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Authors

Dowall, David E.
Pamuk, Ayse

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TRINIDAD: IMPLICATIONS FOR
AFFORDABILITY**

By

David E. Dowall
Ayse Pamuk

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The Price of Land for Housing in Trinidad:
Implications for Affordability

by

David E. Dowall and Ayşe Pamuk

May 25, 1995

WORKING PAPER NO. 95-234

David E. Dowall is Professor of City and Regional Planning at the University of California at Berkeley, 228 Wurster Hall, University of California, Berkeley, CA 94720, USA. Ayşe Pamuk is Assistant Professor of Urban and Environmental Planning at the University of Virginia, Campbell Hall, Charlottesville, VA 22903, USA. The paper was written based on data gathered while Prof. Pamuk was conducting her dissertation field research for her PhD degree at Berkeley under the supervision of Prof. Dowall and Michael A. Teitz. Center for Real Estate and Urban Economics at UC-Berkeley partially funded analysis through a dissertation fellowship. Prof. Pamuk directed and managed the Land and Housing Market Study funded by the Inter-American Development Bank, conducted by PADCO for the Ministry of Housing and Human Settlements. This paper does not reflect the views of the Inter American Development Bank or the Ministry of Housing and Human Settlements.

Abstract

Institutional, regulatory, and financial conditions have a profound impact on land markets and prices. This paper presents new evidence on land price changes in the East West Corridor region of Trinidad encompassing the cities of Port-of-Spain and Arima between 1980 and 1993, a period of economic recession in Trinidad and Tobago. By using Dowall's methodology (1991), land price changes and land conversion trends in this region are analyzed. The relationship between forms of transactions and planning and permit-approval processes are examined. The implications of current land market operations and the structure of the home-building sector on affordability are discussed. The paper concludes by interpreting the case-study results in reference to land price changes reported in other cities in the Caribbean and in Asian cities.

Introduction

The aim of this paper is to report on recent residential land price trends in the East-West Corridor region of Trinidad (See Figure 1), and the effects of land market constraints on the home-building industry nationwide in Trinidad and Tobago. The data reported in this paper were gathered through a land price survey in the East-West corridor, an urban region encompassing Port-of-Spain (the capital) and Arima (third largest town) where significant land development activities took place in the last decade, and a national representative survey of households in 1993. Using these data we examine the affordability of land and housing for low-income households.

Over the past two decades, land prices in major cities of less developed countries have sharply increased (Doebele, 1987; Dowall & Leaf, 1991; Dowall, 1991, 1992; Jones and Ward, 1994). On the assumption of competitive land markets, basic economic theory attributes rapidly rising land prices to strong demand pressures in less developed countries (primarily demographic as opposed to income-based), and to shortages in land supply. Land markets cannot however be assumed to be solely driven by perfectly competitive forces. Other conditions, such as, large amounts of land owned or leased by the public sector, difficulties in land transfers, and uncertainties in

permit approval process make prices higher than what they would be if they simply reflected demand and supply conditions. In contexts where such factors prevail, observed transaction prices for land rarely reflect Marshallian market clearing prices. Most urban land markets of developing countries are better characterized by imperfect market conditions. Besides cyclical price movements tracking macroeconomic performance (Ward, Jimenez, and Jones, 1993), institutional, regulatory, and financial conditions profoundly affect land market activities.

The paper starts by discussing our research approach. After a brief background on housing production trends in Trinidad and Tobago as a whole, urban land conversion trends in the East-West Corridor in the last decade are discussed. Then, recent land price changes in this region based on the results of our land price survey are presented. The relationship between forms of transactions and planning and permit-approval processes are examined. The implications of current land market operations and the structure of the home-building sector on affordability in Trinidad and Tobago are discussed. The paper ends by interpreting the results from our case study in the context of land price changes reported in other cities in the Caribbean (San Pedro Sula, and Kingston) and in Asian cities (Bangkok, Jakarta, and Karachi).

The Research Approach

This paper uses data from two surveys implemented in the context of a Land and Housing Market Study conducted in Trinidad and Tobago (PADCO, 1993; Pamuk, 1994). The land price survey was implemented using a methodology developed by Dowall (1991), which involves systematic interviews of land brokers in their market areas. A total of 161 analysis zones in the East-West Corridor were identified as relatively homogenous market areas. Complete land value estimates were obtained for each zone where brokers were probed about land values. For each zone, brokers were asked about land prices according to the following characteristics: size of plot, the level of services provided to the site (municipal water, paved streets, sewer lines, electricity and telephone connection), and type of land title (fully registered title with fee ownership, fully registered long-term lease, unregistered interest in plot). The location variable was later incorporated into analysis by measurement of the distance of the centroid of each analysis zone to the Central Business District (CBD) of Port-of-Spain. In addition, home-builders and contractors were interviewed to assess development constraints in the home-building industry.

Brief Background on Trinidad and Tobago

Trinidad and Tobago, an ex-British colony, is a small two-island nation with a

1990 population of about 1.2 million people. Despite petroleum-based income fluctuations, and periodic shocks of currency adjustments in response to external debt obligations, the government and individual households have made substantial investments in land and housing during the last decade. Large-scale public-sector housing investment decisions in the East-West Corridor were made with an assumption of constant flow of revenues from petroleum-based industries which were at high levels from the early 1970s through the early 1980s (Alan Gelb & Assoc., 1988). The plunge in world oil prices in mid-1980s combined with the weakening of inflation-adjusted prices of other export commodities in the agricultural sector have caused, however, a contraction of the macroeconomy dwindling household earnings, and on government's ability to sustain investments in residential development that were launched during prosperity (PADCO 1993).

