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Less is More: The Benefits of Minimal Land Development Regulation

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Institute of Urban and Regional Development**

INTRODUCTION

In most developing country cities, the legal, formal sector is largely irrelevant in terms of meeting the basic shelter needs of low- and moderate-income households. Housing that is delivered within the confines of legally sanctioned procedures is normally affordable to those earning at or above the median household income. Thus, those households earning less are forced to look elsewhere for shelter. In virtually all cases, their search leads them to the informal sector, where government rules and regulations associated with formal housing production are, by necessity, ignored. In the most desperate cases, low-income settlers invade land -- and no payment is made for plots. While squatting was prevalent in the 1960s and 1970s, it is less widespread today. Nowadays it is more common for informal settlements to take place on illegally subdivided lands which are either rented or sold. The major outcome of these informal approaches is the relatively efficient production of low-cost shelter.

For many years, governments and policy analysts viewed these informal settlements as slums needing eradication. Such programs were based on numerous misconceptions about the slums [Hamer, 1985]. A common belief is that informal settlements are chaotic, posing serious threats to public safety and health. While there are examples of precarious settlements on hillsides and in flood-plains, much informal development is planned, following quite acceptable standards.

More recently, policies towards informal housing developments have been shifting. Now it is commonly recognized that informal housing is a valuable capital asset which should not be eradicated [Mayo, Malpezzi, and Gross, 1986]. Also, and perhaps more importantly, there is a growing recognition that informal-sector housing production is an important overall component of the

housing supply system. In the past several years, researchers and policy analysts have stressed the importance of making housing markets work more efficiently by removing burdensome regulations.

The relationship between the informal housing production sector and government regulations over housing and land development is direct and reciprocal. The informal sector exists because of government regulations. Remove them and you will eliminate the blemish of informality. What were one day informal settlements will the next day become low-cost housing subdivisions. Without regulations, the marketplace will determine what households are willing and able to purchase in terms of housing services.

Such an overtly laissez faire position ignores the fact that housing developments generate significant externalities, such as water pollution, traffic congestion, and soil erosion. Residents of housing projects demand public services, schools, clinics, police protection. The relevant policy question to ask is: what are the minimum levels of regulations or standards which can effectively balance concerns about affordability and access by the poor to housing, with broader community-wide interests? While this short paper cannot possibly provide a definitive answer to this question, it does offer some insights to the costs of high levels of regulations.

HOW GOVERNMENT POLICIES AND ACTIONS AFFECT LAND AND HOUSING DEVELOPMENT

Many cities around the world use master plans, zoning, subdivision regulations, and building codes to control development. These regulations are normally adopted to help protect the urban and natural environment, to gear development with infrastructure capacity, and to maintain and enhance the property values of neighborhoods. Quite often the planning systems and

regulations adopted by the local authorities replicate those used in developed counties, with colonial connections usually dictating usage.

In the course of adopting these regulations, little if any thought is given to the potential cost-effects of the controls. For example, how will minimum lot-size standards affect lot costs? This is unfortunate, since there is ample evidence that excessive land use and development controls drive up housing costs and thereby lower affordability.¹ The remainder of this paper summarizes the available developing countries evidence.

Government regulations over land use and land development affect land and housing markets in three broad ways:

1. land supply constraints;
2. excessive plot-size standards and subdivision design; and
3. procedural delays and red-tape.

The following sections take up these three types of constraints.

LAND SUPPLY CONSTRAINTS

Restrictions on the supply of land and the density of residential development greatly affect land costs. As Ohls, Weisberg, and White have illustrated, zoning regulations, if they restrict the supply of land available for development below that which would be normally exchanged in the market, operate to increase land prices [1974]. The supply of residentially zoned land is often limited when communities attempt to maintain environmental quality or fiscal position by designating land for open space or agricultural use, or for more fiscally

¹Considerable research on the effects of land use controls on housing costs has been conducted in North America and Western Europe. See Dowall, 1984; Fischel, 1990; Chesire, 1989; and Evans, 1988.

desirable commercial or industrial activities. These patterns can be found in developing countries as well, as the following examples illustrate.

Renaud has illustrated the significant impacts of land use controls on land and housing prices in Seoul [1989]. Three government policies have constrained the supply of developable land in Seoul: strong zoning policies which restrict the conversion of agricultural land; a greenbelt policy to block the further outward expansion of the city; and land readjustment methods linked with monopolistic administrative practices to force up land prices.

In Seoul, the precipitous increase in land and housing prices is challenging the stability of the Roh government. Land prices in metropolitan Seoul are increasing at an annual rate of over 25 percent. According to a recent study by the Korean Research Institute for Human Settlements, the annual increase in land values in 1988 (Won 88 trillion) exceeded the annual wage income for all of the country's workers [Clifford, 1989].

In Karachi, despite the fact that 90 percent of the land is in public ownership, the supply of serviced plots is constrained due to the lack of infrastructure provision [Dowall, 1989]. As a consequence, land and housing prices have increased in real terms at 11 percent per year -- far faster than household income. This has resulted in the acceleration of informal-sector settlements during the 1970s and 1980s, as more and more low- and moderate-income households were priced out of the housing market. As Table 1 and Figure 1 illustrate, katchi abadi (informal unplanned) areas accounted for 33 percent of residential land conversion taking place in Karachi between 1970 and 1987.

