent housing.

The Liberian government undertook community-upgrading activities in four of the largest and most congested neighborhoods of Monrovia: West Point, Claratown, Sonewein, and Slipway. The National Housing Authority and the Monrovia City Corporation commissioned household level surveys to identify the types of services needed in the four communities.

West Point is the largest and most congested of the neighborhoods, with an estimated population of 25,367 in 1980. The government owns the land and most households live in makeshift housing. Located in the core of Monrovia near two major markets, it is an ideal location for low-income families because of available employment opportunities. Projects recently completed include 4 sanitation units each containing 8 showers, 24 toilets and laundry facilities; a market center with 49 stalls to provide jobs and incomes for community residents; a primary school; 36 rental housing units for people displaced by the road construction; a community office; and 2 miles of roads. The estimated cost of the project was $950,000. As more funds become available, more facilities will be provided. The National Housing Authority provided the improvements, with funding and technical assistance from U.S. AID.

Construction on the projects began in 1981, stopped the following year when the president halted construction on U.S. AID-funded sites and services projects, and picked up again in 1984 when the Project Implementation Unit was established.

For most upgrading projects, management and maintenance are major concerns. To handle these problems in West Point, the National Housing Authority helped the residents to form a community-based cooperative with the government in charge of the school and roads, and the cooperative itself owning and managing the income-generating facilities such as the shopping center, public baths, and rental units. Founded in 1982 with about 20 local residents, membership in the West Point Cooperative has grown since completion of the upgrading projects. Any resident can join the cooperative for $1.00 and become a voting member for $5.00. The cooperative's functions include exploring alternative ways to provide additional facilities and services. Members share the profits, and voting members can decide on ways to use resources for other types of upgrading activities.

The cooperative staff consists of paid workers: three facility managers, one bookkeeper, one typist, one security guard, and several cleaners. U.S. AID and the National Housing Authority have given detailed management, financial guidelines, and training.

The agreement between the National Housing Authority and the West Point Cooperative allows the cooperative to buy all the income-producing facilities through a mortgage system at the end of the first year, provided that management performance is adequate. The cost and methods of purchase have not been established yet. The Project Implementation Unit has estimated that the projects can generate more than $50,000 a year. Of this amount, close to half is earmarked for expenses—payrolls, public education programs to explain services, maintenance, and utilities. The remaining profits will be available to pay the mortgage on facilities.

While we cannot yet predict how successful the cooperative will be in financing the operation and maintenance of revenue-producing facilities, community-based control over the income-generating facilities has generated community responsibility for the projects. It may, over time, establish an environment that will facilitate other types of self-help projects in the community.

The Monrovia City Corporation used a $10 million loan from the World Bank to complete upgrading activities in three low-income communities: Claratown, Sonewein, and Slipway. Access roads were improved, and drainage systems, sewerage systems, communal water points, and security lights were installed. Community facilities, such as primary schools, clinics, community centers, and marketplaces, were constructed or expanded. Funds were also used to provide water standpipes to ten additional communities. Work was completed in spring of 1986, and the loan is to be paid with revenues from property taxes. The corporation is in the initial stages of developing a management and maintenance program for the upgraded services.

Conclusions

Towns and cities in Liberia are experiencing rapid urban growth as a result of natural increase and migration. Because the majority of new urban dwellers are poor and cannot provide adequate shelter and basic services for themselves, the government has had to help solve the problems, in spite of its own difficulties. Liberia's first efforts to improve the residential environment of the urban poor focused on low-income housing estates in Monrovia. The early strategies were extremely costly and of limited success, especially since Monrovia not only experienced a tremendous increase of low-income families, but also because it suffered from limited technical and financial resources for urban development. This led the government to shift to self-help strategies. By 1980, government officials began developing and implementing a sites and services project and community-upgrading activities with technical and financial assistance from the World Bank and U.S. AID.

Although it is too early to evaluate the success of these self-help strategies, we can evaluate a number

of lessons that housing providers in the country learned. Of key importance, the ingredients needed to successfully implement the various shelter and related programs in Liberia included political commitment at the national, city, and community level; coordination and cooperation among agencies involved in providing shelter and related services; identification of the needs and priorities of residents in slum and squatter settlements; and shared responsibility of urban development with the urban poor since financial resources are limited within the country. Because one or more of these elements were missing, early efforts in self-help strategies foundered. Housing providers and other urban administrators have gained experience in self-help strategies, so greater progress should be made in this area in future years. Sharing responsibility with members of the communities may be a key factor.

References

Blitzer, Silvia, Jorge E. Hardoy, and David Satterthwaite. 1981. Shelter: People's needs and government response. *Ekistics* 286: 4–13.

Chana, T. S. 1984. Nairobi: Dandora and other projects. Pp. 17–36 in *Low-income Housing in the Developing World*, edited by Geoffrey Payne. London: John Wiley & Sons.

Fraenkel, Merran. 1964. *Tribe and class in Monrovia*. London: Oxford University Press.

The Futures Group. 1983. *Liberia: The effects of population factors on social and economic development*. Washington, DC: The Futures Group.

Grimes, Oville F. 1976. *Housing for low-income urban families*. Washington, DC: The World Bank.

Liberia, Republic of. 1958. *Zoning Act for the City of Monrovia*. Monrovia: Liberian Code of Laws.

———. 1974. *1974 Census of population and housing*. Monrovia: Ministry of Planning and Economic Affairs.

———. 1979. *Liberia: Geographical mosaics of the land and the people*. Monrovia: Ministry of Information.

———. 1980. *National Housing Authority 1980 annual report*. Monrovia: National Housing Authority.

———. 1984. *National Housing Authority 1984 annual report*. Monrovia: National Housing Authority.

———. 1985. *Report on survey and feasibility studies conducted by socioeconomic and technical section, 1979–1984*. Monrovia: National Housing Authority.

Meerman, Jacob. 1980. Paying for economic development. In *Implementing programs of human development*, edited by P. T. Knight. World Bank Staff Working Paper No. 403. Washington, DC: The World Bank.

Muwonge, Joe W. 1982. Intra-urban mobility and low-income housing: The case of Nairobi, Kenya. In *Housing the urban poor in Africa*, edited by M. K. C. Morrison and P. C. W. Gutkind. Syracuse: Foreign Aid, Comparative Studies Series No. 38.

Rondinelli, Dennis A., and G. Shabbir Cheema. 1985. Urban service policies in metropolitan areas: Meeting the needs of the urban poor in Asia. *Regional Development Dialogue* 6, 2 (Autumn): 170–90.

Society of African Missions. 1984. *West Point, Monrovia, Liberia: Development project report*. Washington, DC: Society of African Missions.

World Bank. 1983. *Learning by doing: World Bank lending for urban development, 1972–1982*. Washington, DC: The World Bank.

———. 1984. Liberia: Monrovia, water, power and urban projects analysis and strategies for improved access to services by the urban poor. Working document on Liberia. Washington, DC: The World Bank.

Informal Land and Housing Markets:

The Case of Istanbul, Turkey

Ayse Yonder

Since informal land and housing markets operate outside formal institutional channels, low-income participants in these markets are in a precarious position vis-à-vis government authorities and powerful land dealers. Planners in developing countries have traditionally focused on providing security of tenure to residents of existing informal settlements. Based on an analysis of informal land and housing markets in Istanbul, this paper argues that such legalization of existing informal settlements is insufficient to maintain or enhance the access of low-income groups to housing. Small credits to low-income households who do not have full title to their land, as well as regulations increasing the accountability of developers to their clients, are necessary to improve the position of low-income groups in the market.

Informal settlements are a common feature of most rapidly growing Third World cities.[1] Large numbers of people live in such settlements as a result of the inability or reluctance of governments to provide low-income housing and because of the speculative price levels in formal urban land and housing markets. Environmental conditions, land tenure status, and settlement formation patterns in informal settlements vary from city to city, but all informal land and housing markets have a common feature: they create great uncertainties for the low-income groups. First, the settlements are usually illegal, which means that government authorities can step in to remove them. Second, settlers usually lack information about legislation and access to formal sources of finance, so powerful land dealers can take advantage of them.

Until recently, planners focused on the immediate issue of convincing governments to recognize informal settlements. But empirical studies from several Third World cities show that while provision of security of tenure to existing settlements improves the residents' position vis-à-vis government authorities, it also often creates unanticipated consequences in informal markets. It can contribute to the displacement of the original lower income population, to absentee landlordism, and to continuing occupation of new public and private land (Amis 1984; Angel 1983; Carroll 1980; Connolly 1982; Gilbert and Healey 1985; Payne 1983). These studies provide new insights into the structure and operation of informal markets in different socioeconomic and political contexts, and provide a basis for formulation of improved policy measures.

This paper describes the informal settlement policies in Turkey and discusses the impact of government policies on the behavior of different groups in unauthorized subdivision markets in Istanbul. It concludes that planners and policy makers in Turkey must recognize how informal land and housing markets operate and must develop effective policies to strengthen the position of low-income renters and owners in these markets. An understanding of the specific structure and dynamics of informal land and housing markets is key to the formulation of feasible low-income housing policies.

Government policies and land and housing markets in Istanbul

Istanbul is Turkey's largest metropolitan center. From the 1950s to the late 1970s, urban land and housing markets in Istanbul were characterized by a speculative boom. This was a result of the high demand for and the relatively limited supply of urban land and housing. Rapid rates of urbanization and the strong preference of all income groups to invest their

Yonder is a doctoral candidate in the department of city and regional planning, University of California, Berkeley. This paper is drawn from her dissertation, "Low-income land and housing markets in Istanbul, Turkey."

savings in "inflation-proof" assets such as land and housing contributed to the high demand. Istanbul's population increased from one million in 1950 to nearly five million in 1980. High and sustained inflation characterized the rapid and cyclical economic growth in Turkey during this period.

The supply of urban land and housing was limited by financial, technical, and institutional constraints. The limited government funds were directed to subsidizing the development of industry, not housing. Public investment was less than 10 percent of total housing investment, leaving more than 90 percent to the private sector during this period. Financing in Turkey also was regulated to ensure the flow of credit to productive sectors—commerce and industry—rather than to housing. Moreover, local governments lacked funds to deliver services adequately to central areas of the city, let alone produce services to expanded urban settlement areas.

The limited amount of public credit and housing that were produced ended up in the hands of middle-income consumers.[2] The Etiler and Atakoy projects built with credit from the government-owned Real Estate Credits Bank are examples. Private sector investments, most of them by small development firms with limited capital and using traditional construction techniques, were directed to "luxury" apartments. The condominium law of 1965 extended home ownership to middle-income households, and facilitated massive redevelopment in Istanbul and its suburbs by small-scale developers.