Housing Production Trends

Trinidad and Tobago has historically experienced low rates of population growth. Between 1980 and 1990 the average annual population growth rate was only one percent.¹ This relatively low rate of population growth has made it easier for the housing supply system to respond to new needs but, predominantly through informal delivery systems. The rate of homeownership

rose to 74 percent in 1990 from 65 percent in 1980, and more dwelling units were connected to the Water and Sewerage Authority (WASA) delivery systems in 1990 than a decade earlier.²

The rate of growth in the housing stock, however, was not adequate to cover the formation of new households. Between 1980 and 1990 the annual household formation rate of 3 percent has surpassed the rate of growth in the housing stock of 2 percent. The housing stock increased from 231,436 in 1980 to 271,840 in 1990 reflecting an annual compound growth rate of 1.6 percent. In absolute terms, Trinidad and Tobago's housing stock increased by an average of 4,000 dwelling units per year. Most of the actual construction activity was, however, unauthorized by government agencies--carried out without planning approvals.

Urban Land Conversion

The rate of land conversion to urban use in developing countries is massive (Doebele, 1987, Dowall, 1991). Not all of this conversion takes place with planning approvals and subsequently lacks municipal services (sewerage, and drinking water connection to dwelling units). As a result, land for which planning approvals have been obtained, and have access to infrastructure has a

premium.

A simple indicator, namely a land development multiplier measures the premium for providing infrastructure and converting raw land to residential use on the urban fringe. It is defined as the ratio between the median land price of a developed plot at the urban fringe in a typical subdivision and the median price of raw, undeveloped land in an area currently being developed. For the 45 countries for which this data were collected, the indicator had an average value of 4.7 (Housing Indicators Data, World Bank, 1993). A high value for this indicator indicates the presence of land supply restrictions (Table 1). High values for land development multiplier appear to be associated with strong demographic pressures despite decline or little growth in income.

Urban population growth rates during 1980 and 1992, for the cities in Table 1, ranged between 2.5 percent and 7.7 percent while GNP growth rates were in the range of -1.0 and 3.1 percent except for Bangkok and Jakarta.

While a simple land development indicator, such as the one discussed above, depicts land supply constraints, it does not reflect the spatial complexity of urban land conversion patterns in rapidly growing cities. Assessing spatial distribution and types of land conversion activities, in the absence of up-to-date

land use plans in less developed countries, requires an analyses of aerial photographs. Such an analysis for the East-West Corridor between 1980 and 1986, the most recent period of very active residential construction, showed that about 950 hectares of land was developed for residential use in this region (PADCO, 1993). An overwhelming majority, more than two-thirds of this land was developed for large-scale public sector or private-sector housing projects (Table 2). Very little serviced land was made available for individual home-building, even though household survey results showed that this has been a predominant type of home-building nation-wide. Incremental extensions to existing residential neighborhoods in the East West Corridor were small in scale (56 hectares).

Another significant type of land conversion activity during the 1980 and 1990 period has been in the form of consolidation of existing formal subdivisions through infill; the construction of individual housing units on already serviced plots (171 hectares). Physical growth or expansion in squatter settlements during the same period in the East-West Corridor was minimal.

Recent Land Price Trends

Interviews with developers, brokers, and appraisers revealed a perception of

skyrocketing land prices between mid-70s through the mid-80s, and a stagnation since then. The building community accurately recognized that land markets were not immune to the contraction caused by the economic recession in mid-80s, and scaled down their activities significantly with expectations of weak housing demand in the late-80s and early 90s. Supply-side restrictions, particularly the difficulties in obtaining plan approvals, were an anonymous concern among home-builders. Stagnant land prices appear to be more a reflection of weak economic conditions rather than due to the absence of significant supply restrictions.

In nominal terms, land prices have increased at the fringe of already urbanized areas, i.e. in the 5-10 km. radius from downtown Port-of-Spain (Figure 2). It is interesting to note that most of the analysis zones that have seen an active land market were also those areas where most unauthorized settlements occurred (Figure 3). The analysis of 161 zones in the East-West Corridor showed that land prices, adjusted for inflation, however, have remained stagnant between 1989 and 1993 (Table 3).

The map of land prices in 1993 confirm the inverse relationship between location and land prices (Figure 4). This is also supported by an analysis of

asking prices of land for sale between January and July 1993 reported in the multiple listings maintained by the Association of Real Estate Agents of Trinidad and Tobago (Table 4).

Stagnant and even declining land prices in some areas over the 1989-93 period would suggest that housing should be affordable. This is hardly the case.

Declining land prices is more a temporary reflection of Trinidad and Tobago's economic recession, and low-demand due to eroding earnings of households during this period. Empirical evidence from other developing countries suggests however that when demand-side conditions become more favorable in the future and land transactions increase (for example due to an increase in real income levels), land prices are likely to rise. This would be, in the case of Trinidad and Tobago, due to real difficulties in undertaking land transactions in the context of cumbersome land transfers, uncertainties in permit approval processes, and difficulties in getting access to credit.

Planning regulations in a post-colonial nation

The plan approval process and building control regulations in Trinidad and Tobago are not well attuned to changing composition of households and income levels. Land use planning and building control functions are governed

by an approach principally founded in the British Town and Country Planning Act of 1947, with planning permission decisions centralized under the Town and Country Planning Division of the Ministry of Planning and Development mandated by the Town and Country Planning Act (1969). The 1969 Act requires that planning permission be obtained for carrying out any development of land.³ The authority to grant or refuse permission for development is vested in the Minister, and the Town and Country Planning Division is the agency responsible on his behalf for the actual processing of applications.

All applications for planning permission to carry out development require the approval of at least three government agencies: 1) the Town and Country Planning Division; 2) the relevant City, Borough, or Regional Authority, or the Tobago House of Assembly; 3) the Local Health Authority. Although the Act permits the Minister to delegate his authority to grant or refuse applications for land development to the council of any local authority this typically does not take place in practice.

