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HOUSING NEEDS AND PROBABLE INVESTMENT IN
SRI LANKA: 1983-2003

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PREFACE

This work was carried out under contract to the Office of Housing and Urban Programs, U.S. Agency for International Development. The authors are both on the staff of the Urban Institute. They owe a special vote of thanks to Philip Gary and Desa Weerapana for their help in performing this work in Sri Lanka. Jack Howley, Sean Walsh, and Margery Turner provided valuable comments on an earlier draft.

This paper supercedes one of the same title dated March 1984. The current version incorporates a number of editorial changes, employs an up-dated version of the computer model to make the computations, and provides results for different sensitivity analyses.

Executive Summary

This report describes the results of a study undertaken to establish the number of dwelling units and the level of investment that would be required to provide Sri Lankans with minimally adequate housing by the year 2003.

In 1982 Sri Lanka invested 6.2 percent of GDP in residential construction -- 85 percent from private sources and 15 percent from public. The public share represented 6.8 percent of expenditures under the government's Public Investment Program (PIP) for the same year. In recent years annual housing production of about 110,000 dwelling units has typically been divided among quality groups as follows: units made of durable materials, 15,000; those made of semi-durable materials, 75,000; shanties, 20,000. A major source of additions to the stock of units constructed of durable materials has been the upgrading of other units to this level. In general, the share of national resources going to housing rose steadily over the period 1977 to 1983.

To provide minimum shelter to all households under the type of plans formulated in this report, the shares of GDP and the PIP now going to the sector would meet 80 percent of the subsidy requirements if properly employed. In 1988 government subsidies of Rs.1,077 million (in 1983 prices) would be required under the program compared to the Rs.874 million budgeted for 1984 by the government for housing assistance. The program would require that of the 245,000 families annually obtaining a new or upgraded unit under the plan about 110,000 would receive a subsidy for improving their housing situation during the 20-year

planning period. The subsidy would average about Rs. 10,000, probably either in the form of an outright grant or a reduced mortgage interest rate. The goal is certainly reachable in terms of the capacity of the country to produce the number of new and upgraded housing units implied.

It is important to note that reaching the minimum goals at the subsidy level indicated above requires very strong performance in the targeting of government resources. All government efforts would have to be directed at serving those households who would not be able to obtain minimum housing with their own resources. Additionally, government resources could not displace private efforts; that is, government resources would have to be in addition to what assisted households otherwise would have spent. Units would have to be constructed to the minimum design standards that are currently in effect in Sri Lanka, and the government would have to rigorously enforce the collection of loan payments in order to replenish its loanable funds and control the extent of subsidies. These are very strong conditions -- which program administration in Sri Lanka may be unable to satisfy strictly. Moreover, Sri Lankans may want to achieve improved housing at a higher rate than posited in the plan examined (see below). Still, these results show that very great progress can be made at existing resource levels and that fully closing the housing gap might well be possible.¹

In this context, one should recognize the major shift in government housing policies that occurred at the end of 1982. At that time government turned away from a combined program of the direct

1. Note that not all of the RS.874 is available for new programs, as about a quarter of it is dedicated to phasing out prior programs.

construction of high standard apartment blocks in urban areas and Aided Self-Help projects in rural areas, both of which carried very substantial subsidies. In place of these programs, government is formulating the Million Houses Program, whose central theme is to provide loan amounts at favorable (subsidized) interest rates, with principal amounts that are affordable by recipient households. Incremental upgrading of the existing housing stock in both rural and urban areas is to be emphasized. New construction will be in the form of sites-and-services projects built to realistic standards.

While the central thrust of the program is laudable, four challenges to its successful implementation are evident:

- o Subsidies must be minimized -- the program now has interest rates as low as 3 percent for the poorest households. A shift upward in the overall schedule of rates seems warranted.
- o Targeting the subsidies on those unable to afford adequate housing on their own. While reasonable income limits have been established, enforcing these may be difficult, especially in slum-upgrading projects with their economically heterogeneous populations.
- o Collections of loan repayments are especially critical, and weak performance in this area in the past indicates that it must receive special attention.
- o Successful implementation of a high volume slum upgrading program will be particularly difficult, given the small size and slow completion rate of such programs in the past.