All in all, formal sector construction, including public housing and credits, comprised only a third of the houses constructed in Istanbul between 1973 and 1978 (The Fourth Five Year Development Plan of Turkey 1978: 95). Informal markets provided the other two thirds. The result was two distinct types of physical development in Istanbul: increased density in the central areas for moderate and high income groups, and lower density low-income settlements mainly in the outlying areas.

Party politics at both the national and local levels played a role in all this, using relaxation of regulations in return for votes, thus fueling both developments during the period 1950–1980. At the national level, there were two major competing political parties. During elections, both promised title deeds to land and delivery of services to squatters and encouraged formation of new settlements. Large tracts of public lands (including *wakf*—pious foundation—land that the Turkish Republic inherited from the Ottoman land system) and lands in dispute became the main targets of squatters and private land dealers. At the local level, elected municipal governments played an increasingly important role in the formation and development of informal settlements in the 1960s. Municipalities developed increased responsibility for delivery of services and distribution of title deeds to public lands within the framework of the *gecekondu* law of 1966. Moreover, local governments became the political arena for resolving legal ambiguities regarding unauthorized subdivisions.

Informal settlement policies

Turkey has two types of informal settlements: squatter or *gecekondu* ("landed by night") settlements and unauthorized subdivisions or *hisseli tapu* (shared title deed). *Gecekondu* involves occupying someone else's land and building a structure without securing the proper permits. *Gecekondus* (squatter housing) first appeared in Istanbul in the late 1940s. They prolifer-

Hisseli tapu in Zeytinburnu district

ated over the next two decades, mainly near industry and on public land, despite the prohibiting laws of the 1950s. By the mid-1960s, however, squatting in the traditional meaning of the term had become impossible. Squatters had to pay local strongmen the market value of the land for the right to occupy even public land.

In *hisseli tapu* subdivisions, on the other hand, residents hold title deeds (*hisseli tapu*) to shares of a large parcel of land, which is legal according to the Turkish civil code. The subdivision of that land and construction of dwellings, however, are unauthorized. Unauthorized subdivisions emerged as a way for low-income households to acquire housing in the 1960s.[3] By the 1970s they had become the primary means for low-income people to gain access to residential land, and still continue to be so.

Within the framework of the 1961 Constitution and the first five year development plan of Turkey, government policies sought to come to terms with informal settlements. The *gecekondu* law of 1966 proposed a comprehensive program to deal with squatter settlements: good *gecekondus* would be upgraded, bad ones cleared, and new housing would be provided on public lands (*gecekondu* prevention areas). Most of the existing settlements in Istanbul were designated as upgrading areas, but deadlines for setting the boundaries of upgrading areas were continually extended to exempt newly constructed *gecekondus*, as elected officials responded to their growing squatter constituencies (Danielson and Keles 1985: 177). Then, the *gecekondu* law of 1976 legalized settlements formed after 1966. Thus the *gecekondu* laws provided security of tenure to a large number of squatters, facilitating improvements and delivering urban services to existing settlements. Still, by 1980 only a small proportion of the squatters in *gecekondu* upgrading areas in Istanbul had received full title to their land.[4]

Providing security of tenure to existing settlements was only a partial solution, at a time of accelerating rates of urbanization and high demand for land and housing. The law failed in its goal to create new housing, and in its goal to prevent speculation in informal settlements. First, prices increased. Settlements such as Dikilitas, in which squatters received full title deeds, became middle-income areas. Second, the law tried to prevent speculation by limiting density and prohibiting construction and sales until development plans of *gecekondu* upgrading areas were completed. Nevertheless, redevelopment did take place and prices increased even without title deeds, especially along the main streets of centrally located settlements such as Zeytinburnu and Caglayan. Third, governments failed to allocate sufficient funds to prepare land for new housing in *gecekondu* prevention areas. This meant that most of the *gecekondu* clearance could not take place, since the law required provision of alternative housing for the residents of *gecekondu* clearance areas. Thus, only three of the twelve planned areas could be developed in Istanbul (Danielson and Keles 1985: 179). What the government could not provide was undertaken by the private sector and the people themselves. Entrepreneurs with underground connections started subdividing and selling public lands.[5] Squatters occupied some *gecekondu* prevention areas, such as Alibeykoy and Umraniye, which resulted in violent confrontations with government forces.[6]

Because of the risks of settling on public lands, *hisseli tapu* subdivisions proliferated on private lands, as a less risky albeit more expensive alternative to *gecekondu*. *Hisseli tapu* settlements developed within an ambigious legal framework in the 1960s and 1970s. A Supreme Court decision in 1976 endorsed the legitimacy of *hisseli tapu* according to the civil code, and acknowledged their "inevitability" under the current conditions in Turkey. However, the next year a government decree required land registrars' offices to warn purchasers about the "illegal" nature of *hisseli*

Gecekondu clearance area in Zeytinburnu district

tapu under the reconstruction law. Since the residents owned the land they occupied, their security of tenure was higher than in *gecekondu*. In municipalities with development plans, municipal councils could legalize such subdivisions, if legal and technical problems could be settled.[7] The delivery of urban services to *hisseli tapu* areas depended on the initiative of the residents and on their political ties to the local government. Planning was ad hoc, as in *gecekondu*, but the *hisseli tapu* did not receive special public funds for delivery of services as did the squatter settlements.

Government policies did not channel sufficient funds into the development of new low-income land and housing. Nor did they recognize the asset value—and hence, the social security value—of land and housing to lower-income households, or the role the private sector could play in providing low-income land and housing. Prohibitive measures did not prevent speculation or regulate redevelopment in new or existing settlements. One consequence of granting tenure was the continuation of haphazard urban sprawl on public and private land. This made delivery of social and infrastructure services, as well as cadastral registration, difficult and expensive. For example, no land was allocated for social services; settlement patterns such as unmatching grid-pattern subdivision roads on neighboring lots made infrastructure delivery expensive; the quality of most multistory apartment buildings created potential earthquake hazards (Istanbul is on a first-degree earthquake belt). Another consequence of such policies was increased land and housing prices, and households had to pay land deale s for either public or private land.

With such a background, what effect did government policies have on the behavior of different groups in the informal markets? This paper will discuss only the unregulated *hisseli tapu* markets.[8]

Groups in the unauthorized subdivision markets

The major groups that affect or are affected by *hisseli tapu* markets are landowners, land dealers and agents, single or multiple unit owners, and renters. Between 1960 and 1980, the condoning attitudes of government authorities allowed the land dealers and landowners gains that were disproportionate to the gains of homeowners and renters.

Landowners

In *hisseli tapu* markets, landowners were private individuals who sold large tracts of unplotted land that had legal use restrictions. It could be rural or forest land, or land already designated in a municipal development plan for a specific future use such as a school, park, or hospital. Unless the authorities changed the land-use designation or purchased the land from the owner, there were restrictions on the use, but not on the sale of the property. Thus the *hisseli tapu* provided landowners with a channel through which to sell land they could not easily dispose of in the formal market. Some sold it to *hisseli tapu* land dealers for more than the government would pay under eminent domain purchase.[9] Others subdivided and sold their land directly, securing even higher returns (see below).

The problems were of three types. First, the purchasers of *hisseli tapu* lots often did not know the legal limitations on the land or the implications of the purchase. Second, in some cases, subdividers imposed costs on the neighboring landowners or on other shareowners, if the land was owned jointly For instance, in the Gazi settlement, sales by two of the landowners resulted in the occupation of the third landowner's land by low-income purchasers and by outside squatters; the third owner happened to be the State Treasury. In a similar case in Fikirtepe, the seller had a partner who was a private individual but who knew nothing about the sale although his property got occupied. Third, land designated for future public use was sometimes sold and occupied. The legal framework recognized the landowners' right to sell their land as a whole or in small parts and did not hold them accountable for the consequences of such sales. The lack of coordination among such public agencies as the land registrars' offices, municipalities, and planning agencies, made dissemination of information difficult. Early monitoring of sales was impossible although problems could have been avoided, especially where public funds were available to purchase or service the land before settlement started.

Land dealers

Security of investments and the high returns attracted a wide variety of entrepreneurs to *hisseli tapu* markets, from small agents working on commission, to large landowners, to some of the best known developers in Istanbul. Selling rural land with joint title deeds incurred no responsibility on the seller. No time was lost in obtaining permits for subdivision procedures, and since these developers operated outside the legal framework, fr of the legal requirements to provide services to the subdivision, costs could be kept very low. In Bakirkoy district, a majority of land dealers only graded streets and set curbstones. The site development costs (including the raw land cost) were only a quarter of the revenues from sales. Given the high level of demand, sales could be completed in a short time, and land could be marketed in pieces small enough to match what the purchaser could afford.

The entrepreneurs' social and political ties determined their market conduct and their obligations to

A Hisseli tapu in Bakiröy district

their clients. In most settlements one or two major land dealers controlled most of the market and were often involved in local politics. Such local land dealers made donations for delivery of services to the area, which inevitably increased the land values. Outside land dealers often minimized their costs and completed sales quickly, then moved on to other areas. Often, subdividers had their clients sign standard sale forms at the public notary promising not to encroach on their neighbor's land and provided them with maps endorsed by the notary showing the exact location of their lot. These agreements generally did not obligate the seller in any way but only prevented the purchaser from locating elsewhere on the lot. Some entrepreneurs took advantage of their low-income clients, selling them only a few square inches of land and making them occupy a neighboring parcel without knowing that it was not their land, or selling the area designated for roads as a separate parcel.[10] In short, entrepreneurs brought land into the informal market, and while some did contribute to the delivery of services, they were not formally required to do so. Thus it became possible for sellers to pass on all the costs of development to their customers and to the public sector, who later shared the costs of servicing the land. Moreover, lack of any legal accountability on the seller, as well as the lack of information available to the low-income purchasers, enabled unscrupulous land dealers to take advantage of their clients' tenuous position.

Single or multi-unit owners

Owners of single or multiple housing units in *hisseli tapu* areas were often households with small savings, who could afford not only to purchase land but also to build on it.[11] They were willing to settle in an area without urban services. Although their purchase of a small share in a large tract of land was legal and endorsed at the land registrar's office, they still had to negotiate with the local government to build their house and to receive the basic services. Municipalities were powerless to prevent *hisseli tapu* sales but they were able to exert some control by distribution of temporary building permits. In this way they monitored development of subdivisions, and generated revenue for the municipality. The plot owners paid taxes, local government fees, and service delivery charges regularly, since these documents symbolized the legitimacy of their building. Once the settlement was formed and services were provided, prices increased significantly. This benefited not only the dwelling unit owners, but also the land owners. Holders of *hisseli tapu* land sometimes purchased more land than they needed, intending to sell later to raise the capital for reconstruction of their own building. As Kartal (1985)

indicates, purchasing excess land was wasteful because it facilitated speculation among the low-income groups themselves.