Approval for development is also required from the Water and Sewerage Authority (W.A.S.A), from the Drainage Division (Ministry of Works), and

from other specialized national agencies, such as the Fire Services, the Factory Inspectorate, and the Highways Division. Building permits under the building regulations of the Municipal Councils Act, and public health approval under the Public Health Act are handled through the City Engineer or his counterpart at the local government level.⁴ As in the British planning system, planning permissions are discretionary; each application is judged based on its own merits.⁵

From the builders' perspective the steps involved in building construction in full compliance with formal rule-systems is cumbersome and lengthy.

Subsequent to the preparation of plans in accordance with the standards specified for outline approval by the Town and Country Planning Division (TCPD), builders need to go through a series of eight steps (Figure 5).

The developer interviews revealed that these steps require about 1-2 years to accomplish. The application review process by the TCPD (Step 2) often exceeds the 2-months statutory limitation set by the Town and Country Planning Act. Decisions on planning permission applications typically take longer because of the multiplicity of agencies concerned in the final plan permission decision.⁶ Streamlining the plan approval process has been the subject matter of several studies⁷ but implementation of recommendations has

not followed.

While the formal residential development process requires individual home-builders to obtain plan approvals from the Town and Country Planning Division as well, as outlined in Table 4, actual compliance with formal rules is very low. Only 44 percent of owner households in the Trinidad and Tobago Housing Survey sample reported obtaining a building permit for the construction of their dwelling unit, while 30 percent of the households said they had not. The income of households among those who obtained a building permit and those who did not differs significantly. The average monthly income of those who obtained building permits was TT\$3062 (US\$547)⁸ but TT\$1383 (US\$247) for those without permits in 1993. Those households not knowing whether their unit was built with a building permit or not had an average monthly income of TT\$1545 (US\$276). Compliance with "official" development control regulations is clearly very low and highly correlated with household income.

Inflexibility of the planning framework to respond to changes in housing demand conditions in Trinidad and Tobago is fundamentally related to the approach adopted under the Town and Country Planning Act. Under this Act

the land use management system is based upon a master plan or development plan with subsidiary local plans. Historically, the objective of preparing a comprehensive plan for the entire island has been an enormous undertaking for the Town and Country Planning Division. The most up-to-date National Physical Development Plan for the entire country dates from 1984. The most up-to-date publicly available plan for the Capital Region (the East-West Corridor) is nearly 20 years old. As a result, the gap between planners' forecasts and actual residential developments continues to widen.

High Transaction Costs in Land and Housing Markets

At least three types of transaction costs make residential development governed by formal rule-systems expensive: title validation; paperwork related to plan approvals; and mortgage origination and closing costs.

First, the co-existence of three land titling systems, and the infinite duration of past interests in land make title validation difficult and costly. Any individual builder or a building firm needs to undertake substantial research to establish a "good root of title" to establish proof of ownership for any piece of land under consideration for development. The absence of this document restricts their access to bank loans.

The process of handling inheritances legally is also cumbersome and costly. High transaction costs lead family members to transfer property among heirs without official documentation. Nearly 6 percent of surveyed households in 1993 described their land tenure situation as "undivided inheritance." Interviews revealed that the norm of unrecorded transfers is linked to prohibitive legal and transportation costs necessary to undertake title searches in Port-of-Spain. The costs of establishing ownership of deeded land are even higher due to the absence of recording leases on deed documents. Currently, without uncontestable proof of ownership, potential buyers are faced with conducting extensive property research before entering into a transaction. Title conveyance process creates equal difficulties in the implementation of the National Housing Authority's regularization programs.

Second, as discussed in the previous section, the building permit approval process involves multiple agencies. It is lengthy and costly. The current land use planning and building control functions, modeled after the British Town and Country Planning Act of 1947, gives the Local Public Health Authorities a central role in approvals. Developer interviews revealed that more than half of the time required for the 8-step approval process is attributable to the inspections and reviews by the Local Health Authority staff. As a

consequence, the builders interviewed all indicated that they have a full-time staff person solely charged to administer applications.

The third type of transaction cost arises in considering mortgage applications by banks which is passed on to borrowers as closing charges. Total closing charges may add up to 10 percent of a loan.

The small private sector formal development

The impact of slow economic growth since 1982, lack of affordable housing credit, difficult land titling procedures, and uncertainties in the permit approval process have impeded the growth in numbers of private sector home-builders.

Only 3 developers were involved in the overall development process of buying, subdividing, and servicing the land and constructing houses for sale in 1993: Home Construction Ltd. (established in the early 1960s), Westmorings (established in 1968), and Colonial Homes and Commercial Properties (established in 1981).

Over the past decade, the production volume of these developers has averaged 350 units per year. In an environment where there are so few developers, the home-building sector has organized around numerous small-scale contractors,

most of whom operate through small offices, homes and communities and rely upon crews of 7-8 workers for construction work.

Lack of formal financing, in particular, have forced low-income households to undertake incremental construction of their dwelling units. The survey found that households in all income groups relied upon their household income and savings for land purchase, construction, and purchase of an existing or new dwelling unit. This finding was not surprising since mortgage financing in Trinidad and Tobago was affordable only for the top 20 percent of the population in the household income distribution. Even with tax benefits, "approved mortgage companies" were reluctant to lend to low-income households. The examination of mortgage costs for a townhouse unit in Port of Spain in 1993 revealed that transaction costs can be significant (Table 5).

The Implications for Affordability

Full compliance with government's land titling and building regulations requires absorption of high transaction costs by home-builders. As a consequence, the private formal sector home-building industry in Trinidad and Tobago is small, and it can profitably cater only to the top 20 percent of the population in the income distribution.