While these are very demanding problems, the Sri Lankans appear to be trying to deal with them effectively. In this regard it is worth noting that although the interest rate schedule may be lower than desirable, it is higher than the one in force in the prior housing program.

Housing Needs in Sri Lanka

Several analyses of the extent of current and future housing needs in Sri Lanka have been done in recent years, and this naturally raises the question as to why one more such assessment was undertaken. The present study was carried out as part of the contribution of the Office of Housing and Urban Programs of the Agency of International Development to the International Year of Shelter for the Homeless. In particular, the Office agreed to illustrate the use of a housing needs assessment methodology that is implemented with the use of a microcomputer. As part of the Year of Shelter for the Homeless, the model will be made available to other countries for their use.

The application of the methodology to Sri Lanka was its first field test; a second was done about the same time in Kenya. The present needs assessment goes beyond earlier ones in several ways; and, in part because of the computerization of the method, it has been possible to do policy analyses through repeated simulations with the model. The model was set up for use by the Sri Lankans as part of this project.

The methodology (model) computes the number of dwellings -- both upgrades and newly built units -- required in the future to bring the dwellings of all households up to a analyst-specified minimum standard. It also computes the level of investment required to realize this level of housing production. Total investment is divided by the model between that which can be afforded by households based on historical housing investment patterns, and that which must be made by government or by households devoting a greater share of incomes to housing than they have in the past.

The "program" for reaching the goal of all households living in decent housing by the end of the 20-year plan period is central to the model's calculations. It is listed here to make clear the basis for the results obtained.

- (1) Improvised dwellings present in the base year (1983) are replaced at the rate of 5 percent per year;
- (2) Units requiring upgrading are improved at a 5 percent rate, which corresponds roughly to the experience of recent years;
- (3) Crowding (more than one household per unit) present in the base year is also eliminated at the 5 percent rate;
- (4) Replacement dwellings equivalent to 2 percent of the housing stock are required annually to compensate for obsolescence and other causes of withdrawal from the stock;
- (5) An additional dwelling is needed for each newly formed household.

The number of new units needed to satisfy these requirements over the plan period ranges from 116,000 (in 1983) to 166,730 in 2003. The higher figure at the end of the period embodies two offsetting factors: (a) needs are reduced on the one hand because slower population growth rates more than falling household sizes; (b) on the other hand, a larger number of units is needed to replace obsolete units in the growing housing stock. Units for newly forming households constitute a modest majority of total new construction; in 1993, for example, 59 percent of new construction goes to new households. In addition to new construction there is an almost equivalent level of upgrading on-going -- about 103,300 units each year during the plan

period. This high volume mirrors the fact that over half of the initial housing stock is in the upgradable category.

Overall, about 245,000 new and upgraded units will be needed each year. As suggested earlier, production at these levels certainly is within the capacity of the housing industry in Sri Lanka.

Housing investment from private resources obviously depends on what households in various sectors (urban, rural, and estate) and segments of the income distribution can afford. Our calculations show that all but 7 percent of households needing housing in the late 1980s could afford at least to upgrade their present unit to minimum standards. On the other hand, another 21 percent could afford the minimum standard "shell" housing unit or a full unit. The majority of households -- 72 percent -- can afford an up-graded unit. (Note that households "needing" housing in any given year consist of newly formed households plus those whose units are scheduled under the program for upgrading or replacement that year plus those living in crowded conditions scheduled for a separate unit; these are referred to as "incremental households.") Under our assumptions these percentages shift only slightly over the plan period, as the positive effects of rising real household incomes on housing investment are largely offset by even greater price rises in the residential construction sector.

As indicated earlier, government must close the gap between what households can afford and the cost of minimum housing solutions. It turns out that government must aid more than those who cannot afford even to upgrade their unit. The reasons for this are that the number of households who can afford an upgraded unit exceeds the number occupying

such units at the start of the plan period and that not all households are assigned the least cost (to the government) housing solution -- which reflects the reality of market operations and program administration. In a typical year in the plan period about 35 percent of "incremental households" require a subsidy in order to be able to acquire minimally adequate housing.