Purchasers felt it was important to locate near friends and kin. Besides providing help with construction, it was vital to maintain strong informal ties to make it possible to raise demands to the local government for recognition of the settlement or for delivery of urban services.[12] During the earlier stages of development near-by friends and relatives helped prevent or resolve conflicts with the land dealer, and kept an eye on each other's property to prevent encroachment by neighbors. Informal community organization, thus, was a more effective and affordable alternative than trying to seek one's rights through formal channels.

Renters

The increasing proportions of renters in *hisseli tapu* areas was an indicator of increasing land and housing prices in informal markets; renters comprised nearly half of the residents in *hisseli tapu* settlements.[13] They either shared or rented individual units. Tenancy agreements were informal, not based on formal contracts, allowing for mutually beneficial arrangements such as helping the landlord with the construction in return for lower rents, or counting rental payments towards the purchase of the unit. However, this informality also made renters more vulnerable to evictions.

Conclusion

I have discussed the government practice in Turkey between 1950 and 1980, and have shown that the granting of tenure was an insufficient measure to ease the access to housing by low-income groups. Prohibitive measures in *gecekondu* law proved ineffective to prevent speculation in *gecekondu* areas. The government's "hands off" policies toward *hisseli tapu* markets, too, facilitated rather than prevented speculation. Costs of unregulated development had to be borne mainly by the residents of these areas and by the public sector. Benefits went disproportionately to landowners and land dealers.

Two challenges continue to face planners today with regard to informal settlements in Istanbul: the need to upgrade existing settlements, and the need to regulate new low-income housing production. In both cases, given the limited government funds, planners have to come to terms with informal land and housing markets. First of all, it is necessary to increase the developers' accountability by requiring them to provide minimal services to their subdivisions, without making land development an unattractive field for investors. Second, it is necessary to monitor development in rapidly growing areas, through increased coordination between the local governments, planners, and land registrars' offices. Land registrars' offices have early and critical information about the volume and types of sales in their jurisdictions. Through prompt dissemination of information about the volume and types of sales in their jurisdictions, land registrars' offices can alert municipalities and planning agencies to give priority to provision of infrastructure and social services to such areas, and to regulate the activities of land dealers. Third, small credits should be made available to low-income households who do not have full titles to their land. This is necessary to encourage construction of sturdy structures and to discourage land speculation by low-income households.

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Notes

1. Informal settlements are low-income settlements formed through organized land invasions, gradual occupation of land by squatters, purchase of land in unauthorized subdivisions, or through customary arrangements for occupation of land. By informal land and housing markets, I refer to all commercial operations that, one way or another, do not fit the regulatory framework set up by the government. No duality is implied between informal and formal markets with regard to the characteristics and behavior of the agents involved.
2. Middle-income households in large cities are government employees, white collar workers and renters (Derviş and Robinson 1980). These households live in formal sector housing because of not only their income levels, but also their education and life styles. According to a 1973 survey, the average yearly disposable income of middle-income households in large cities ranged from 33,000 to 71,500 TL ($2290–$4970). The average income range of urban elites (capitalists and professionals) was between 106,000 and 21,1000 TL ($7390–$14,650), and of low income groups 16,000 to 26,500 TL ($1110–$1840) Nearly 20 percent of government employees, however, fell into the category of lowest income households according to a 1973 survey, with an average yearly disposable income of 12,000 TL ($830) or less (Derviş and Robinson 1980).
3. In the 1950s landowners used *hisseli tapu* to sell their land to squatters who already occupied it (Karahan 1984). The rigid subdivision requirements in the reconstruction law of 1956 and the changes in the cadastral law in 1959 made legal subdivisions unfeasible for low-income groups.
4. Of the 120,000 *gecekondus* in Istanbul, only 11,140 had received titles by 1968 (*Cumhuriyet*, September 16, 1968). The proportion remained the same until the 1980s. At the city level, only ten percent of the *gecekondus* on public land had received title deeds between 1946 and 1980 according to a former director of the Housing and *Gecekondu* Administration of Istanbul Municipality. The situation varied, however, from one settlement to another. (Personal communication, Erdogan Bey. Bakirkoy, Istanbul, November 4, 1982.)
5. According to A. Isvan, former mayor of Istanbul, local strong-

men have better information on title records and public projects than even the mayors. (*Milliyet*, May 6, 1978) Also see *Cumhuriyet*, (June 11, 1969, August 7, 1974, July 28, 1975, March 29, 1981) for similar reports about underground figures controlling squatting on public land on the Bosphorus.

6. The confrontations between the squatters and the government forces in the May First settlement in Umraniye were probably the most violent ones in Istanbul. A series of such confrontations resulted in the deaths of 20 people (*Cumhuriyet* July 26, 1973, September 3, 1976, July 15, 1976, September 3, 1976, July 15, 1979). For Alibeykoy, see *Cumhuriyet* September 7, 1978.
7. The controversial Item 42 of the reconstruction law made land readjustment possible in *hisseli tapu* areas, enabling the municipality to claim up to 25 percent of the land for road construction and services delivery. Legal and technical complications would arise from difficulties in bringing all shareowners together, either because of absentee ownership or the existence of shareholders without land (those whose land had been illegally occupied) and matching the current land use patterns with cadastral maps.
8. The examples in this section, unless indicated otherwise, are based on a newspaper survey (*Cumhuriyet*), and a research study conducted in Istanbul during 1982 and in the summer of 1984. This study involved interviews with staff from the Istanbul Metropolitan Planning Bureau, Istanbul Municipality Housing and *Gecekondu* Administration, Bank of Provinces, National Real Property Office, Land Office, and ten land registrars' offices in six of the ten districts of Istanbul, as well as a survey of 80 real estate agents in the same districts.
9. Government purchase of private land was based on the value of land in tax reports. Until 1982, tax reports were based on personal assessments of the market value of land, which owners kept artificially low to minimize their tax payments.
10. According to officials from land registrars' offices such activities were quite common, especially in the rapidly growing parts of the city. Newspapers carried reports of examples from Kucuk Cekmece, Bakirkoy, and the forest lands on the Bosphorus (*Cumhuriyet* September 26, 1972, November 28, 1975, March 5, 1979, March 29, 1981).
11. The discussion in this paper focuses on low-income *hisseli tapu* settlements. The middle classes also used the *hisseli tapu* mechanism to enable them to build second homes along the coast or to build denser developments than those allowed in other restricted areas. As Ketenci reports, "Buildings without permits are no longer *gecekondus*. Expensive construction takes place on *hisseli tapu* subdivisions" (*Cumhuriyet* July 4, 1974). Also see the reports on Camlica Hills and Kanlica (February 25, 1969, July 30, 1978, November 14, 1979, March 15, 1980). Some households, notably Turkish workers abroad, could afford to build apartment buildings, others could only build single dwellings, piecemeal over time, as long as 10 years.
12. *Hisseli tapu* residents' demonstrations for services delivery were less publicized than *gecekondu* demonstrations. Still, some local officials reported that petitions and small demonstrations for water and road pavement were common. (Also see *Cumhuriyet* July 13, 1968.)
13. Danielson and Keles (1984), Irmak (1979), Hart (1969), Bank of Provinces development plan reports for several smaller municipalities around Istanbul, and *Gunaydın* (June 8, 1979) all report 45 to 60 percent rentals in squatter and *hisseli tapu* settlements. Low-income tenants paid 45 to 61 percent of their wages for rent according to the *1978-79 Survey of Household Income and Consumption Patterns: Istanbul* (State Statistical Institute of Turkey).

References

Aksoyiu, Y. 1982. *Challenge to bureaucracy: The informal networks of urban squatters and communication with local authorities of Istanbul.* Ph.D. Thesis: University of California, Berkeley.

Amis, P. 1984. Squatters or tenants: The commercialization of unauthorized housing in Nairobi. *World Development* 12, 1: 87–96.

Angel, S. 1983. *Land for housing the poor*, S. Angel et al., eds., Bangkok: Craftsman Press.

Balamir, M. 1975. Kat Mülkiyeti ve Kentleşmemiz. *METU Journal of the Faculty of Architecture* 2: 295–318.

Carroll, A. 1980. *Private subdivisions and the market for residential lots in Bogota.* World Bank Working Paper No. 435. Washington: World Bank.

Castells, M. 1983. *The city and the grassroots.* Berkeley: University of California Press.

Connoly, P. 1982. Uncontrolled settlements and self-help: What kind of solution? The Mexico City case. In *Self-help housing: A critique*, edited by P. Ward. London: Mansell.

Cumhuriyet. Jan. 1, 1960–Dec. 31, 1982. National Survey.

Danielson, M. N., and R. Keles. 1985. *The politics of rapid urbanization.* New York: Holmes and Meier.

Derviş, K., and S. Robinson. 1980. The structure of income inequality in Turkey: 1950–73. In *The political economy of income inequality in Turkey*, edited by E. Özbudun and A. Ulusan. New York: Holmes and Meier.

Doebele, W. 1983. Concepts of urban land tenure. In *Urban land policy: Issues and opportunities*, edited by H. Dunkerley. New York: Oxford University Press.

Edwards, M. 1982. Cities of tenants: Renting among the urban poor in Latin America. In *Urbanization in contemporary Latin America*, A. Gilbert *et al*, eds. New York: John Wiley & Sons.

Gilbert, A., and P. Ward. 1982. Low-income housing and the state. In *Urbanization in contemporary Latin America*, edited by A. Gilbert et al. New York: John Wiley & Sons.

Gilbert, A., and P. Healey. 1985. *The political economy of land.* Vermont: Gower.

Hart, C. W. M. 1969. *Zeytinburnu Gecekondu Bölgesi.* İstanbul: Chamber of Commerce.

Heper, M. 1978. *Gecekondu policy in Turkey: An evaluation with a case study of Rumelihisarüstü squatter area in İstanbul.* Istanbul: Bogaziçi University Publications, No. 146.

Karahan, F. 1984. Hisseli Taşınmaz Malları ve Kentleşmeye Olumsuz Etkileri. İstanbul: DMMA,--HKF, Mimeograph.

Karpat, K. 1976. *The gecekondu: Rural migration and urbanization.* Cambridge: Cambridge University Press.

Kartal, S. K. 1983. *Ekonomik ve Sosyal Yönleri ile Türkiye'de Kentleşme.* Ankara: Yurt.

Kurucu, T. 1964. *Zeytinburnu Gecekondularının Kuruluşu ve Usta Teşkilatları.* Diploma Thesis: Istanbul University, Dept. of Social Anthropology.

Payne, G. K. 1983. Self-help housing: A critique of the *gecekondus* of Ankara. In *Self-help housing: A critique*, edited by P. Ward. London: Mansell.

Sencer, Y. 1979. *Türkiye'de Kentleşme.* Ankara: Kültür Bakanlığı.