In India, urban land use controls and policies have a dramatic impact on land supply and price. India has had land use planning controls since the 1950s. In the 1960s, policies were expanded and urban renewal schemes and public development authorities were established. In 1976, the Urban Land

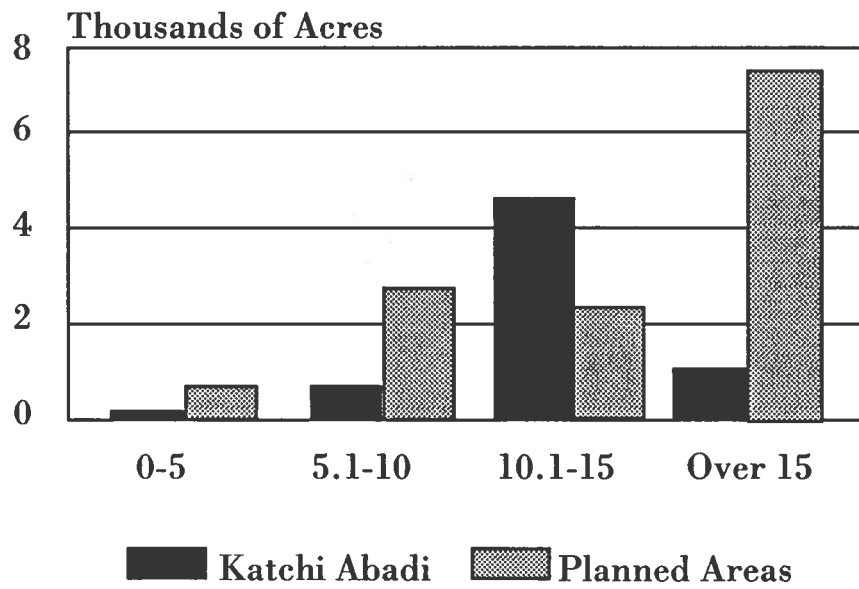
Table 1

Residential Land Conversion,
Katchi Abadi and Planned Areas 1970-1987

Distance to CBD, <u>Km.</u>	<u>Residential Land Conversion, Acres</u>		Katchi Abadis as a percent of Total
	<u>1970-87</u> <u>Katchi Abadis</u>	<u>1970-87</u> <u>Planned Areas</u>	
0-5	100	641	13.5
5.1-10	700	2,727	20.6
10.1-15	4,700	2,219	67.9
Over 15	<u>1,000</u>	<u>7,604</u>	<u>11.6</u>
Total	6,500	13,180	33.0

SOURCE: Dowall, 1989.

Figure 1



Residential Land Conversion, 1970-1987
Katchi Abadi and Planned Areas

Ceiling Act was adopted in an effort to check speculation. As a World Bank report indicated:

past urban land management strategies have not been overwhelmingly successful in meeting the more important objectives outlined by the 1965 Committee on Urban Land Policy: providing adequate quantities of urban land at reasonable prices and safeguarding the rights of the underprivileged.

One of the most alarming trends is the rapid growth of the slum areas. As of 1983, India's slum population stood at between 32 and 40 million people, and was growing considerably faster than the overall urban population. Land price inflation has been enormous. In Bombay, real land prices increased by 720 percent between 1966 and 1981 [Wright, Sherer, Hamer, and Bertaud, 1984]. The Urban Land Ceiling Act has caused substantial problems -- significant reductions in the supply of land for residential development, creation of a vast black market for real estate, and an overall worsening of housing affordability in India's major urban areas [Acharya, 1989].

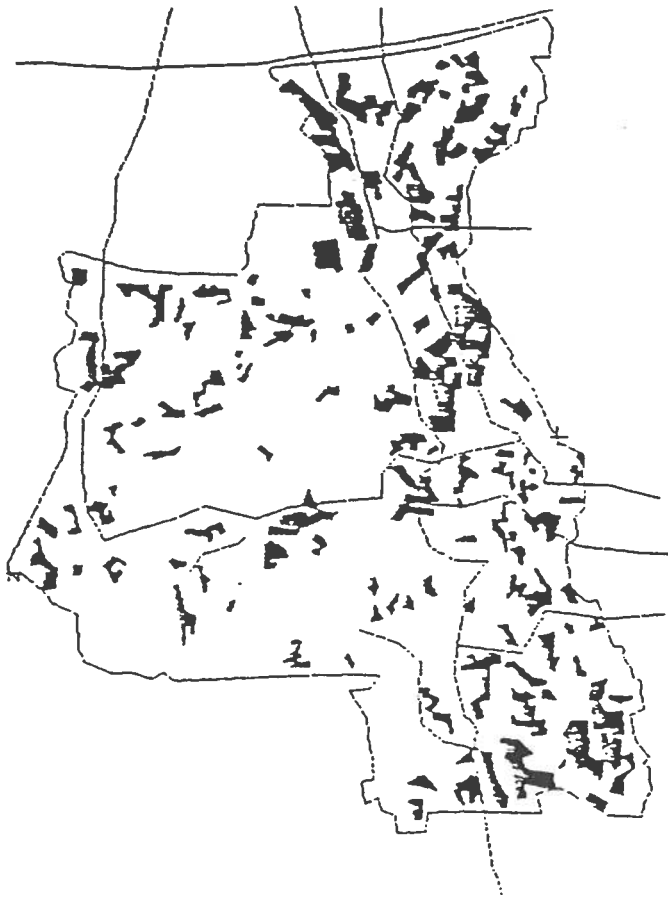
Alain Bertaud has conducted an interesting case study of Serpong in Indonesia. This city's recent land use and zoning plan allocates only 34 percent of the total planned area for residential development. In total, only about 15 percent of the residential area is accessible and has infrastructure. Thus, the actual developable land in Serpong is limited to less than 30 square kilometers. Most of the land is set aside for agricultural and open-space uses, roads, and nonresidential activities [Bertaud, 1989].