Transaction costs related to compliance with formal rule-systems are prohibitive for individual home-builders as well as for small-scale building firms. Survey findings showed that incremental home construction by owners in the unauthorized sector was the predominant mechanism through which housing was built in 1993. Homeowners typically built their homes incrementally over time utilizing their own labor or management skills. Sixty-one percent of the households living in unauthorized settlements in 1993 had constructed their homes through personal labor or with community help. Using a general contractor was more common in formal sector housing construction. the mismatch between piecemeal construction of shelter dictated by funding from households' own resources and the current plan approval standards combined have created an environment where low-income households predominantly have built their dwelling units without authorization.

Individual home-builders building outside of the government's regulatory framework cannot escape significant transaction costs either. Over time however, they have demonstrated greater flexibility in designing community-based institutions to lower these costs. Informal institutions have emerged endogenously in Trinidad and Tobago to reduce transaction costs related to housing delivery (Pamuk, 1994).

Households need to save for a considerable amount of time in order to get access to formal sector plots. The 40th percentile of households in the income distribution would need to save for more than 20 years to get access to a fully serviced residential plot. It is far easier to secure land in the unauthorized sector where it takes only two to four years to save for a plot (Table 6).

Are Land Market Dynamics in Port-of-Spain Unique?

Port-of-Spain's highly regulated and expensive formal land delivery system is not unique. It is very similar to other developing country cities with a history of colonial land administration. For example, the land and housing development regulations found in Kuala Lumpur, Malaysia; Karachi, Pakistan and Accra, Ghana share many common features. Even in non-British colonies, European-based models of land development control and administration still set the standard for formal housing development. The net result of these regulations is that formal sector housing is generally of high standards but is also costly. In most cases, formally produced housing is far beyond the grasp of households earning below median income. For the majority of households priced out of the formal market, housing solutions come from the informal sector, and the Trinidad and Tobago case is no exception, where the informal sector accounts for most of the housing

production. The situation is similar in San Pedro Sula, Honduras; Karachi, Pakistan and Jakarta, Indonesia. In these cities, over fifty percent of the housing stock was provided informally. Only in the case of Bangkok, Thailand, where there are few development controls does formal sector produce housing which is affordable to households with incomes at the 40 percentile of the income distribution.

Comparison of land price increases in Port-of-Spain, Bangkok, Jakarta, Karachi and San Pedro Sula vividly illustrates how land prices are determined by demand and supply factors. When high population growth overwhelms the capacity land developers to provide land for housing, land prices accelerate. If regulations limit land supply expansion, price increases can be enormous.

Table 7 illustrates patterns of land demand, land supply and land price changes in the five cities. As it shows, in the high demand Asian cities, land demand has outpaced land developer's supply response. In these cities, only between 1.5 and 14.4 ha of land were converted to urban use per year, for each 1,000 annual increase in population. Given the relatively limited supply response, land prices (in constant, inflation-adjusted terms) rapidly increased by an average of 10.9 percent per year during the later part of the 1980s decade. In contrast, in the slow growth cities of Port-of- Spain and San Pedro Sula, land

supply (mostly informally developed) adequately responded to modest demand pressures. In Port of Spain, 58.5 ha of land was converted to urban use for each 1,000 increase in population. In San Pedro Sula, 22.8 ha of land were converted per 1,000 of population increase. These increases clearly contributed to the relatively low rate of land price increase: 0.0 percent in Port-of-Spain and 4.4 percent in San Pedro.

The limited comparative evidence suggests that Port-of-Spain's urban land market shares many of the same characteristics held by other cities in developing countries. Clearly, regulations do matter in shaping housing outcomes and affordability. Highly regulated land and housing markets make housing expensive. In such cases, less-well-off households seek alternatives in the informal sector. Demand and supply factors play a dominant role in determining urban land prices. High rates of population growth place great stress on land markets and typically lead to rising rates of land price inflation. If land development controls restrain land supply adjustments, prices will escalate. However, as Bangkok illustrates, if demand pressures are great enough, land prices will rise regardless of the level of regulation.

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Notes

1. Central Statistical Office of Trinidad and Tobago (1993).
2. The percentage of dwelling units with piped drinking water increased from 44 percent in 1980 to 55 percent in 1990. The percentage of units linked to the sewerage system increased from 20 percent to 22 percent.
3. The Act defines development of land as: a) the carrying out of building, engineering, mining or other operations in, on, over, or under any land; b) the making of any material change in the use of any buildings or other land; and c) subdivision of any land. Town and Country Planning Division of Trinidad and Tobago (1989).
4. More specifically, in addition to the approval of the Town and Country Planning Division and local authorities, applications for planning permission may also require the consent of one or more of the following agencies; a) the Water and Sewerage Authority (WASA); b) the Fire Dept.; c) the Factory Inspectorate Division of the Ministry of Labor; d) the Highways Division of the Ministry of Works, Infrastructure and Decentralization. Consultation with one or more of the following agencies may also be required: a) The Drainage Division of the Ministry of Works, Infrastructure and Decentralization; b) The Construction

Division (Designs Branch) of the Ministry of Works, Infrastructure and Decentralization; c) the Commissioner of State lands; d) the Planning Unit of the Ministry of Food Production and Marine Exploitation; e) The Traffic Management Branch, Ministry of Works, Infrastructure and Decentralization; f) the Quarries Unit of the Ministry of Energy; g) Institute of Marine Affairs. Town and Country Planning Division (1989).

5. In principle, this system is significantly different compared to land use controls in the United States where zoning "unquestionably" spells out the use and density of development. Zoning rules in the U.S. however are increasingly subject to legal challenges.

6. For a discussion of costs of planning delay under the British planning system see Keogh & Evans (1992).

7. The Rochford Report (1978); The Crooks Commission Report (1980).

8. The value of 1US\$ was TT\$5.6 in 1993 while the household survey was implemented. All the figures in the paper have been converted to US dollars.