Key Policy Choices

The figures on affordability and the large share of the housing stock now present in Sri Lanka that is upgradable indicates that the general thrust of the Million Houses Program is correct. Moreover, the dwelling and infrastructure services standards adopted for the program appear to be reasonable.

The central unresolved question is the division of the cost of assisting households who cannot afford adequate housing on their own (if they devote the same share of income to housing as they have traditionally) between government and the households. The particular issue is the interest rate charged on the loans made to these households. Would these households be willing to devote more of their income to housing if they have the opportunity to realize a major improvement in this aspect of their standard of living? Evaluations of slum upgrading and sites and services projects in several countries suggest the answer is "yes", although one cannot be certain that the results hold for Sri Lanka.

A separate but related issue concerns the vehicle that the government has adopted for mobilizing resources and making these loan transactions. In essence the government has decided to act as its own

banker, making and servicing the loans. This seems unfortunate since, even if all the funds lent are government's, private financial institutions could gain valuable experience in real estate transactions by acting as the government's agents for making and servicing these loans.

1. INTRODUCTION

There is wide agreement that the quality of housing available to the people of developing countries is a major problem that each of these nations is being forced to address. Nation after nation is trying alternative approaches to achieve substantial gains in a few years. Often, however, these efforts are being expended without a complete and realistic definition of the task at hand. This can and does lead to putative solutions which are inappropriate, and sometimes extremely costly "false starts" are the consequence. The first step in a rational planning process is a thorough assessment of current housing needs as well as those likely to materialize over a reasonable planning horizon of ten to twenty years. With the needs clearly defined, a sound strategy to meet them can be formulated and implemented.

This paper presents an assessment of Sri Lanka's housing needs for the period of 1983-2003. In recent years Sri Lanka has devoted an extraordinary level of its scarce public resources to improving the conditions of housing in the country. Housing programs constituted some 10 percent of the Public Investment Program (PIP) in the early 1980s. In contrast, according to the 1983 PIP, housing will constitute about 3 percent of public investment in 1984-1985. Still, this is beyond much larger complementary infrastructure investment, particularly in water supply. In late 1982, the government announced a shift in housing policies designed to aid more households, using more parsimonious means of assistance than those of the past. In particular, the new Million Houses Program relies on upgrading and sites-and-services instead of very expensive direct construction and very heavily subsidized aided

self-help implemented under the former policy. In short, Sri Lanka is striving to upgrade its housing, and more refined estimates of needs can be instrumental in directing its program.

The needs estimates presented here have a particular logic to them which is important to grasp from the outset. In the first step the number of dwelling units needed each fifth year over the 20-year planning period is computed. These "needs" correspond to a specific plan, which will have all households living in adequate units by the end of the planning period. The plan includes new units to serve newly formed households, to replace obsolete and badly deficient units, and to relieve crowding, as well as the upgrading of existing units which have correctable deficiencies. For these calculations the rate at which housing deficits existing in the base year (e.g., overcrowding) are corrected is specified by the analyst. In the present analysis, the deficits are assumed to be eliminated at the rate of 5 percent per year.¹

In the second step the level of housing investment required annually to meet this program is calculated. Also, the amount of investment anticipated from private sources is estimated. The "capital gap" or shortfall between the level of investment needed to execute the program and that forthcoming from private (i.e., nongovernment) sources can then be determined. Note that these computations are done separately for households in each income quintile in three geographic sectors--urban, rural, and estate.

1. See Section 3 for details.

Because these estimates are done with a computer simulation model, it has been possible to test the change in outcomes that would result from changes in key factors -- such as the rate at which deficient units are up-graded; the share of income households are able and willing to devote to housing, and the definition of minimum standard unit. These analyses change the needs assessment from a simple set of targets into an actual planning exercise that can be updated and modified quickly and cheaply as needed.

Organization

Following a brief overview of the results which appear immediately below, the balance of the paper proceeds in four sections. The first briefly discusses the housing situation in Sri Lanka in 1981 and trends over the 1971-1981 period. The next section develops the estimates of the number of dwelling units needed over the next 20 years. The third section builds on the second, and presents the principal estimates -- those based on our best judgements about the future -- of needed and likely (without government assistance) housing investment. These levels are briefly examined in light of current investment. The final section examines the changes from these principal estimates associated with several major but feasible changes in developments over the next two decades. While the cases chosen are of interest of themselves, they are also designed to illustrate the range of analysis that can be undertaken with the model.