Another problem generated by zoning and master planning is the inherent lack of reality represented in the plans. While the plans are prescriptions of what should or ought to be, government officials frequently treat the plan as given, and program infrastructure into areas where there is limited demand. Figure 2 illustrates the lack of fit between the Serpong Master Plan and the

Figure 2

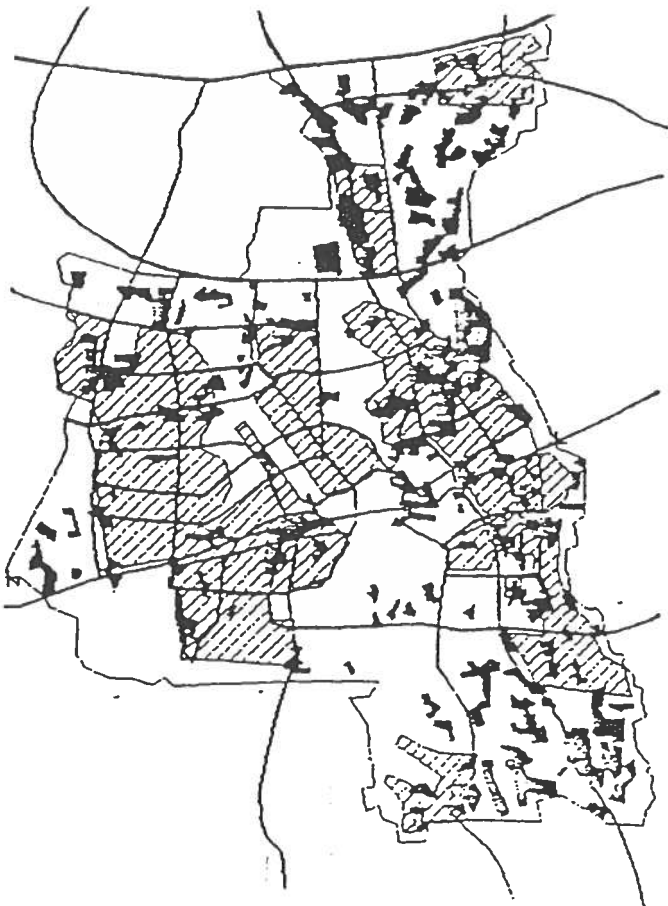
Serpong Master Plan
Master Plan Projections and Existing Settlements

EXISTING SETTLEMENTS
AND INFRASTRUCTURE



 Existing Kampung

MASTER PLAN
PROJECTIONS



 Existing Kampung

 Area Zoned
Residential Year 2005

 Planned Trunk
Infrastructure

actual pattern of residential development. Some of the areas designated as residential development have no settlements and many areas with kampungs are not zoned residential.

SUBDIVISION STANDARDS

Throughout the Third World, the most common problem is high subdivision standards. In case after case, municipal governments set very high regulations for subdivision layouts. The net results of these high levels is that the minimum costs of plots are normally beyond what households can afford.

In addition to reducing the supply of land for residential development, regulations covering land development standards restrict the intensity of development by requiring large plot sizes or excessive amounts of land for circulation and open space within subdivisions. Large lot-size requirements increase the minimum price of residential lots. While large-lot zoning reduces the per-acre price of raw land, the reduction in prices is often offset by higher land requirements.

In Karachi, excessive land subdivision regulations stipulate large residential plots. All of the plots allocated by the KDA are over 60 square yards. In Malaysia, land use regulations and standards add considerably to housing costs. The area per house provided for roads in the typical Malaysian subdivision is up to four times greater than in comparable North American or Western European projects. According to accepted international practices, about 25 percent of the land set aside in the average subdivision is wasted. The streets are too wide, the setbacks too great, and land is set aside for redundant community facilities [World Bank, 1989].

A recent World Bank report prepared by Alain and Marie-Agnes Bertaud and Jim Wright examines the implications of increasing the efficiency of land use

and infrastructure standards [1988]. In terms of subdivision standards, there are four factors which influence the cost of plots:

1. plot frontage;
2. block length;
3. street width; and
4. infrastructure standards.

For plot frontage, two competing factors work to determine cost and price: with narrow lots, more lots can be subdivided within each block. This reduces the per-plot costs of streets and infrastructure. On the other hand, narrow plots mean that the houses would have narrow rooms and be less attractive to potential buyers. Thus, prices for very narrow plots are quite low. Using the Bertaud model, Table 2 and Figure 3 illustrate how prices and costs vary according to plot frontage. Based on a hypothetical but realistic-case project, and assuming an average plot size of 35 square meters, the most profitable frontage width is between 4.0 and 4.25 meters. At this price, the developer will maximize his or her per-plot profit.