Figure 1

The East-West Corridor Study Area

Trinidad and Tobago

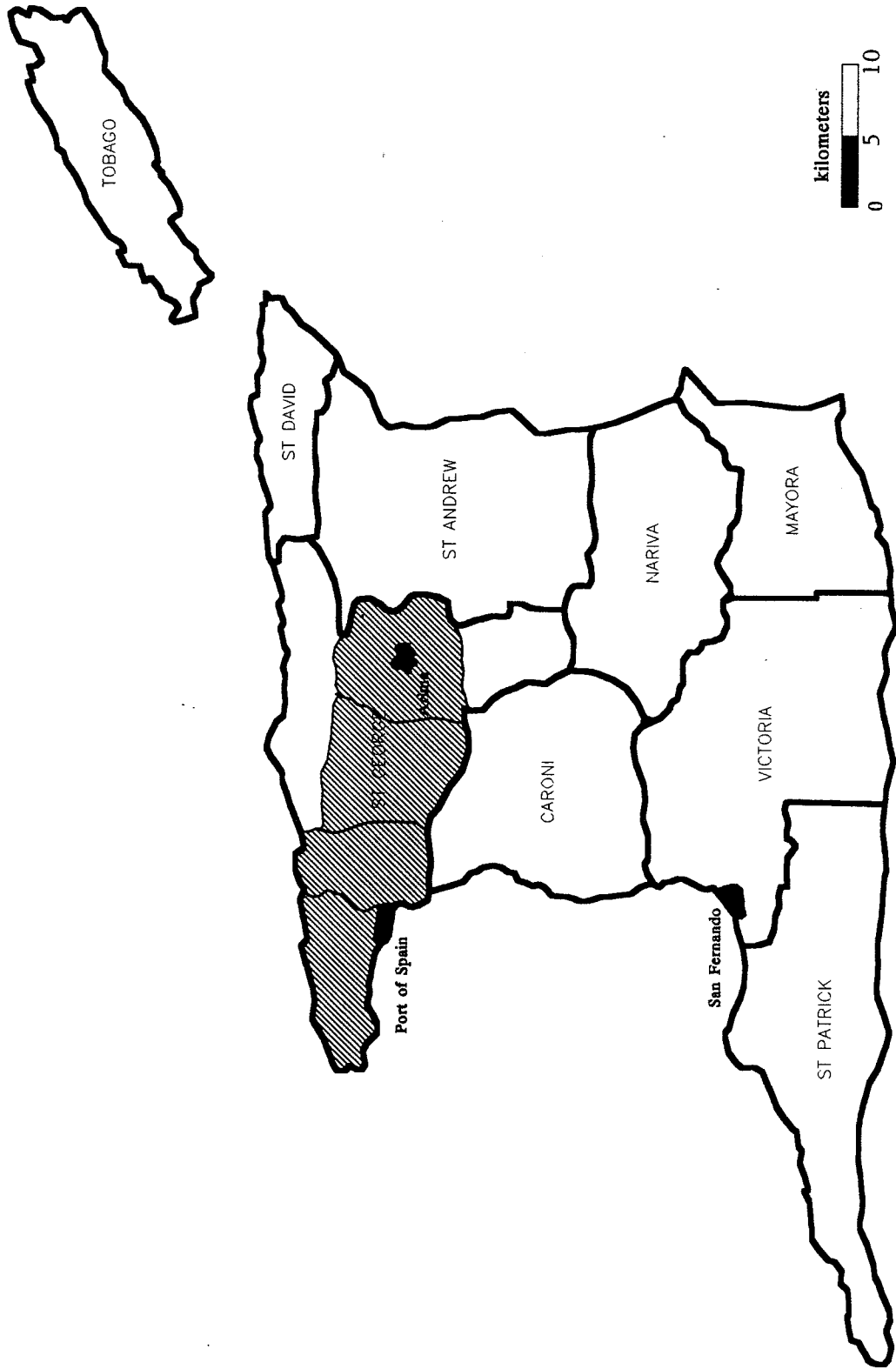


Table 1
Land Development Indicators in Selected Cities

City	Land Development Multiplier	Urban Growth Rate (1980-92) (percent)	GNP Growth Rate (1980-92) (percent)
Kumasi	12.48	4.3	-0.1
Rio de Janeiro	10.40	3.3	0.4
Istanbul	10.00	5.6	2.9
Cairo	10.00	2.5	1.8
Nairobi	8.26	7.7	0.2
Manila	6.67	3.8	-1.0
Karachi	3.80	4.5	3.1
Tunis	3.67	3.4	1.3
Bogota	2.87	2.9	1.4
Bangkok	2.59	4.5	6.0
Jakarta	2.17	5.1	4.0

Source: Housing Indicators Data, The World Bank (1993); World Development Report, The World Bank (1994).

Table 2
Land Conversion in the East-West Corridor (1980-86)

Type of Conversion	Hectares of Land
Large scale public/private sector projects	723
Infill in formal subdivisions	171
Small-scale subdivisions for individual homes	56
Total	950

Source:PADCO, 1993.