Şenyapılı, T. 1986. On physical aspects of squatters in Turkey. *METU Journal of Faculty of Architecture* 2: 143–65.

Tekeli, İ. 1982. Türkiye'de Konut Sunumunun Davranışsal Nitelikleri ve Konut Kesiminde Bunalım. In *Konut 81.* Ankara: Kent Koop.

Vernez, G. 1973. Bogota's pirate settlements: An opportunity for metropolitan development. Doctoral Dissertation: University of California, Berkeley.

Ward, P. 1983. Informal housing: Conventional wisdoms reappraised. *Built Environment*, 8, 2: 85–94.

China's Current Housing Issues and Policies

Joochul Kim

Since the founding of the People's Republic in 1949, China has experienced severe shortages of housing space, deteriorating housing conditions, and overcrowding. With the open-door policies of the present government, however, China has invested more funds in housing and is trying to improve the general situation. This paper examines China's post-1949 housing problems and explains institutional characteristics of ownership, financing strategies, and residential distribution in the post-Mao era.

Since the founding of the People's Republic in 1949, China has experienced tremendous population growth. The 1982 Chinese national census estimated the total population at 1.04 billion, a substantial increase from the 542 million in 1949. This represented 22 percent of the world's 1982 population (Tian 1984). The rapid population growth is the main reason behind the housing shortage that faces China today. The problem was exacerbated in the early years of the People's Republic when the Chinese government treated housing as an item of consumption and reasoned that it had a less legitimate claim on the country's scarce resources than construction of factories or office buildings (Butterfield 1982). Industrial development continued to receive heavy priority between 1949 and 1976, and shortages of housing space, deteriorating housing conditions, and overcrowding became more and more acute.

Since 1978, however, the government has steadily increased its investment in housing, spending some 81 billion yuan ($32.4 billion) since 1979.[1] In 1982 the total national budget was about 110 billion yuan ($44 billion)—and approximately one quarter of all state funds were invested in capital construction (Kirkby 1985). Yet even with this huge increase housing is still not available for more than a small proportion of the urban population. More than 370 million square meters (3.3 billion square feet) of housing have been completed in urban China since 1979, providing new housing for approximately 60 million families (*China Reconstructs* 1985). But it has been estimated that about 35 percent of all urban families in China are faced with housing problems and five to six percent have no proper housing at all (*China Reconstructs* 1985; Butterfield 1982). Local government authorities in most cities still consider the alleviation of housing shortages and overcrowding to be one of their most critical problems.

Little comprehensive reliable information on housing has come out of China in recent years, and as a result the Western world knows little about issues such as the institutional characteristics of ownership, financing strategies, or residential distribution. In this paper I examine China's post-1949 housing problems and explain how new housing programs of the post-Mao period are affecting the situation there.[2]

Modes of ownership

For the most part, the state regulates home ownership in China. Ownership falls into four categories: private individual, landlord, work unit, and local government.

Private ownership. The leadership since the founding of the People's Republic has always allowed some private home ownership, although during the Cultural Revolution (1966–1976) parts of most privately-owned homes were confiscated and converted to a form of public housing. In recent years, though, the government has tried to return these homes to their previous owners. We do not know exactly what proportion of housing today is owner-occupied, but some local government officials estimate that it runs between 10 and 23 percent in urban areas. Shanghai, for example, boasts the highest percentage of privately-owned

Kim is an associate professor of planning at Arizona State University, where he teaches courses in planning theory, methods, and urban public finance. He is currently on leave as a Fulbright Scholar in Korea; his research interests include housing and reforms in China and grassroots movement and high-tech development in Korea.

homes in China, approximately 23 percent (personal communications, local officials in Shanghai, 1985).

Landlords. A few individuals have always had space to rent—more so in rural areas than urban—but under the current urban reforms more city people than ever before have become landlords.[3] The government may allow a successful entrepreneur to construct an apartment building, perhaps of six to eight stories, with the first floor reserved for businesses. Rents in these buildings may be minimally higher than in municipally-owned housing, but they remain generally low. The landlord is free to choose tenants without any bureaucratic controls.[4]

Work units (*danwei*). The danwei means much more to the workers than merely a place to punch a time clock and earn wages. It plays a central role in the lives of those employed there, as much a social system as an economic one (Whyte and Parish 1984; Butterfield 1982).

Danweis differ in size, resources, and administrative levels. To varying degrees, they run nurseries, clinics, canteens, and recreational facilities. They convene employees to hear government decrees and for political study. Often they approve or mediate marriages and divorces, and organize birth control programs. They may employ family members of employees in subsidiary small workshops or vegetable farms (Whyte and Parish 1984). They also provide guidelines for the distribution of available housing stocks and decide who occupies the housing under their control.

Most people in urban China belong to some form of work unit; examples include bureaus, universities, schools, factories, large department stores, mass media, institutes, and others. Thus, one's ability to find adequate housing may well depend upon the *danwei*'s size and its available resources. If the *danwei* has sufficient resources, it can afford to build enough housing units for its members. However, some work units—notably elementary and secondary schools, small factories, and relatively small stores—often cannot afford to provide housing for their members. In this sense, the *danwei* system may contribute to an inequality in housing availability.

When a *danwei* constructs new housing, families are assigned to units on the basis of the following factors (in order of importance): occupational rank; years of work experience or seniority; employment of both husband and wife at the same *danwei*; number, ages, and sexes of children; the presence of elderly parents; lack of private kitchen; and the current amount of living space.[5] Severe limits of new housing stock and long waiting periods for the next available unit create a situation where families of three generations commonly share a two- or three-room apartment or house. The search for housing becomes a major concern of the entire family when children are about to marry. Unless the *danwei* has additional housing units available, the young couple usually moves in with the husband's family.

Local governments. Finally, local governments may construct and own apartments and other types of housing units. About 15 to 20 percent of urban housing falls into this category. In general, such housing units serve people who are not affiliated with a work unit or whose *danwei* cannot provide its own housing (Ma and Hanten 1981). While rents are low in government-owned units, quality also seems lower than in other types of housing.

Living space

Prior to 1952, the average floor space was about 4.5 square meters (40.5 square feet) per person in urban China. (The basic measure of housing, per capita floor space, generally excludes corridor, stairways, kitchens, and toilets [Kirkby 1985]). As the leadership decreased its emphasis on housing investment, the amount of space per person gradually decreased as well, to an average of 3.6 square meters (32.4 square feet) in the major cities—slightly less than the space occupied by a king-sized bed—per person (Whyte and Parish 1984). In rural China, the situation is not as bleak. A typical new rural unit consists of two bedrooms, a separate kitchen, a living room, and an entrance hall; the living space is about 8 to 10 square meters, or 72 to 90 square feet (see Figure 1).

The situation for urban dwellers has changed in recent years. The government now treats housing reform as one of the most important elements in raising the standard of living and has made housing construction a major priority, yet overcrowding and acute housing shortages remain. Much of the older housing—especially that built before 1949—is deteriorated, and that compounds the problem.

Table 1 compares China's urban housing conditions with those in certain other developing countries. As can be seen, China fares better in most categories than some of the other countries in that density is slightly less in China. Nevertheless, overcrowding in urban areas of China is serious, and although even the smallest new apartments contain private kitchens and baths, most existing units do not. A typical family of three or four occupies a one-room unit and shares a common kitchen and toilet with five to eight other families. In their one room, family members eat, entertain, and conduct other daily business, such as studying, reading, or sleeping. When the family expects guests they negotiate with neighbors for extra kitchen time.

Job rank or seniority, rather than social class, usually dictates whether or not an individual qualifies for additional space. A university professor or an assistant

Figure 1. New homes in rural Manchuria. Note the television antenna; the new homes have color televisions.

director of a factory may qualify for a two-room apartment with private kitchen and toilet. A bureau director or a university president is entitled to a three-to-five-room apartment with a private kitchen and toilet.[6] However, if the *danwei* does not have enough housing units, such high-ranking officials may have to accept housing arrangements without private facilities.

Costs of new construction and rehabilitation

Housing officials in Harbin and Shanghai told me during a 1985 field trip that the cost of new housing construction is approximately 300 yuan per square meter ($120 for just over 9 square feet). Building materials usually account for most of the costs, while labor and machinery together typically represent less than 10 percent.

In theory Chinese authorities widely accept the idea of urban redevelopment but in practice the high cost (about 900 yuan or $360 per square meter) seems to keep them from carrying it out with any great intensity. The high cost stems from the fact that, if the redevelopment area involves many privately owned homes, the government has to buy the property involved and to provide the owners with new homes and more living space than before.

Most local authorities rank existing housing structures on a scale with five categories, in descending order.[7] Generally they target old homes in categories four and five for replacement, and homes in categories two and three for rehabilitation, temporarily relocating the occupants. Reusing existing building materials where possible reduces the total cost substantially, and the government encourages local housing authorities to seriously consider that option. In Shanghai, for example, renovating existing buildings costs only about 90 yuan ($36) per square meter (Technical Support Services, Inc. 1984).

Financing housing

As the government encourages the construction of new housing and as work units increase funds for building, more and more new units become available for sale to individuals. Only a minority can afford to

Table 1. Urban housing conditions in China and other selected countries

	China	Other Developing Countries[a]	Range
Size and Density			
1. Average rooms per dwelling	2.5	2.9	2.0–3.3
2. Dwellings with only one room	18%	31%	9–52%
3. Persons per room	1.6	2.0	1.4–2.8
4a. Dwellings with 3 or more persons per room	24%	27%	16–50%
b. Dwellings with less than 1 person per room	18%	31%	9–52%
5. Persons per household	4.4	5.3	4.0–6.5
Amenities			
6. Piped water inside house	62%	43%	4–88%
7. Piped water inside house or within 100 meters	79%	67%	23–94%
8. Electric lighting	99%	64%	4–96%
9. Kitchen	72/93%[b]	79%	61–100%
10. Toilets	18/29%[b]	88%	67–99%
11. Fixed bath or shower	23%	40%	4–85%
Ownership			
12. Owner-occupied	42%	56%	47–74%

Source: Whyte and Parish (1984)

a. Sixteen countries with a per capita gross national product in 1976 U.S. dollars of $130 to $600, which brackets China's 1976 figure of $200–300.

b. The percentage with a private facility is shown to the left of the slash. The percentage including those sharing facilities with other households in the same building is to the right.

buy housing in urban areas, but the *danwei* and the local government may share the financing, in the following way (using the 1985 fair market value for a two-bedroom apartment with a private kitchen and bathroom, which ranged from 40,000 to 50,000 yuan, or $16,000 to $20,000): Since the average urban worker typically earns between 700 and 1000 yuan ($280 to $400) a year, paying cash for an apartment would clearly be impossible in most cases. However, the current leadership sees private participation as one of many ways to help alleviate the present housing crisis and has therefore introduced a financial program in most cities that requires the family to make a down payment of only one-third—approximately 15,000 yuan, or about $6000. The *danwei* and the local authority equally finance the remainder, establishing a sort of three-way equity partnership. The family, if it chooses, may sell the unit to any available buyer, keeping one-third of the profits.[8] The *danwei* and the local authority invest their shares of such profits in new housing projects. In principle, the ultimate ownership of the unit still lies with the government. Therefore, a family does not make mortgage payments on the two-thirds balance: this is the responsibility of the *danwei* and the government.