Variations in block length can significantly impact subdivision costs. This is because there are economies in road space and infrastructure deployment as the overall length of blocks is increased. This result is shown graphically in Figure 4.

Road width impacts plot costs as well. Table 3 and Figure 5 illustrate how increasing road widths influence the costs of plots. The increase is due to two factors: wider roads are more expensive to construct per block; and wider roads take up more space and make less of a subdivision marketable.

Changing standards for infrastructure, such as the types of permitted road surface materials or the diameter of water pipes, can also influence the

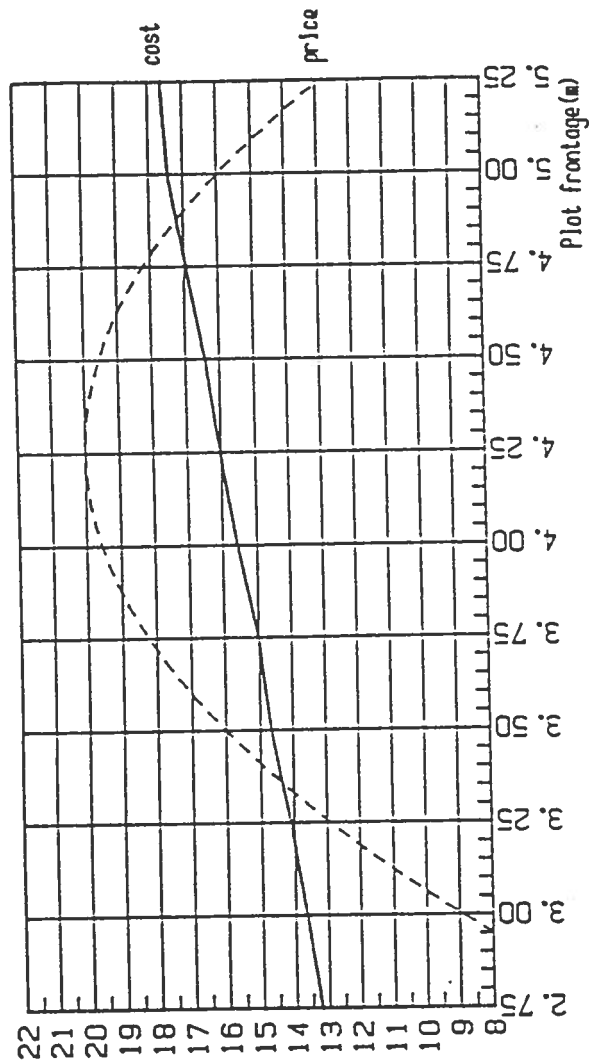
Table 2

Development Cost and Design Efficiency When Plot Frontage Varies

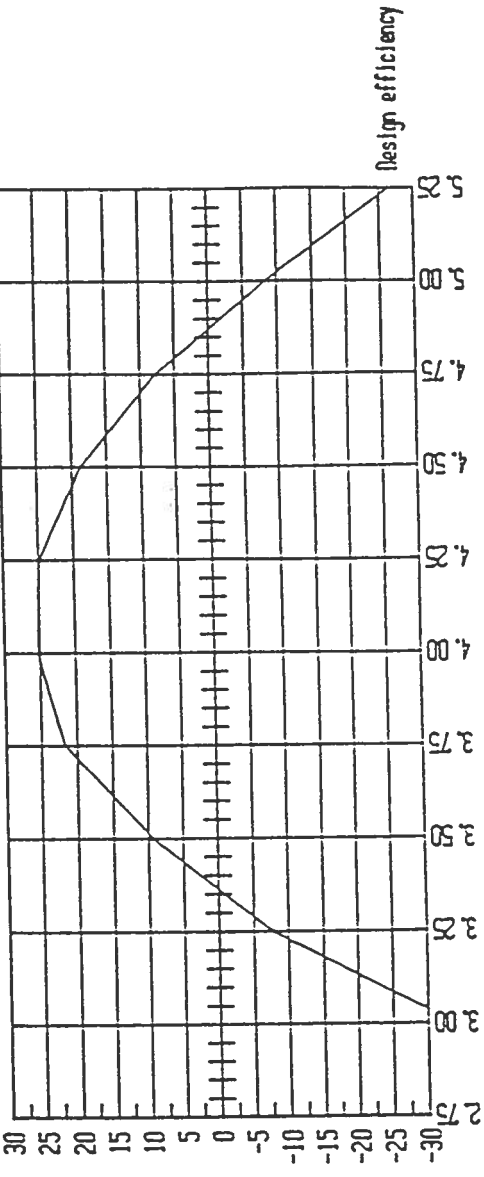
PLOT WIDTH	2.75	3.00	3.25	3.50	3.75	4.00	4.25	4.50	4.75	5.00
Plot Area	35	35	35	35	35	35	35	35	35	35
Plot Length	12.73	11.67	10.77	10.00	9.33	8.75	8.24	7.78	7.37	7.00
% Circulation	29.86	31.06	32.22	33.33	34.41	35.41	36.48	37.46	38.41	39.33
Cost of Roads	3,509	3,384	3,277	3,187	3,109	3,040	2,979	2,926	2,877	2,834
Water	2,954	2,791	2,669	2,599	2,286	2,252	2,183	2,259	2,218	2,177
Sewer	2,729	2,581	2,468	2,412	2,464	2,423	2,340	2,104	2,070	2,036
Total Cost	9,192	8,756	8,414	8,198	7,859	7,715	7,402	7,289	7,165	7,047
Cost/Gross M ²	4.87	4.98	5.09	5.26	5.31	5.47	5.57	5.64	5.76	5.87
Cost/Net M ²	6.94	7.22	7.51	7.88	8.10	8.47	8.76	9.01	9.35	9.68
Land Cost/M ²	2									
Off-Site c/M ²	.5									
Phys.conting.	8%									
Design Superv.	12%									
Interest d.con	9%									
TOTAL DEVELOPMENT										
COST/GROSS M ²	9.2611	9.3986	9.5532	9.7679	9.8405	10.053	10.177	10.272	10.433	10.582
/NET M ²	13.204	13.633	14.094	14.651	15.003	15.565	16.021	16.424	16.940	17.442
PRICE /NET M ²	4.00	9.00	13.00	16.00	18.25	19.50	220.00	19.50	18.25	16.00
DESIGN EFFIC. %	-69.71	-33.98	-7.77	9.21	21.64	25.282	24.83	18.73	7.74	-8.27