Highlights

Over the past decade, and especially during the five years preceding the 1981 Census, Sri Lanka realized important improvements in

the quality of housing enjoyed by its citizens. In 1981 compared to 1971 there were fewer persons per dwelling, a substantially larger share of dwellings were built of durable materials, and sanitary facilities were upgraded. Despite this progress, the majority of dwellings are insufficiently serviced in terms of drinking water quality, sanitation, or protection from the elements.

In the two decades ahead, Sri Lanka will need to construct about 145,000 units per year. Of these, about 85,000 are needed to provide dwellings for newly forming households; the balance goes to replace obsolete and non-upgradable units, and to relieve overcrowding present in 1983. In addition, if about 103,000 units per year are up-graded, the nation will be well housed -- in the sense that all households will be living in minimally adequate units -- by 2003. In short, construction of new units and upgrading of existing units totaling about 248,000 units per year is required. In the discussion, the households occupying these units are called "incremental households," since they are the households who move into the incremental units that meet the minimum housing standard. Production at these levels certainly is within the potential capacity of the housing industry, judging from the recent volume of new units and units upgraded.

However, the goal of adequate housing for all households depends on the ability of households to afford units meeting minimum standards. The analysis presented here focuses on those households unable to afford housing formally supplied by the private sector. These households are able to afford only the minimum quality unit or less. Households in this group are defined as "target households," and they may be

"assigned" to either of two categories of housing solutions: an upgrade of the household's existing unit or a new "shell unit" on a serviced lot meeting minimum quality standards. The amount a household can afford to pay for housing is determined by the capitalized value of its current housing expenditures. For households not able to afford the shelter solution assigned to them, the model calculates the shortfall between the design cost of the solution and the capital value they can afford.

The results of these investment calculations are best illustrated by a concrete example. In urban areas in 1988, 37,340 incremental households seek housing units, either because they are new households, because their units are obsolete or must be replaced due to overcrowding, or because their units are scheduled for upgrading. Of these, 16,880 (45 percent) can afford to upgrade a unit but only 8,440 (22 percent) can afford a "shell house." Fully 22 percent cannot afford even to upgrade their unit. Thus, altogether 90 percent can afford less than a complete unit on a fully serviced lot, hence are in the target group by definition.

For 1988 the results for the country as a whole are broadly similar to those of urban areas. About 72 percent of all households can afford an upgraded unit, while only about 7 percent cannot even afford this level. This certainly indicates that the incremental approach emphasized in the Million Houses Program is attuned to the realities of the country. There is some modest change in this pattern in the later years of the analysis period as there is an increase in the number able to afford higher solutions -- shell houses and full units. The extent of improvement is somewhat blunted, however, as prices in the

residential construction sector rise faster than the overall price level.

We have also compared the housing that these households can afford with the cost of getting all households to housing consistent with a minimum standard, either through an upgrade or new shell unit, given the assignment of households to housing solutions. Nationally in 1988, for example, 98,600 of the 215,800 incremental home seekers are unable to afford the housing solution assigned to them, about 46 percent. Moreover, the gap between what they can afford and the value of minimally standard housing is substantial: Rs. 1,077 million or Rs. 10,922 per household (in 1983 prices). This is the value of capital resources that would have to be mobilized and allocated to those households to meet the shortfall. It is equivalent to 18 percent of the total investment necessary in that year to meet the goals of the plan specified.

It is important to note that these resources need not come exclusively from government. Households might well be willing to devote more of their own income to housing investment, if the opportunity to achieve adequate housing were greater. It is evident that extraordinary resources have been mobilized by shanty dwellers when they have been provided with clear title to their properties and basic infrastructure.

At the same time, the 1988 gap of Rs.1,077 million can be contrasted with the level of government grants in 1984. The Ministry of Local Government, Housing and Construction will have an appropriation of about Rs.674 million for housing in 1984 plus some Rs.200 million in repayments, Rs.874 altogether. If these resources are targeted so as to

be strictly additive to the amounts households failing the minimum standard would have otherwise spent, and if they are received only by households in this group, government contributions alone could fill 80 percent of this gap. While these are stringent assumptions about the efficiency with which government uses its resources, they suggest that with the continued mobilization of public resources at their current level, a very substantial improvement in housing quality is within reach.