Although this option seems most attractive, most families cannot take advantage of it because their savings do not even cover the required one-third of the purchase price (the national average annual per capita income was about 320 yuan or $130 in 1982). Also, the subsidized low rents weaken incentives for ownership.

Why, then, one might ask, does the government encourage families to buy their own housing? It appears that the government wants to generate more revenue in this way to accelerate construction of new housing units. The leadership believes this program is consistent with the direction of the urban reforms and sees it as a vital element in accumulating much-needed public funds for housing projects.

Thus far, the families who buy new units under the home-financing program tend to be business people who have benefited from the current urban reforms. They often purchase units not for their own use but for their children, particularly newlyweds who otherwise may have to wait more than ten years for their own apartment.

Still more recently local authorities appealing to the same population have built similar apartments and sold them. A two-room unit with private kitchen and toilet sells for about 50,000 yuan, or about $20,000 (local housing officials in Harbin).

Spatial distribution

The evolving pattern of urban spatial distribution is very mixed. In many older cities, influenced by the Soviet style development of the 1950s and 1960s, the *danweis* located heavy industries close to residential areas (Figure 2). Today China recognizes the health

Figure 2. Following Soviet influence of the 1950s, heavy industry and residential areas coexisted side by side in much of China. This picture is from Harbin. The situation is changing today as new industries are more often located away from residential areas.

hazards of such an environment and many municipalities advocate separating industrial sections from residential areas. Shanghai, for example, is exploring the possibility of relocating many of its polluting industries into surrounding new towns where the separation can be strictly enforced.

Urban China stresses the development of the self-contained neighborhood, in part because officials believe that workers should not spend more than 30 minutes commuting, either by bus or by bicycle (Ma and Hanten 1981). Since the *danwei* constructs most of the housing and provides stores and other necessary services for its workers, it is quite common for small-scale, self-contained communities to be created around the *danwei*, in theory minimizing the need to commute to work. However, in practice, most people do commute for longer times. Unless both husband and wife work in the same *danwei*, it is inevitable that one of them must travel. Besides which, most families live in housing units provided by the father's *danwei*, and have to travel to their own assigned workplaces. The result is that crowded buses, millions of bicycles, and automobiles (most of which the work units and local authorities own) crowd the roads during rush hours (Figure 3).

The urban buildings themselves tend to be rather uniform in China. With an ever-expanding population (the density for the core region in Shanghai reached approximately 41,000 per square kilometer in Shanghai—about 120,000 per square mile) and limited land available for building in most cities, planners recommend six- to eight-story apartment blocks for residential use and 12 stories or higher for hotels and office buildings (Figure 4). Although the system does, of course, make maximum use of limited space, most of the residential areas seem to lack open spaces for leisure activities or playgrounds for children.

Because neighborhoods are often developed around the *danwei*, areas are not segregated by socioeconomic status. A factory's party secretary, an engineer, and a canteen cook may well live side by side in the same building (Whyte and Parish 1984). In addition, most cities in China have developed a residential stability that is unusual for cities anywhere in the world (Whyte and Parish 1984) in terms of size and mobility. This has come about because the government instituted strict population control between urban and rural areas and the *houkou* system (the household registration system established in 1958) to control migration into urban areas.[9] In a recent survey (Whyte and Parish 1984), only ten percent of the respondents changed residences in five years and the average time in one house was approximately 18 years.

Conclusions

Since 1978, China has reallocated national resources to housing on an unprecedented scale. Nonetheless, most families still live in one-room housing units with

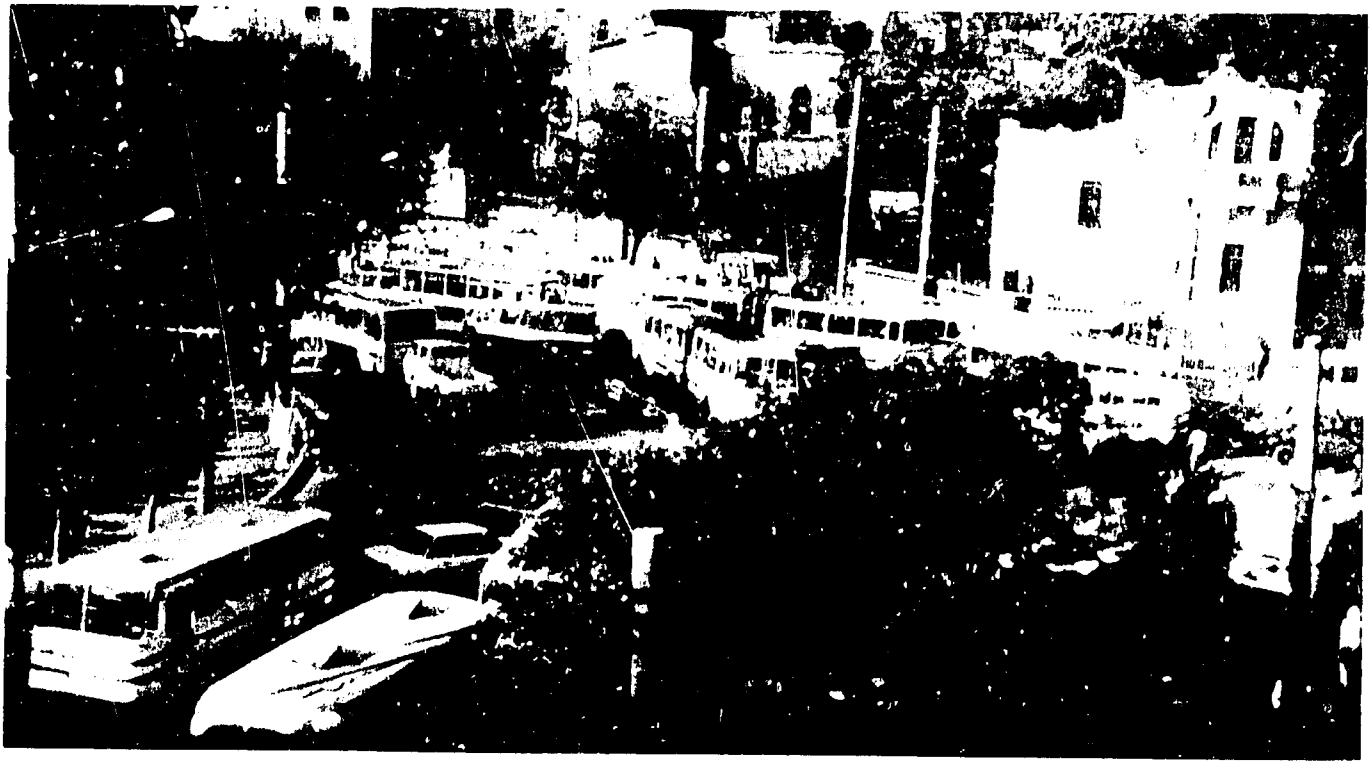

Figure 3. Traffic congestion in Harbin, at about 6 a.m. By about 6:30–6:45 a.m., the congestion will be made much worse by thousands of bicyclists commuting to work.

Figure 4. This is one of the better apartment buildings in urban China, in Harbin. These new units usually have two bedrooms, private kitchen, and western-style bathroom.

shared kitchens and toilets. The government is spending more and more money on construction of new housing and rehabilitation of existing units; the extent of this commitment still needs to be clarified before they can make plans for future growth.

Planners expect the present forms of home ownership to continue, giving most work units (*danweis*) a powerful role in constructing and distributing housing stock; the government will also retain the recently-instituted open-market housing experiment. However, unless the government reduces rent subsidies to encourage ownership of housing, most families may not have strong incentives for buying homes. Some leaders also question whether encouraging private home ownership will eventually alter the existing social structure and contribute to social inequalities.

The *danwei*, central to the daily lives of most workers, created residential stability and close personal relationships, and minimized social isolation by encouraging people to work closer to home (Whyte and Parish 1984). However, today many people do not work and live in the same self-contained community, often because of the very limited urban space for housing construction; and the inevitable separation between work place and residence tends to diminish the cohesiveness of the *danwei*. Finally, the separation between work place and residence clearly contributes to the problems of urban commuting and traffic congestion, and the situation will no doubt worsen.

Because of the urban reform policies instituted since 1978, China continues to move away from the very tight bureaucratic and centralized controls of the past to more loosely structured organizational systems. Striving for better housing and more flexible housing policies must be part of the national development policy for the 1990s and beyond.

Author's note

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Notes

1. For this study I assumed an exchange rate of 2.5 yuan to $1.00.
2. Many of my observations in this paper are based on two field trips, in 1984 and 1985, during which I visited Guangzhou, Shanghai, Beijing, Shenyang, Harbin, Jilin, and Yanbian, along with a number of smaller towns in Manchuria. Very large cities suffered more serious housing problems, while rural housing seems to have fared somewhat better. Different regions have different types of housing problems. I did not visit much of Northwest China, a very sparsely populated region.
3. The urban reform policy involves expanding private enterprise, loosening planning and price controls, giving material incentives to workers, replacing state investment with credit finance, and allowing market forces to replace state controls.
4. A family may pay 6 to 10 yuan for other housing, 10 to 15 yuan for this kind of privately owned unit.
5. This observation is based on my conversations with local officials and private individuals in 1985. The housing assignment generally comes from the man's *danwei*, while the woman's *danwei* provides child care facilities.
6. Sometimes high ranking officials do receive private telephones, a rare privilege in China.
7. The standards used seem to include floor space, building structures (interior as well as exterior), age, plumbing facilities, and the like.
8. In general the family is responsible for maintenance costs until the unit is sold.
9. For a detailed description of the houkou system, see Whyte and Parish (1984), Butterfield (1982), and Kim (1986).

References

Banister, J. 1984. Population policy and trends in China, 1978–83. *China Quarterly* 100: 717–41.

Barnett, A. D., and R. N. Clough, eds. 1986. *Modernizing China: Post-Mao reform and development*. Boulder, CO: Westview Press.

Beijing Review. 1982. Economic readjustment and reform. Beijing: Foreign Language Printing House.

———. 1985. Economic reform brings better life. July 22: 15–22. Beijing: Foreign Language Printing House.

———. 1986. February 10, 1986.

Butterfield, Fox. 1982. *China: Alive in the bitter sea*. New York: Times Books.