Variations in Infrastructure Cost and Plot Value When Plot Frontage Increases

Developed land cost and price (\$/m²)

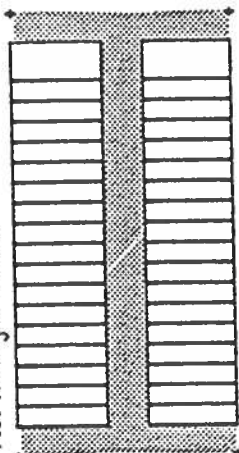


Design efficiency CO

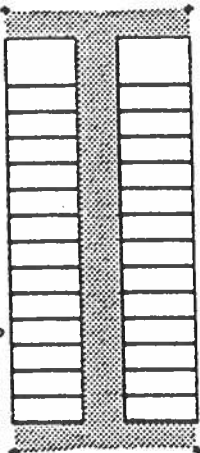


Plot Area: 35 m²

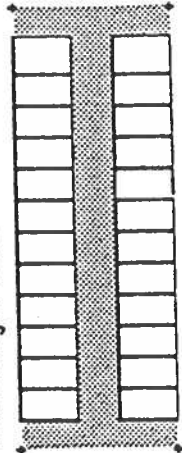
Plot Frontage: 2.75 m



Plot Frontage: 3.50 m



Plot Frontage: 4.25 m



Plot Frontage: 5.00 m

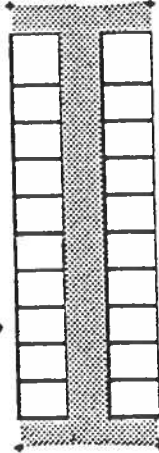


Figure 3

Infrastructure Cost and Block Length Variations

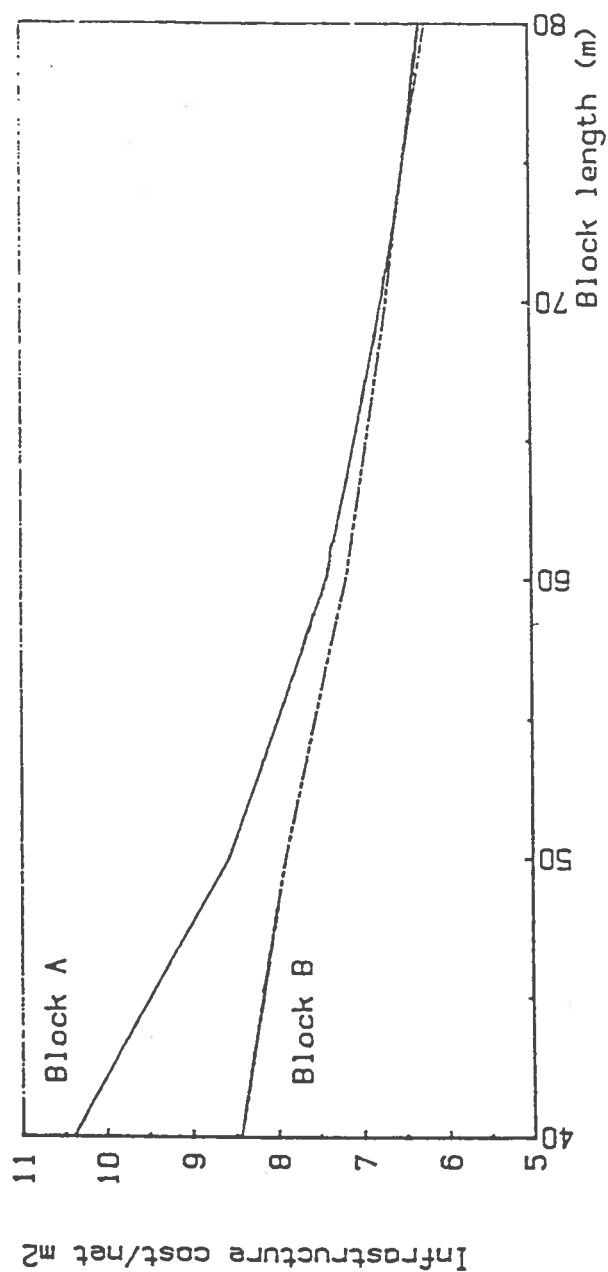
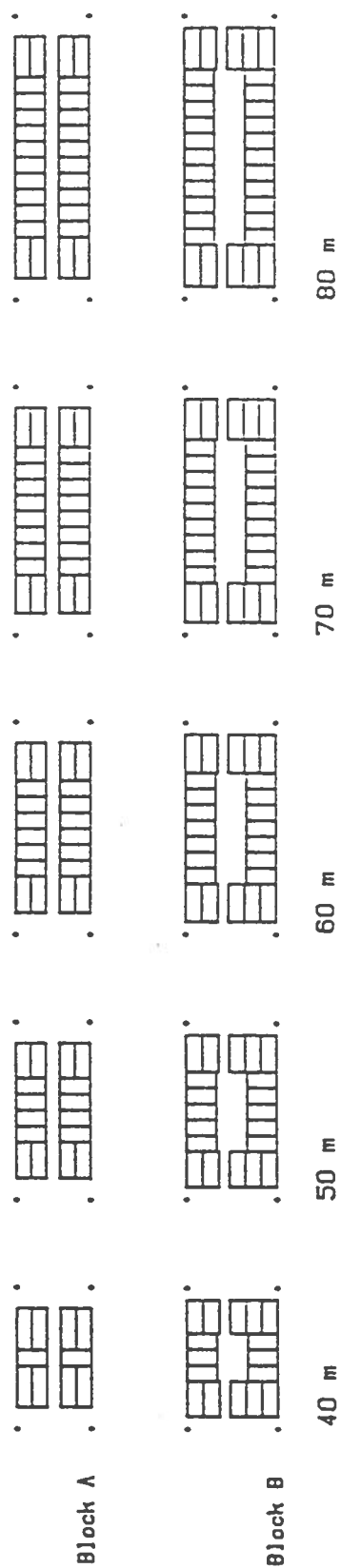