This assessment of the resources needed to close the housing gap in Sri Lanka needs to be considered cautiously. The implied efficiency of targeting has already been noted. Indeed the country might do well to limit the "leakage" to one-third of the government funds spent. Precise targeting has proven to be especially difficult in the upgrading of established shanty areas, due to the heterogeneity of the population. The estimate of government resources required also implies that there be no upward revision in the "housing solutions" provided to low income households over the plan period and that government is satisfied with the rate of progress in providing all households with decent housing. Likewise for an estimate of this order of magnitude to hold means that government must dramatically improve its record on the collection of loan payments. Finally, it requires considerable efficiency in the housing market, with suppliers responding to effective demand. At least in the rental sector, with its fairly effective rent controls, this is questionable.

On the other hand, there is reason to believe that the estimate of the capital gap is a realistic indication of the level of resources

government would have to commit. It may well be that households will be willing to devote more of their own income to housing in response to the provision of infrastructure services or some partial upgrading of the unit. For this reason, the depth of government assistance should be carefully monitored over the implementation period to determine if it is possible to reduce its involvement. In this regard, movement toward more realistic interest rates in the One Million Houses Program should begin at the earliest possible time.

2. THE CURRENT HOUSING SITUATION

This section provides a brief introduction to Sri Lanka housing by reviewing the housing situation in 1981, using Census data for that year. In the second part of the section, selected trends over the 1971-1981 period are highlighted. A final part looks at housing production sponsored by Government organizations and the private sector.

Housing in 1981

The 1981 population of Sri Lanka was 14.8 million. The population had divided itself into about 3.1 million households. The occupied housing stock totalled some 2.8 million housing units. Thus, nationally, there was about 10 percent overcrowding.

The figures in Table 1 provide some of the essential descriptive facts about housing in Sri Lanka. The country is only about 20 percent urbanized; a share that has been remarkably stable over the past decade. A significant share of the population (8 percent) continues to live on estates or plantations, where housing is furnished to workers and their families as part of the compensation package.

The second panel in the table gives the distribution of units classified by the strength of the materials from which their roofs, walls and floors are constructed. Only about 40 percent of all units are rated as "permanent" overall; but, on the other hand, less than 10 percent are classified as "improvised". As one might expect, the urban stock is the best and that in the estate sector the worst.

The following two panels in Table 1 deal with the source of drinking water and type of toilet facility. The most common source of

TABLE 1

HOUSING IN SRI LANKA
(percentages)

	SECTOR			
	Total	Urban	Rural	Estate
Distribution of units by location	100	18	74	8
<u>Percentage distribution of units by building materials^a</u>				
permanent	42	68	37	23
semi-permanent	52	24	56	76
improvised	6	8	7	1
Total	100	100	100	100
<u>Percentage distribution of units source of drinking water</u>				
piped water within premises	6	24	2	29
piped water outside premises	9	22	3	37
protected well	52	44	58	17
unprotected well	21	5	26	4
river, tank, other	7	1	8	6
not reported	3	4	2	8
Total	100	100	100	100
<u>Percentage distribution of units by toilet facilities</u>				
flush toilet	5	16	2	5
water sealed	22	39	18	25
pit	38	17	42	32
bucket type	2	9	b	2
none	31	16	35	28
not stated	2	3	2	8
Total	100	100	100	100
<u>Percentage distribution of units by tenure</u>				
owned	69	57	80	1
rented or leased	10	29	6	1
occupied rent free	12	8	6	79
other	5	3	5	6
not stated	4	4	3	13
Total	100	100	100	100

a. Definition of classification is provided in Table B.1.

b. Less than 0.5 percent

Source: Census of Population and Housing, Sri Lanka-1981: Housing Tables
(Colombo: Department of Census and Statistics, Preliminary Release No. 3, 1982).

water in both urban and rural areas is protected wells. However, in urban areas four of ten dwellings draw their water from taps about half of which are communal standpipes. The situation in rural areas is more difficult to discern because of ambiguity of the "protected well" category. If these wells are indeed protected from infiltration of pollutants, then the rural water supply situation is quite good, with 63 percent of units having access to piped water or water fund protected wells. On the other hand, over one-third of the units must rely on water from unprotected wells or lower grade sources. Differences between the two sectors are also evident in the toilet facilities. The majority of urban dwellings have flush or water sealed toilets, which are clearly of acceptable quality. In rural areas 20 percent of the units have such facilities, while pit latrines -- which can be of acceptable quality -- service over 40 percent of the dwellings. At the other end of the spectrum, a full 35 percent of rural units have no formal toilet facilities whatsoever, while 16 percent of units in urban areas are in this latter group.