Figure 2

Land Price Changes in the East West Corridor 1989-1993

1989-1993

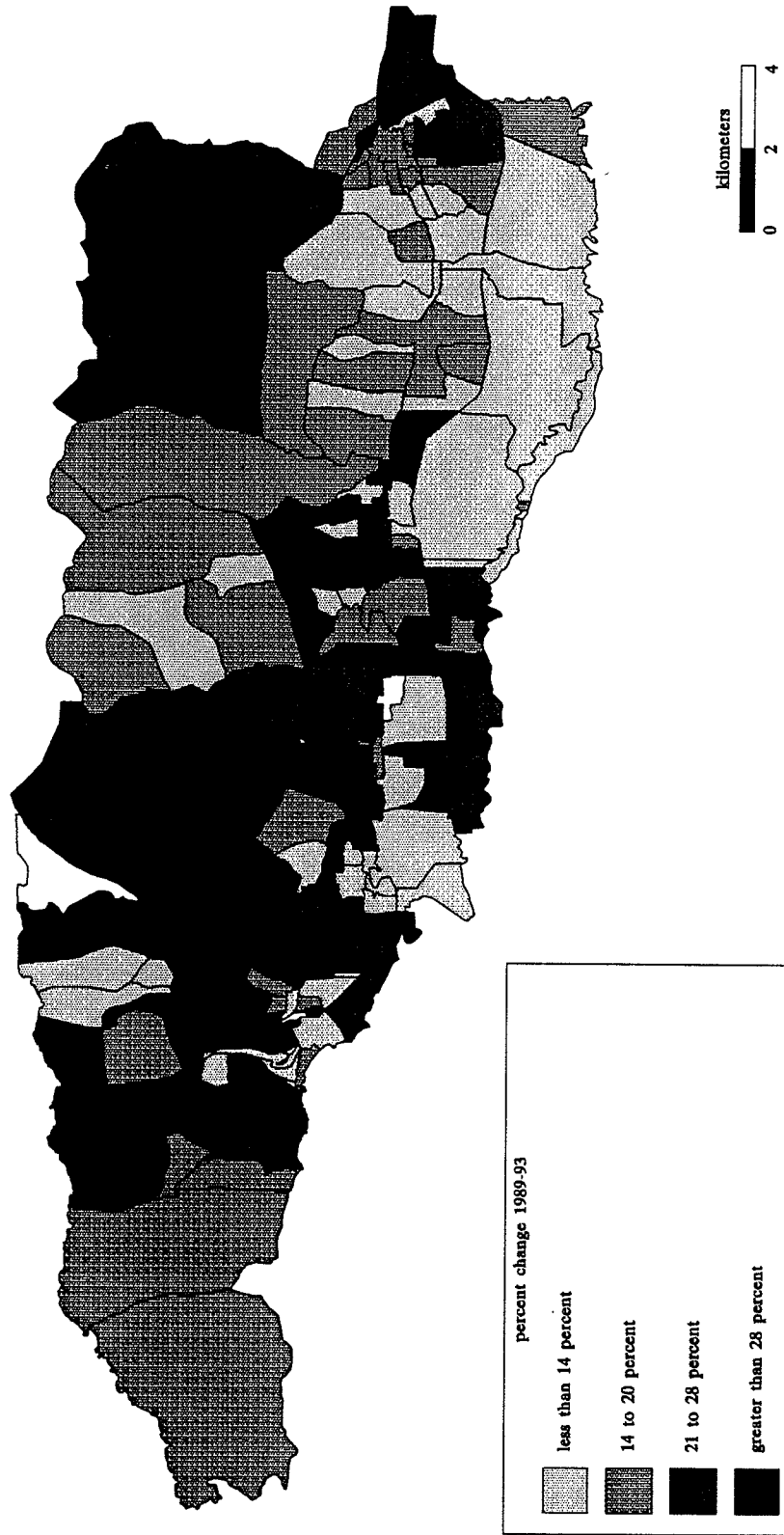


Figure 3

Informal Housing Settlements East West Corridor

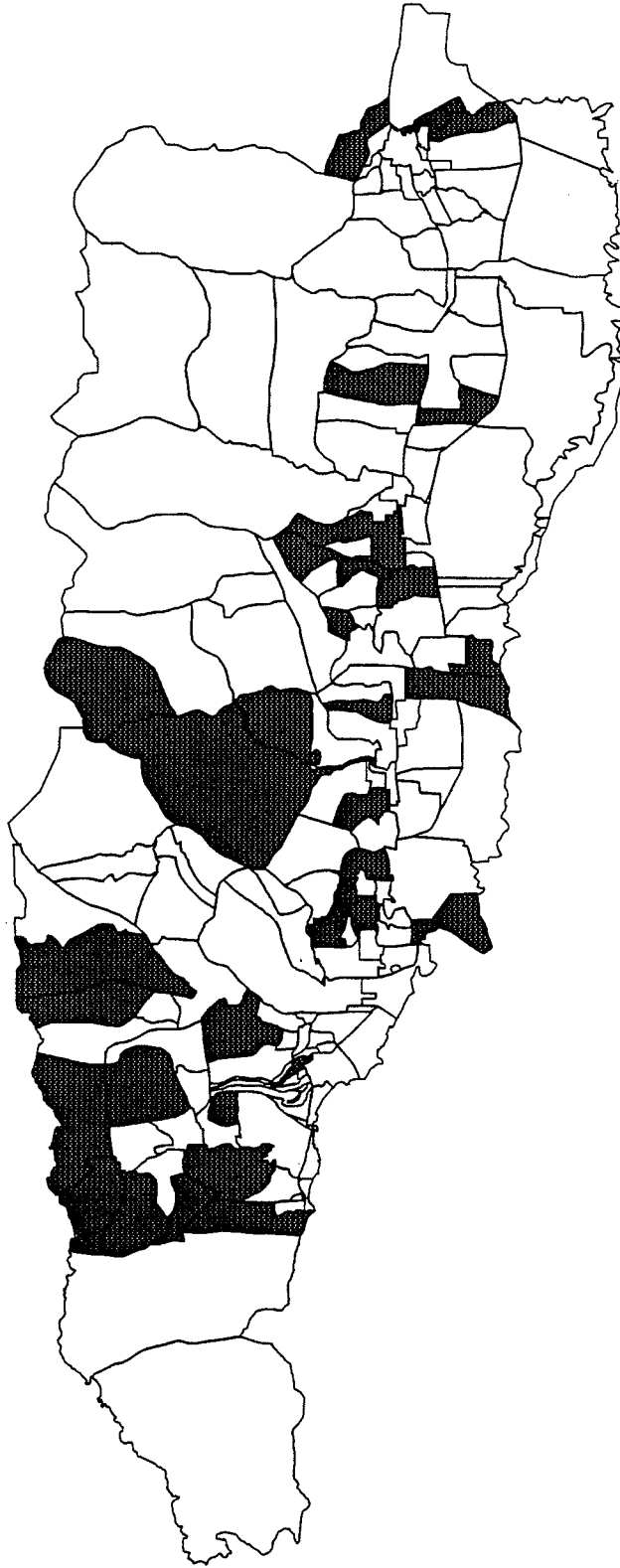


Table 3
 Land Prices by Distance from Downtown Port-of-Spain
 (in constant 1993 US dollars)