Figure 4

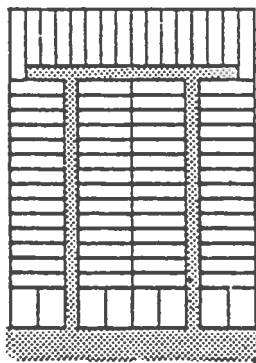
Table 3

Development Cost when Access Street Width Varies

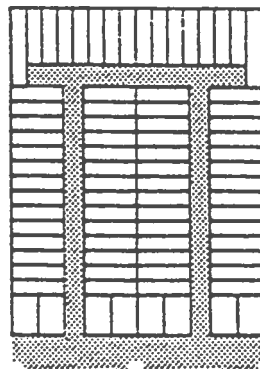
Street width in meters	4.00	6.00	8.00
Development Cost/Gross M2	7.90	8.20	8.42
% of Circulation Area	21.50	26.24	30.55
Development Cost/Net M2	10.07	11.12	12.13

Variation in Infrastructure Cost when Street Width Increases

Street width: 4m



Street width: 6m



Street width: 8m

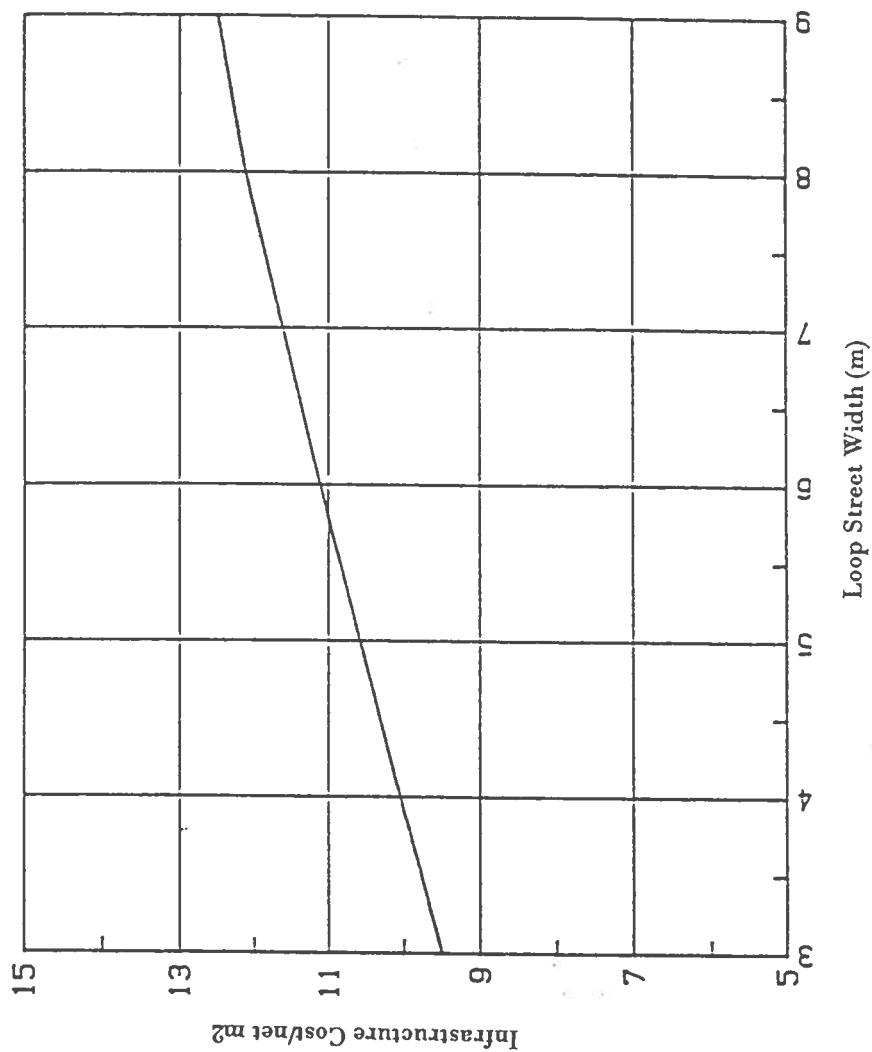
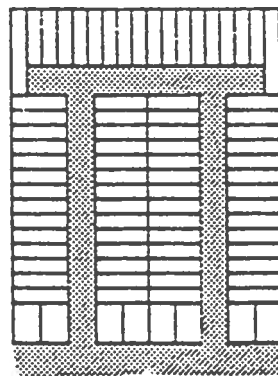