Cell, C.P. 1980. The urban-rural contradiction in the Maoist era: The pattern of deurbanization in China. *Comparative Urban Research*. 7, 3: 48–69.

China Reconstructs. 1985. Housing in China today. Beijing: Foreign Language Printing House.

———. 1986. Vol. 25, No. 1, January 1986.

Dernberger, R. F. 1984. China's new economic development: Problems and prospects. In *China: The 80s era*, edited by G. Norton and B. A. Lalor. Boulder, CO: Westview Press.

Far Eastern Economic Review. 1984. China goes to market. December 13: 66–79.

Farina, M. B. 1980. Urbanization, deurbanization and class struggle in China 1949–79. *International Journal of Urban and Regional Research* 4, 4: 485–502.

Gold, T. B. 1985. China's private entrepreneurs. *China Business Review* November/December: 46–50.

Goldstein, S., and A. Goldstein. 1985. *Population mobility in the People's Republic of China.* Working Paper No. 95. Honolulu: East-West Population Institute, East-West Center.

Goldstein, S. M., ed. 1985. *China Briefing 1984.* Boulder, CO: Westview Press.

Kim, J. 1986. China's current reforms, mobile population and housing. Paper presented to the 1986 APA National Planning Conference, Los Angeles, California, April 1986.

Kirkby, R. J. R. 1985. *Urbanization in China: Town and country in a developing economy 1949–2000 A.D.* Kent, England: Croom Helm Ltd.

Klatt, W. 1983. The staff of life: Living standards in China, 1977–81. *China Quarterly* 93: 17–50.

Kwok, R. Y. 1982. The role of small cities in Chinese urban development. *International Journal of Urban and Regional Research* 6, 4: 549–65.

Ma, L. J. C., and E. W. Hanten, eds. 1981. *Urban development in modern China.* Boulder, CO: Westview Press.

Paine, S. 1981. Spatial aspects of Chinese development: Issues, outcomes and policies 1949–79. *Journal of Development Studies* 17, 2: 132–95.

Perkins, D. H. 1986. The prospects for China's economic reforms. In *Modernizing China: Post-Mao reform and development,* edited by A. D. Barnett and R. N. Clough. Boulder, CO: Westview Press.

Rao, H. 1985. The economic significance of urban spatial structures. *Social Sciences in China.* Autumn: 69–80.

Solinger, D. J. 1985. Economic reform. In *China briefing 1984,* edited by S. M. Goldstein. Boulder, CO: Westview Press.

Technical Support Services, Inc. 1984. Housing and urban development in China. Washington, D.C.: U.S. Agency for International Development. Office of Housing and Urban Development.

Tian, X. 1984. On changes in the age composition of the population and policy options for population planning. *Social Sciences in China.* Autumn: 191–206.

Whyte, M. K. 1983. Town and country in contemporary China. *Comparative Urban Research* 10, 1: 9–20.

———. 1985. Culture. In *China Breifing 1984,* edited by S. M. Goldstein. Boulder, CO: Westview Press.

———. and W. Parish, eds. 1984. *Urban life in contemporary China.* Chicago: University of Chicago Press.

Wong, C. 1985. Economic performance. In *China Briefing 1984,* edited by S. M. Goldstein. Boulder, CO: Westview Press.

Xu, Dixin, et al. 1982. *China's search for economic growth: The Chinese economy since 1949.* Beijing: New World Press.

Zheng, L., et al. 1981. *China's population: Problems and prospects.* Beijing: New World Press.

Planner's Notebook

The Housing Needs Assessment Model

Raymond J. Struyk

This paper outlines a comparatively recently developed method for preparing national housing needs estimates in developing countries. The method is distinguished from other approaches to making such estimates in that (a) in addition to computing the number of new units and upgraded units required over the plan period to satisfy various sources of housing need, it also computes the level of investment in the housing sector necessary to carry out this program, given a definition of applicable building standards by the analyst; and, (b) the calculations are done on a personal computer, permitting more complex computations and sensitivity analysis to be undertaken readily. The assumptions embodied in these calculations and the outputs produced receive special attention.

The quality of housing available to most households is a major problem that every developing nation is being forced to address. Nation after nation tries to find approaches that will yield substantial gains within a few years. Often, however, governments expend these efforts without a complete and realistic definition of the task at hand. This can and does lead to putative solutions, which are inappropriate, and sometimes to extremely costly "false starts." A rational planning process, on the other hand, begins with a thorough assessment of current housing needs and a projection of the needs likely to materialize over a reasonable planning horizon of ten to twenty years. Such an assessment provides an essential orientation; with needs clearly defined, a sound strategy to meet them can be formulated and implemented.

This paper describes a microcomputer-assisted method for developing estimates of housing needs. Researchers at the Urban Institute and Robert R. Nathan Associates developed the Housing Needs Assessment Methodology early in 1984 under the sponsorship of U.S. AID's Office of Housing and Urban Programs, as part of the United States contribution to the International Year of Shelter for the Homeless. By early 1986 the method had been applied to at least 15 countries (see Table 1). Hence, it has attained substantial acceptance as a planning tool.

The methodology produces two types of results: (a) counts of the number of new and upgraded dwelling units of acceptable quality necessary to satisfy various sources of housing needs; and, (b) estimates of the amount of investment necessary to produce this volume of units. Traditional housing needs assessments produce the first type of result and in this aspect the model is a direct descendent of the well-known U.N. component method. But the second type is more innovative and of great interest to policy makers. Since the methodology is programmed on a microcomputer, most of the calculations are routinized and performed quickly and accurately. Sensitivity analysis thus can be easily performed, either to explore the effects on output of different values of input data when there is uncertainty about their exact values, or to do actual policy simulations.

Because of space limitations and the availability of substantial documentation about the method, I take a somewhat eclectic approach in this presentation. The first section presents an overview of the method. The second section gives special attention to the results, and the third section discusses several key assumptions that are embodied in the computer model calculations. The paper closes with a discussion of how the method has been used in the policy process. An appendix provides notes on the types of computer on which the model operates and on how to obtain more detailed documentation of the method.

Struyk is director of the Center for International Activities at The Urban Institute. He holds a doctorate in economics from Washington University. He has worked extensively in developing nations and has published widely on the economics of housing. His most recent books are U.S.-West German Housing Markets *(edited with K. Stahl), and* Housing Finance and Housing Quality in Korea and the Philippines *(with M. Turner).*

Table 1. Countries to which the housing needs assessment method has been applied*

Barbados	Jordan
Botswana	Kenya
Colombia	Panama
Costa Rica	Peru
El Salvador	Sri Lanka
Ecuador	Turkey
Honduras	Zimbabwe
Jamaica	

* Through spring 1986

Overview

The computer model and its data structures have the following characteristics:

- The computer model is essentially an accounting model as opposed to a structural equations or other econometric model. It does, however, embody some behavioral assumptions, highlighted in the third section.
- The analyst defines a "plan" that governs the rate at which housing deficits present at the start of the period can be eliminated over the planning period. The deficits include units failing the minimum standards, which must be replaced, and those that can be economically upgraded; households living in overcrowded conditions are also included in the deficit. Additional sources of housing needs to be met annually include newly-forming households and replacements for units leaving the housing stock.
- The model normally employs a 20-year planning period. Results are projected for each fifth year in the period. These results are for that year only (not cumulative five year totals); so one sees the requirements for the number of units needed in that year and the related investment requirements. The analyst can choose to eliminate base-year housing deficits over a shorter or longer period: the 20 years is simply the time dimension built into the model, but it can be adjusted.
- The planner can also run the model for a five-year planning period, with suitable adjustments to the data inputs. Analyzing this shorter period, within the 20-year context, has proven especially useful in preparing program documents such as five-year plans.
- Several disaggregations of data in the model are important to understanding its capabilities:

—A nation can be divided into as many as three housing sectors. The typical application used the breakdown into major metropolitan areas–other urban areas–rural areas. But in Sri Lanka it was urban–rural–estate sector; and some countries (e.g., Barbados) used only an urban-rural distinction.

—As part of investment calculations, the model determines the value of housing that households can afford, i.e., effective demand, based on their incomes, the proportion of their incomes available for housing investment, and the terms used to capitalize their investment. We base these affordability calculations on income quintiles for each geographic sector.

—The model uses input data on the income distribution and on the average income by housing sector, along with anticipated real growth in gross domestic product (GDP) to determine average household incomes by income quintile and sector for each year.

—In determining the quality of housing—both the structure and the associated infrastructure—that households can afford, the model includes three building standards for each geographic area: the minimum quality upgraded unit; the minimum quality new unit; and the low cost market-produced full unit. Although each of these standards is based on a physical description of the unit, the input for the model is simply the cost of the solution.

- Those households who cannot afford a low-cost market-produced unit form the *target group.*
- Based on effective demand (affordability) and the building standards, the model computes total housing investment necessary to meet the housing needs by sector and divides it between what households can afford by themselves and the subsidy needed to permit target group households to occupy minimum quality units.

We can now give a rough outline of the model's calculations. The major determinants of projected physical needs for shelter include future population growth, household formation trends, and adequacy of the existing housing stock to meet the needs of the current population. We develop the estimates and projections through modules 1 and 2 of the model (see Figure 1). Together, these determine the scale of the housing program to be analyzed through subsequent calculations.

The affordability of alternative housing packages is determined by current and projected incomes of the various sectors of the population and by the costs of the alternatives. Modules 3, 4, 5, and 6 of the model consider these elements of a housing needs assessment in the following manner:

- Module 3 projects household incomes for subsectors of the population by income distribution subgroupings.
- Module 4 calculates housing affordability for subsectors of the population based on household incomes, housing expenditure patterns, and terms of housing finance.
- Module 5 specifies the current and future costs

of alternative shelter solutions defined on the basis of the dwelling standards established by planners.
- Module 6 classifies all households according to the housing standards they can afford.

On the basis of total shelter needs and the housing standards that are affordable by various segments of the population, modules 7 and 8 are then used to:

- Determine national housing investment requirements;
- Identify segments of the population that—on the basis of their inability to afford currently available, minimum standard, formal-sector housing—make up the target group for housing programs; and
- Estimate the level of direct subsidy, if any, that would be required to bring all housing up to the chosen standard.

As detailed further below, the information provided through these last two modules enables planners to evaluate the implications of alternative housing programs in relation to macro-level projections of investment and savings, public sector expenditures, formal sector loan volume, and other indicators.