Distance to CBD	Average land price per sqft.			Annual compund increase (1989-93) (percent)
	1989	1991	1993	
0-5 km.	2.6	2.9	2.7	1.0
5-10 km.	2.1	2.5	2.5	4.5
10-15 km.	1.8	2.1	2.0	2.7
Over 15 km.	1.8	2.0	1.9	1.4

Source: Pamuk, 1994.

Figure 4

Land Prices in the East West Corridor

1993

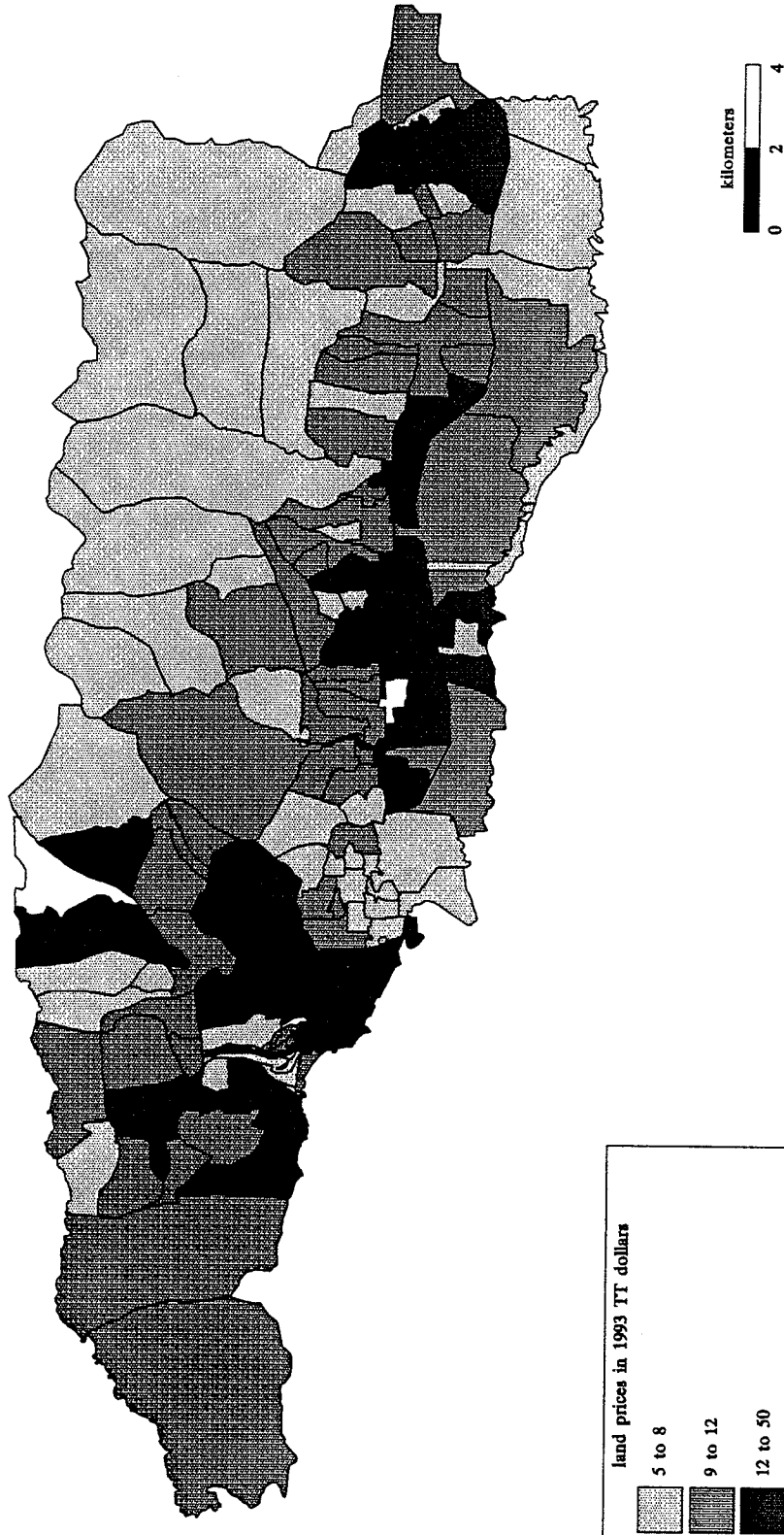


Table 4
Land for Sale in Jan-July 1993
(in US dollars)

	Zone 1	Zone 2	Zone 3
Average price/sqft	\$4.3	\$2.0	\$2.1
Range	\$1.8-\$11.3	\$0.8-\$3.6	\$1.8-\$2.9
Number of Lots	9	11	3

Zone 1: Wards of Diego Martin and St. Anns

Zone 2: Wards of Tacarigua

Zone 3: Wards of Blanchisseuse, Arima, and San Rafael

Source: The Association of Real Estate Agents of Trinidad and Tobago, 1993.