Figure 5

costs of plot developments. These changes in development costs can be modeled by the Bertaud model.

In the case of Malaysia, excessive subdivision standards pertaining to plot sizes, setbacks, street widths, community facilities, and retention ponds limit the amount of a subdivision's land that can be marketed to between 28 and 47 percent [World Bank, 1989]. This range is far lower than found in other countries (60 to 70 percent), making housing costs extremely sensitive to land costs.

The Bertaud model can be used to assess the cost impacts of alternative land subdivision regulations. An assessment of land subdivision regulations in Uttar Pradesh vividly illustrates how lot costs can be dramatically reduced by lowering standards [Bertaud, Bertaud, and Wright, 1988]. Vastly lower standards can legitimize the informal production of plots and make it easier for informal-sector developers to deliver plots in the marketplace.

Besides raising the costs of plot development, land subdivision regulations limit the ability of developers to respond to rising land costs by altering the design of subdivisions. As land prices increase, strict plot-size or circulation requirements make it difficult to build at higher densities.

An example of such flexibility is illustrated in Bangkok, where land prices have increased dramatically over the past three years. As illustrated in Table 4, the real price of serviced and unserviced residential plots increased by 21 and 37 percent per year respectively between 1988 and 1990. As a result, developers in Bangkok have dramatically shifted their production of affordable housing from townhouses to condominium units [PADCO and LIF, 1990]. Table 5 illustrates the dramatic change in the profile of projects between 1986 and 1990. Projects are denser and on smaller sites.

Table 4

Price Trends for Serviced and Unserviced Residential Plots
1988, 1989, 1990 by Distance from City Center,
in Constant 1990 Baht/Square Wah

Distance From City Center, Km	<u>Serviced Plots</u>			Annual Compound Increase 1988-90	<u>Serviced Plots</u>			Annual Compound Increase 1988-90
	<u>1988</u>	<u>1989</u>	<u>1990</u>		<u>1988</u>	<u>1989</u>	<u>1990</u>	
0-5	63,930	67,313	74,812	8.2%	*	*	*	*
6-10	32,209	27,201	43,898	16.7	15,712	17,038	20,393	13.9%
11-20	14,633	17,485	21,684	21.7	5,416	6,634	9,419	31.9
21-30	9,553	13,083	15,356	26.8	3,123	4,235	5,920	37.7
Over 30	4,081	5,464	7,582	36.3	1,553	2,103	3,342	46.7
Overall	23,348	27,566	34,129	20.9%	4,898	5,822	9,191	37.0%

* less than 10 cases

SOURCE: PADCO-Land Institute Foundation Land price Survey, 1990.

Table 5

Summary Characteristics of Private-Developer-Built Housing Projects,
1986 and 1990

<u>Characteristics</u>	<u>1990 Projects</u>	<u>1986 Projects</u>
Average Distance to City Center	20.3	16.7
Average Land Area, Rai	42.8	95.4
Average Dwelling Units	380.4	530.2
Average Density (Units/Rai)	8.9	5.6
Percent with Public Transportation Access	89.8%	81.1%
Average Distance to Main Road (meters)	558.0	NA
Percent with MWWA Water	88.1%	67.9%
Percent Using Tubewells	11.9%	38.0%
Percent With Electricity	98.3%	98.1%
Percent With Telephones	74.6%	39.6%
Total housing covered by the Surveys	28,183	24,918

SOURCE: PADCO-Land Institute Foundation, Housing Projects Survey, 1990.

Developers in Bangkok, like elsewhere, are market-driven -- they build housing that is profitable to provide. When unconstrained by regulations, they will respond with product that is attractive to the consumer.

PROCEDURAL DELAYS AND RED TAPE

The final way in which government regulations influence land and housing costs is through regulatory complexity. Complicated procedures for obtaining development permission make it difficult for developers to respond quickly to changing housing demands and create barriers for new firms wanting to build and sell housing.