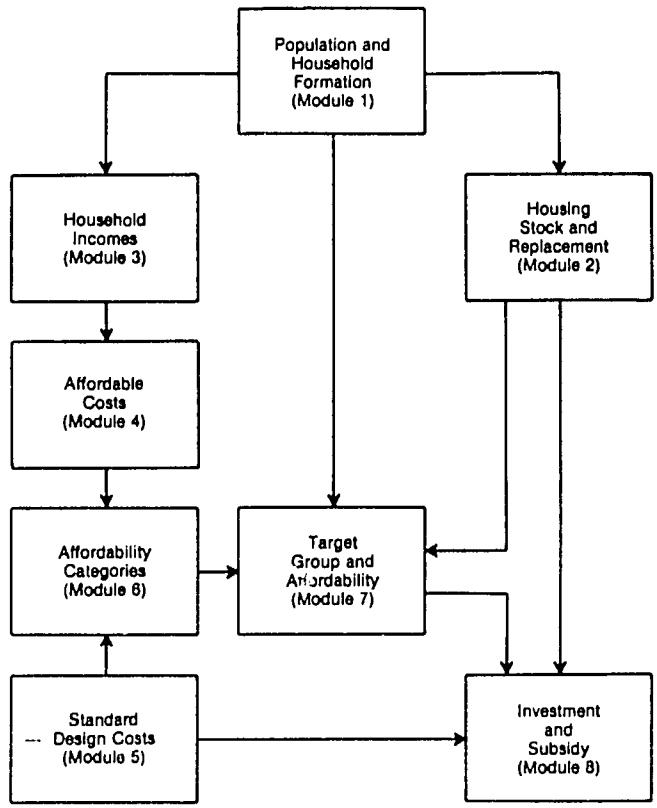

Figure 1. Main components of the housing needs assessment model.

Data inputs

Space limitations do not allow an extended discussion of the data inputs. However, it may be worthwhile to note which inputs are especially critical to obtaining good quality projections. Population and household size projections and the quality distribution of the base-year housing stock provide the key to understanding variables affecting the number of units needed. For the affordability and investment analysis, we need to grasp the inputs for base-year household income distribution and average income, the "mortgage terms" faced by households in different income groups, and the current and future cost of various housing solutions. The documents described in the appendix provide a full listing of input data required and notes on how to assemble them. Obviously, one needs to take maximum care in assembling the values of these inputs to obtain useful projections.

Results of the computations

I focus here on the two primary outputs of the calculations: the number of newly constructed and upgraded units required over the plan period and the corresponding levels of investment. I use the results from the application of the model to Sri Lanka (Manson and Struyk 1984) for this illustration.

Units required. Table 2 is an output table reporting physical housing needs for urban areas in Sri Lanka. The last two rows of figures contain the "bottom line" of the computations showing (in thousands) the number of new dwellings required at each fifth year in the plan period and the total number of acceptable units required (new plus upgraded units).

Some orientation for reading the rest of this table may be in order: For the base year of 1983 I present only data on the housing stock. Except for the number of overcrowded units, which the model calculates internally, all of these stock figures are input data that the analyst supplies. The figures for 1988 through 2003 are outputs; each column presents data only for the year at the head of the column. The model deals with five sources of housing needs to obtain the total figures. The most lucid way to explain these is to proceed through the list of entries. Note that the percents in each case relate to the numbers for 1983.

- *Acceptable construction and replacements.* These are losses from the stock of acceptable units due to depreciation and other causes, such as natural disasters. In this case the analyst estimated that such withdrawals were equivalent to about 2 percent of the stock. So in 1988, 4,690 new units (213,000 × .022) are needed for replacements.[1]
- *Replacing nonupgradable units.* Some of the base-year housing stock is too deficient to warrant

Table 2. Sri Lanka base case: Housing stock and housing needs, urban areas*

Metropolitan area	1983	1988	1993	1998	2003
Dwelling units by construction standard					
Acceptable construction	213.00	376.26	541.22	704.38	864.06
(annual planned replacement)	0.00	4.69	8.28	11.91	15.50
Nonupgradable construction	48.00	36.00	24.00	12.00	0.00
(annual planned replacement)	0.00	2.40	2.40	2.40	2.40
Upgradable construction	267.00	200.50	134.00	67.50	1.00
(planned annual upgrading)	0.00	13.30	13.30	13.30	13.30
Total dwelling units	528.00	612.76	699.22	783.88	865.06
Total overcrowded units	76.62	57.62	38.62	19.62	0.62
Planned annual construction to relieve overcrowding	0.00	3.80	3.80	3.80	3.80
New households/year	0.00	13.15	13.49	13.13	12.43
Construction new units/year	0.00	24.04	27.97	31.24	34.13
Total construction/year	0.00	37.34	41.27	44.54	47.43

* In thousands.
Notes: 1983 is the base year; other years are projections.
The values for 1988 and later are for that year. They are *not* cumulative five year totals.

upgrading and must be replaced. The analyst determines, as part of the overall "plan," the rate at which these units will be replaced; in this case the model assumed that the annual rate would be 5 percent, or 2,400 replacement units each year (48,000 × .05).

- *Upgrading existing units.* In Sri Lanka, as in many countries, a large share of the stock that is unacceptable in the base year can be made acceptable by improving the unit and the infrastructure services provided to it. Again the analyst determines the rate at which the backlog is reduced; here it is 5 percent per year, so in 1988 some 13,300 units are scheduled for upgrading (267,000 × .05).
- *Overcrowding.* To relieve doubling-up present in the base year, new units are scheduled for development. The plan employed here eliminated overcrowding at a rate of 5 percent per year, equivalent to 3,800 units (76,620 × .05).
- *New households.* The model assumes that every new household requires an additional dwelling unit. (The number of new households in each sector is computed earlier.)

In summary, two key elements determine the level of housing needs in each year: (a) the number of newly-forming households, depreciation of acceptable units, and the extent of initial deficits; and (b) the *plan developed by the analyst* for dealing with the deficits. The deficits can be scheduled to be eliminated in less than 20 years or not at all, depending on the circumstances in the country. Sri Lanka, for example would require some 24,040 new units in 1988 to meet the needs of new households, to relieve overcrowding, and to replace obsolete and nonupgradable units. In addition, some 13,300 units would need to be upgraded. Hence, the analysis "schedules" a total of 37,340 units for some sort of activity in 1988. All of the model's calculations assume that the plan is accomplished each year.

Investment. Table 3 reports the investment required to carry out the program of housing construction. The total housing investment figure at the bottom of the table represents the total cost required to meet the housing needs as specified in the plan. It includes the investments made by the "scheduled" households in the target and the nontarget groups. For the target group, who cannot afford the minimum solutions currently being privately marketed, it also includes the subsidy necessary for them to obtain an acceptable unit. The total investment is sensitive to the building design assumptions and, therefore, to the costs for the

Table 3. Sri Lanka base case: Housing investment in urban areas*

Metropolitan area	1988	1993	1998	2003
Nontarget group investment	596.82	844.64	1138.59	1910.17
Target group investment	783.50	1010.97	1285.76	1014.94
Subsidy required	214.95	255.27	288.83	332.68
Total housing investment	1595.27	2110.88	2713.19	3257.79

* In millions of rupees.
Notes: Target group is defined as those not able to afford a low cost unit being sold in the market.
Target group investment is all the housing investment financed by the group's own resources. Total housing investment for the target group includes both their investment and the subsidies.

various alternatives.[2] The size of the target group is especially sensitive to the building standards employed.

Total housing needs—that is, the sum of households or units scheduled for activity—are divided between the target and nontarget groups as follows: (a) newly-forming households and withdrawal of units from the existing stock, which we assume are proportionately distributed between the two groups; and (b) the needs for upgrading of existing units, replacement of non-upgradable units, and the relief of overcrowding, which we take to be concentrated exclusively among the target population.

We base the calculations of investment by the nontarget group strictly on affordability. Investment by the target group has two components, the first of which is affordability. The calculations assume that these households invest the amount they can afford and that therefore households who can afford to do so do not stop investing at the point at which they obtain the minimum solution. Generally, some groups of households (defined by income quintile and sector) cannot afford the minimum solution assigned to them under the rules followed by the model in matching new and upgraded units to household groups.[3] In this case the model computes the shortfall between what the households can afford with their own resources and the cost of the minimum solution. The second investment component is the aggregation of these shortfalls, reported as "subsidy required" in the table. The subsidy is computed as a one-time grant required to make a unit affordable, although governments may well disburse subsidies in other forms. Moreover, the shortfall need not be closed entirely with subsidies, if households can be induced to use more of their own resources.

Sensitivity analysis. Even from this brief description we can see that the investment levels will depend critically on several key factors: the rate of growth of households; the size of initial housing deficits; income levels, income growth, the share of income available for housing investment, and capitalization terms; and the building standards selected.

We can illustrate how the model can be used to analyze the impact of policy changes or a range of values for data inputs. Table 4 reproduces the results of a sensitivity analysis for Sri Lanka, in which the applicable interest rate in the affordability calculations was increased from 8 to 12 percent. (Since only interest rates were changed, the numbers of new and upgraded units required remains unchanged.) In Table 4, the base case uses the 8 percent rate and alternative 1 ("ALT 1") uses 12 percent. Since affordability declines with the increase in interest rates, total investment declines and the number of households needing subsidies and subsidy levels rises sharply. Similar analyses, involving the factors listed above, generally produce very informative results.

Table 4. Sensitivity analysis: Effect of higher interest rates

	1988			1993		
	Base	Alt. 1	Alt. 2	Base	Alt. 1	Alt. 2
Households needing subsidy						
Metropolitan areas	18.7	22.0	0.0	21.0	21.0	0.0
Other urban areas	72.4	88.9	0.0	89.1	105.6	0.0
Rural areas	7.5	9.0	0.0	8.4	9.9	0.0
Country	98.6	119.9	0.0	118.5	136.5	0.0
(%) Difference from base	0.0	21.6	0.0	0.0	15.2	0.0
Total housing investment						
Metropolitan areas	1595.3	1329.2	0.0	2110.9	1753.0	0.0
Other urban areas	4355.2	3759.9	0.0	5630.8	4908.0	0.0
Rural areas	85.3	84.5	0.0	127.3	123.5	0.0
Country	6035.8	5173.6	0.0	7869.0	6784.5	0.0
(%) Difference from base	0.0	−14.3	0.0	0.0	−13.8	0.0
Subsidy requirement						
Metropolitan areas	215.0	296.6	0.0	255.3	359.4	0.0
Other urban areas	792.4	1122.9	0.0	1062.5	1507.0	0.0
Rural areas	68.2	77.8	0.0	92.6	103.4	0.0
Country	1075.6	1497.3	0.0	1410.4	1969.8	0.0
(%) Difference from base	0.0	39.2	0.0	0.0	39.7	0.0

Notes: Base case: Eight percent interest rate used in affordability calculations.
ALT, 1: Twelve percent interest rate used in affordability calculations.
In the Sri Lanka application, somewhat unusual geographic definitions were used. So urban areas are labeled as "metropolitan" in the table, rural areas as "other urban," and the estate sector as "rural."