Figure 5: Steps followed for government approved residential development

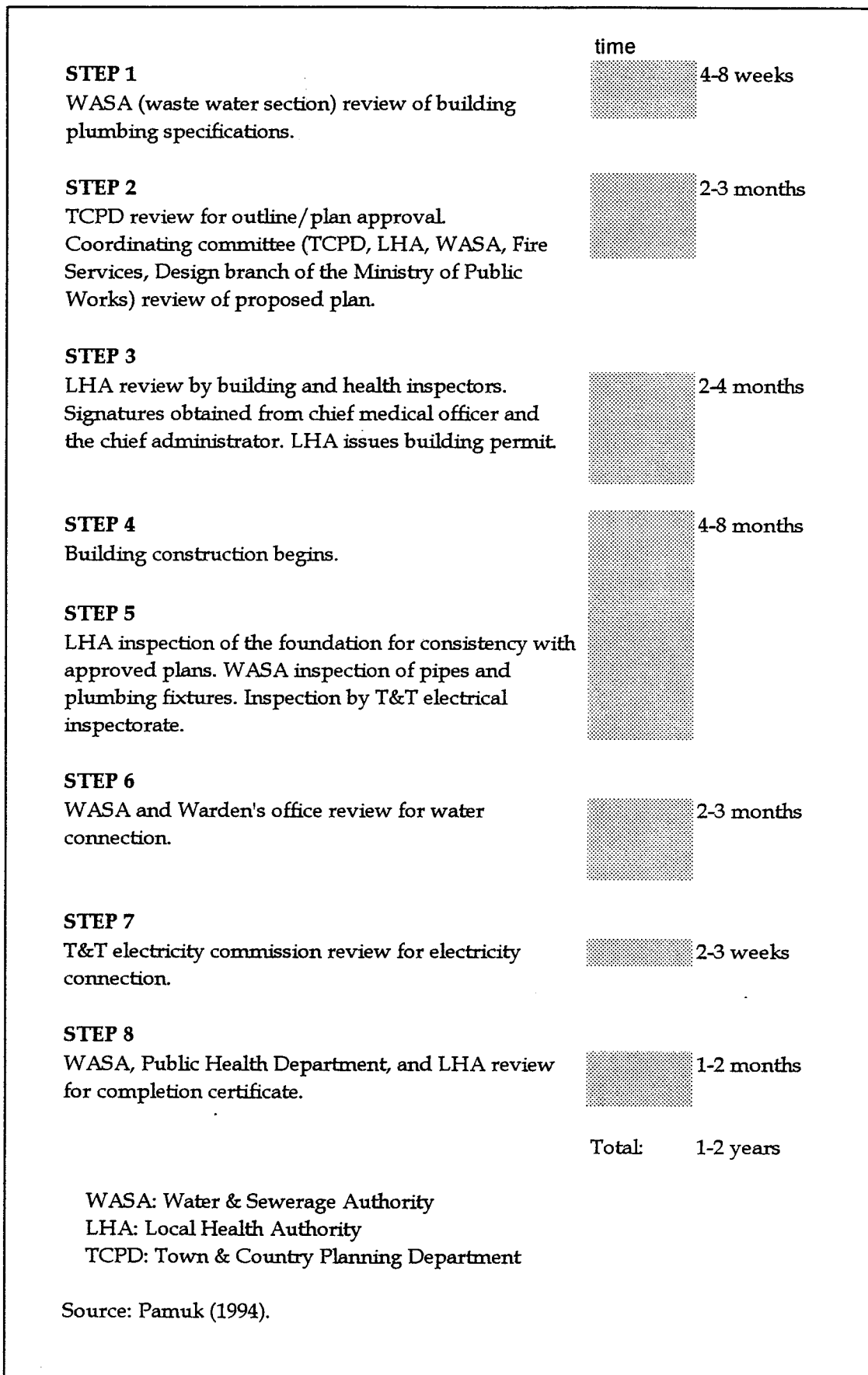


Table 5
Mortgage costs for a townhouse unit in Port-of-Spain
(in US dollars)

Purchase price:	\$111,600
Downpayment percentage:	40%
Downpayment:	\$44,640
Loan required:	\$66,960
Qualifying monthly income:	\$2,018
Annual interest rate:	12%
Term in years:	25
Monthly gross payment:	\$705
Monthly general insurance/management fee:	\$125
<u>Closing charges</u>	
Valuation fee:	\$321
Bank arrangement fee:	\$1,005
Stamp duty, conveyance:	\$4,464
Stamp duty, mortgage:	\$268
Legal fees, conveyance:	\$727
Legal fees, mortgage:	\$251
Legal fees, misc.	\$89
Title searches:	\$82
Total closing charges:	\$7,207

Source: Pamuk, 1994.

Table 6
Years Required to Save for Land

Annual Income (*)		Number of Years	
		Authorized	Unauhtorized
		Sector	Sector
		Plot	Plot
		@US\$2/sqft	@US\$.50/sqft
20th percentile	\$1,500	33	9
40th percentile	\$2,500	20	5
60th percentile	\$3,571	14	4
80th percentile	\$6,071	8	2

(*): Assumes that households save 20 percent of annual income.
Figures are in US dollars.

Source: Pamuk, 1994.

Table 7
Patterns of Land Demand, Land Supply and Land Price Changes in Five Cities

City	Year	Population	Annual Population Increase	Annual Urban Land Conversion (hectares)	Hectares of Urban Land/ 1,000 of Population	Constant Annual Land Price Increase (%)
Bangkok	1986	6,871,000	219,000	3,156	14.4	10.0
Jakarta	1987	7,800,000	359,000	527	1.5	11.3
Karachi	1987	7,444,000	453,000	934	2.1	11.3
Port-of-Spain	1990	447,000	2,700	158	58.5	0.0
San Pedro Sula	1988	280,000	17,100	390	22.8	4.4