A comparison of Malaysia's and Thailand's system of development approval is instructive. A recent appraisal by the World Bank concluded that newly-built housing prices in Malaysia increased by an annual rate of 18.9 percent between 1972 and 1982, a rate about triple the overall increase in consumer prices [World Bank, 1989]. According to the Bank report, the reason for the rise in Malaysia's housing prices is the combination of high government-imposed housing standards, overly complex and time-consuming housing project approval procedures, the sluggish response of the housing industry to increases in housing prices, and high housing demand. For example, it takes between five and eight years to obtain all the necessary permits from 15 to 20 government agencies for subdivision approval. In Thailand, in sharp contrast, it takes about five months to secure subdivision approval from five government agencies.

With a five- to eight-year lag in housing supply response, housing prices will increase rapidly with a growing demand. The World Bank concluded that Malaysia's most critical housing policy issue is the lack of housing supply responsiveness to price increases.

CONCLUSIONS

Land use regulations powerfully shape the process and cost of land and housing production. As this paper has illustrated, these regulations impede land supply, increase the costs of residential plots, and limit the ability of developers to respond to housing demand. Complicated approval procedures limit housing market competition by creating barriers to entry. They also make the housing market more sluggish and slow to adjust production to meet changes in demand. All in all, the regulations make the threshold price of housing more expensive than it might be otherwise.

The paper raises two fundamental public policy questions. The foremost one is: should governments be legislating standards that less than 50 percent of their citizens can afford? The answer is no. The second question, which follows from the first, is: how should governments go about liberalizing land and housing markets? The remainder of the paper turns to this question.

As I have argued elsewhere, most governments are "flying blind" when they prepare land use plans and set subdivision controls [Dowall, 1990]. They simply don't know what is going on in their local land market. Visits to the planning offices of most large third-world cities reveals how little is known about patterns of urban land development, the number of housing units (both formal and informal) built in the past year, land and housing prices, rents for office buildings and factories, infrastructure deployment patterns, land subdivision patterns, and so on. Given the important role that governments play in shaping land market outcomes, it is extremely important for the implications of their investment and regulatory decisions to be understood.

In order to eliminate the unfortunate impacts of well-intentioned regulations and policies, governments need to undertake a thorough assessment of the urban land markets of their major cities and towns. A land market assessment

(LMA) serves as an important first step for reforming government regulations [Dowall, 1990]. The LMA can be used to answer questions such as:

1. Is the supply of urban serviced land expanding to meet growing population and employment needs?
2. Which land uses are growing the fastest?
3. Where is urban land conversion taking place?
4. Where is urban land conversion outstripping the supply of serviced land?
5. Are land prices increasing faster than the overall rate of inflation?
6. Where are land prices the highest, and where are land price increasing the fastest?
7. How much land is being provided with minimum services needed for future urban development?
8. Is enough infrastructure being programed to accommodate urban growth for the next five years?
9. Is the price and affordability of housing and commercial and industrial space changing -- are real occupancy costs greater now than before?
10. Are planning standards and building codes pushing up housing prices?
11. Which segments of the population do not have access to housing produced by the formal private sector?
12. Are specific public policies or actions constraining the land market?

Land market assessments can also be used to provide baseline estimates of future urban land requirements. They can help guide infrastructure programming and investment decisions and develop land use planning policies. For example, LMAs can be used to estimate the demand for residential plots and commercial and industrial space requirements associated with projections of population and

employment. In San Pedro Sula, Honduras, a strategic land development process was designed to promote the supply of land for future growth.

Having the information about the linkages between land supply and subdivision regulations is the first step towards land and housing market liberalization. The second step is to determine how design and infrastructure standards can be reduced. Here, some technical assistance to both public- and private-sector planners will be needed (see [Carroll, 1980]). Such technical assistance needs to target on senior policymakers and politicians if change is to occur. On standards, the technical assistance needs to span design and site planning, infrastructure engineering, and budgeting.

The levels of standards are not solely technical issues. As Gakenheimer and Brando point out, standard setting is mostly an institutional issue [1987]. They suggest four reform areas:

1. reorganize the way we plan, design, build, and operate standards;
2. reorganize the budgeting process;
3. revise the "social contract" for infrastructure to emphasize concern for welfare and development; and
4. show the savings and improvement resulting from more appropriate standards.

Another set of questions regarding the appropriate level of standards centers on whether design and infrastructure standards should vary across neighborhoods and cities to allow for lower-cost developments, and whether standards can be designed to start low and then increase over time as the income and ability to pay of subdivision residents increases. The relevant question is what level of standards can people afford, not what is the "right" standard.

A third step down the road to reform is to rethink the role of public and private land development, especially in countries where land development is controlled by the public sector (China, Pakistan, USSR, Poland, and Hungary). In study after study, the role of public land development is identified as a critical constraining factor in limiting the responsiveness of the land and housing market to demand. This third step is a big one, testing the abilities of governments to privatise public land development agencies and promote vigorous competition in land and housing markets among private enterprises. In this environment, the government guides and facilitates urban development.

The fourth and final step is what to do about the existing stock of informal housing -- how to regularize it in a cost-effective and cost-recoverable manner. Considerable attention has focused on this issue. In the future, more emphasis needs to center on overall land and housing market liberalization.

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