Key assumptions

In the foregoing discussion, to simplify the initial presentation, I glossed over some key assumptions underlying the calculations. However, fully understanding the assumptions is a precondition to properly interpreting the model's output and to assessing the utility of the overall method. This section highlights and expatiates the four most important assumptions.

The first assumption concerns the capitalization of monthly income available for housing investment. The ready analogy is to a household obtaining a mortgage loan, with the capitalization (the total investment figure shown on Table 2) representing the value of the housing purchased based on the mortage payments. Unfortunately, the analogy has limited practical applicability in most developing countries where only about 20 percent of units built annually can depend on mortgage financing from formal institutions.

However, an alternative interpretation is consistent with incremental housing construction. Specifically, the capitalized value gives the value today of the result of a household's investing in a program in which on average it spends an amount each month equivalent to the mortgage payment.[4]

While it is useful to know that one can arrive at the same capitalized values from these two routes, the difference in policy implications is critical. Under the "mortgage" interpretation, households obtain a unit of this value in the year in which they are scheduled under the plan to obtain it. By contrast, under the "incremental investment" interpretation the household will only obtain its assigned unit 15 or 20 years in the future when they have gradually developed it.[5] This distinction is obviously important in explaining the model's results to someone focusing on the short-term improvement of the housing stock.

A second assumption concerns the estimate of the aggregate amount of subsidy required. In brief, this estimate embodies assumptions of almost perfect targeting of subsidy expenditures. Specifically, only those households who cannot afford a minimum unit receive a subsidy. In addition, a household can receive a subsidy limited only to the difference between what it can afford and the cost of the minimum unit. Finally, households must maintain their own housing investment at the levels they would have spent without the subsidies. Some of the rules allocating housing units to those households "scheduled" to receive them offset the severity of these assumptions to a degree. However, the model nevertheless implies considerable target efficiency.

Thus far I have not discussed housing supply. In fact, the model assumes that each year the necessary supply of new and upgraded units will be forthcoming at the prices in effect at the start of the year, i.e., an infinitely elastic supply curve. However, in the model the price of housing may rise more or less rapidly than the overall price index. Thus, at the start of each simulation year, the model adjusts the cost of each housing standard to account for relative inflation in the housing sector. All other computations are in constant, base-year prices. So, from year to year the supply curve can shift up or down, although it is horizontal within each year. This means that we can, in effect, have an upward sloping supply curve (over a several-year period) in response to price increases we expect as a result of sharp increases in the number of units produced annually. The analyst must specify such anticipated inflation patterns.

The third point is that the computations assume that the plan's specified goals are accomplished each year, and that the deficits present at the beginning of the plan period don't increase over the period. The analyst can avoid this assumption by running the model in five-year segments, adding to the deficits in each period to approximate the shortfalls experienced. This is, however, an awkward and time consuming process. The model really aims at focusing attention on the types of policy changes needed to fully address a country's housing needs over an extended period. Other simulation models exist for shorter-term, more detailed policy analysis; but these are correspondingly more complex and data intensive (Turner and Struyk, 1985).

Using the needs assessment in a policy context

To conclude this description of the housing needs methodology I shall illustrate briefly the payoff from implementing the model by highlighting the experiences in some of the countries that have applied it. To be sure these are selective (and to a certain degree the more impressive) examples, but they do give a flavor of what is possible.

Three types of use for the results may be distinguished: in the formulation of a national housing strategy, in more selective policy discussions, and in exploring the implications for housing of different economic or demographic futures in a country. The results of the housing needs estimates for a five-year time horizon were an integral part of the formulation of a national housing strategy in Barbados and are serving a similar role in on-going strategy developments in Jordan, Kenya, and Jamaica. In Barbados, the needs and corresponding investment estimates established the overall parameters within which more detailed program planning took place. In Barbados the estimates played an especially major role in shifting the focus of housing policy from the production of new units to a larger program of upgrading existing, serviceable units.

Results of the needs assessment have proven particularly useful in two types of more limited policy discussions. One area has been that of establishing the definition of the minimum quality unit to be made available to lower income households. In most countries that applied the model, the initial standards indicated by the government proved to be unrealistically expensive in terms of implied subsidies and total share of GNP required for the investment program. Analysts engaged in repeated sensitivity analyses of alternative standards, and proposed lower standards if the initial proposal was not adopted outright. The applications of the model to Zimbabwe and Ecuador are good examples of this process.

Analysis of ways to increase the mobilization of finance for the housing sector is another area of policy analysis where the housing needs estimates have been employed. In Sri Lanka and Honduras the governments used the investment figures to establish a broad target for volume of funds required for the sector, after making adjustments for expected equity contributions by households.

Finally, governments find sensitivity analysis valuable for exploring the implications of a country's economic and demographic future. The best example of this use comes from work in Jordan, where such an analysis informed policy makers about the housing implications of a slow-down in the Persian Gulf economy, which could cause a substantial number of Jordanians to return home from job sites elsewhere in the region.

Another use exists for the model and the more general methodology, which may be equally valuable as policy analysis. The process of collecting the input data for the model, carefully analyzing the results of the "base case," and doing sensitivity analysis can serve as an extremely effective learning device. Simulations with the model allows the analyst to see unexpected impacts of changing various parameters; and the process of understanding the causal links among the changes can be challenging and rewarding. This means that the method can be useful as a teaching device as well as a tool in the policy development arena.

Appendix

Specifications and documentation

The computer program for this model is written in BASIC, and it operates in an MS.DOS environment on IBM, IBM-compatible, and Wang personal computers having at least a single disk drive and 128K of storage.[6] The program is fully "menu driven," and very easy to use. Data are entered into predefined table shells, and multiple data files can be stored and retrieved. The model produces nine output tables (some of which occupy multiple pages) for each simulation, and the output menu allows the user to select only the tables he wishes to see. A separate "sensitivity analysis" routine compares the key outputs from two or three simulations on a single page of output, so that the user can quickly determine the extent of changes associated with input data changes. Versions of the computer program also exist in which Spanish or French is used on the monitor and in the output tables.

As suggested earlier, substantial documentation exists for the method and for the mode. proper. The available documents fall neatly into three groups. First, the basic document gives a general description, in English, Spanish, and French, of the overall method and the model (*Preparing a National Housing Assessment;* U.S. AID 1984a). Second, the *User's Manual* (U.S. AID 1984b), available only in English, explains how to use the computer model and provides greater detail on the functions employed in the model's calculations. It also provides table shells identical to those in the computer program for preparing data for input. The third form of documentation is the set of papers that reports the results of applying the method. These give a new user useful guidance on how to present and interpret the results of the calculations. A half dozen of these are listed in the references (Blankfeld and Vergara, 1984; Clifton and Roscoe, 1984; Dubinsky and Struyk, 1984; Manson and Struyk, 1984; PADCO, 1984a, 1984b). Urban Institute staff recently developed an enhanced version of the model. The principal improvements among the calculations concern the decay rates applied to permanent and upgradable units and the interest rates used in the affordability computations.[7] Other substantial improvements include those relating to the interactions between the user and the model, especially for reviewing output. A new user's manual (Manson with Struyk 1986) will soon be available from U.S. AID.

The various documents cited are available from AID Document and Information Handling Facility; PPC/CDIE; SA-18, Room 209; Washington, DC 20523.

Author's note

I wish to thank Donald Manson and Margery Turner for comments on a draft of this paper.

Notes

1. The "enhanced" version of the model whose development has just been completed carries separate decay rates for permanent units and upgradable units. These rates can differ for urban and rural areas, as is also the case in the original model.
2. Note, however, that total investment does not include investment made by households not "scheduled" to have their needs met. So, for example, ignores additional investment by higher income households who "trade-up" by building larger units. For this reason the total investment figure, and the share of GDP that would go to housing would show up in the model as less than they would if the plan were actually implemented.

3. To explain the allocation process a bit further, we start with the point that the calculations of traditional housing needs determine the total number of new and upgraded units. In each sector, target group households first receive upgraded units, allocated evenly among the income quintiles in the target group. Allocations of new minimum units go to the remaining households in the target group.
4. In the enhanced version of the model referred to in note 1, mortgage terms may vary by income class as well as by sector. This in effect permits the analyst to differentiate between the cost of funds from formal and informal sources. Experience in applying the model indicated that we needed to take into account such cost differences to guarantee the accuracy of the affordability calculations. The new version can also accommodate graduated payment mortgages.
5. This capitalization procedure raises another issue regarding the flow of investment indicated over time. That is, those households that do not obtain financing will only make the investment indicated over an extended number of years. So the procedure seems to overstate the amount of investment that actually occurs in a particular year. The assumption in the method is that in a steady-state environment, in which approximately the same number of households begin their investment program each year, the aggregate investment across all annual "cohorts" of investors would approximate the annual amount computed by the model. This assumption loses validity to the extent that large shifts in population or household incomes are anticipated to happen during the plan period.
6. More than one version of BASIC is supported by Wang PCs, and the model will only work with versions V1.03 and V1.04.
7. See notes 1 and 4.

References

Blankfeld, R., and S. Vergara. 1984. *An Assessment of National Housing Needs and Affordability in Ecuador: 1984–2004.* Washington: Robert R. Nathan Associates, Inc., report to USAID Office of Housing and Urban Programs.

Clifton, C. S., and A. D. Roscoe. 1984. *Botswana: An Assessment of National Housing Needs, Affordability, and Potential Barriers to Successful Implementation.* Washington: Robert R. Nathan Associates, Inc., report to USAID Office of Housing and Urban Programs.

Dubinsky, R., and R. Struyk. 1985. *Revised Estimates of Housing Needs and Investment in Barbados: 1980–2000.* Washington: Urban Institute report to USAID Office of Housing and Urban Programs.

Manson, D., and R. Struyk. 1984. *Housing Needs and Probable Investment in Sri Lanka 1983-2003.* Washington: Urban Institute report to USAID Office of Housing and Urban Programs.

———. 1986. *AID Housing Needs Assessment User's Manual.* Washington, D.C.: Urban Institute Report to USAID Office of Housing and Urban Programs.

PADCO. 1984a. *Colombia: Shelter Sector Assessment.* Washington: Author, report to USAID Office of Housing and Urban Programs.

———. 1984b. *El Salvador: Shelter Sector Assessment.* Washington: Author, report to USAID Office of Housing and Urban Programs.

Turner, M., and R. Struyk. 1985. *The Housing Quality Simulation Model: Basic Description.* Washington: Urban Institute report to USAID Office of Housing and Urban Programs.

U.S. AID, Office of Housing and Urban Programs. 1984a. *Preparing a National Housing Needs Assessment.* Washington, D.C.: author, Occasional Paper.

———. 1984b. *AID Housing Needs Assessment Model: User's Manual.* Washington: author.

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