Some further insight into housing patterns is available by examining the relationship between the strength of the materials used in constructing the unit and the type of sanitary facilities and water supply. Cross tabulations showing these relationships are presented in Table 2. The anticipated pattern of units built with permanent materials having the best infrastructure services clearly holds in urban areas. In the rural and estate sectors, by contrast, this pattern is much less evident. As an example, in the estate sector permanent units have the lowest rate of piped water as their water source. These

TABLE 2
TOILET FACILITY AND DRINKING WATER SOURCE BY DWELLING QUALITY, 1981
(percentage)

	URBAN			RURAL			ESTATE		
	Permanent	Semi Permanent	Improvised	Permanent	Semi Permanent	Improvised	Permanent	Semi Permanent	Improvised
Type of Toilet									
Water Sealed or Flush	71	23	8	42	6	5	44	24	44
Pit	11	31	19	43	47	15	27	34	20
Bucket type	9	11	8	1	--	--	2	2	-
None	6	30	61	12	45	77	8	3½	28
Not reported	3	4	4	2	1	3	18	6	8
Total	100	100	100	100	100	100	100	100	100
Source of Drinking Water									
Piped Water	54	39	37	9	4	4	55	69	70
Within premises	(34)	(8)	(5)	(4)	(1)	(1)	(32)	(27)	(49)
Outside premises	(20)	(31)	(32)	(5)	(3)	(3)	(23)	(42)	(21)
Protected Well	41	46	49	67	53	64	19	15	10
Unprotected Well	2	10	8	18	32	21	3	4	6
Other	1	2	2	4	11	9	4	6	6
Not reported	3	2	3	2	1	3	19	5	8
Total	100	100	100	100	100	100	100	100	100

Source: Census of Population and Housing, Sri Lanka-1981: Housing Tables (Colombo: Department of Census and Statistics, Preliminary Release No. 3, 1982), Tables 19 and 20.

patterns presumably are due to the uneven provision of various infrastructure services.

Tenure distribution of units is important because tenure can strongly effect housing investment decisions. This is especially the case in Sri Lanka where strict rent controls in effect since the early 1970s¹ have sharply depressed construction of rental units. The final panel of Table 1 presents tenure distribution figures. Owner-occupancy clearly dominates, although it should be noted that owners include those without title to their property as well as those in more secure ownership positions. Nearly 30 percent of the units in urban areas are rented; this is a reduction of about 10 percentage points since 1971, presumably reflecting the imposition of rent controls at mid-decade as well as a complementary law limiting the number of rental units a household can own.

Trends, 1971-1981

While the foregoing gives a general picture of the current housing situation, it is equally useful to know whether or not housing conditions have been improving. To explore this question, data from the 1971 and 1981 Censuses are compared. The basic figures are presented in Table 3.

The first important finding is that there was a rough parity between the growth in the number of dwelling units and in the number of households over the period. Population increased at a lower rate than households during the decade, but falling household sizes offset the lower population growth. At the same time, the combination of building

1. For a general description of the housing sector see U.S. AID (1981).

TABLE 3
CHANGES IN HOUSING INDICATORS: 1971-1981

	<u>Total</u>		<u>Urban</u>		<u>Rural</u>		<u>Estate</u>	
	<u>1971</u>	<u>1981</u>	<u>1971</u>	<u>1981</u>	<u>1971</u>	<u>1981</u>	<u>1971</u>	<u>1981</u>
Total households (000) (percentage change '71-'81)	2445 (28)	3125	474 (25)	592	1971 ^a (28)	2533 ^a		
Total dwellings (000) (percentage change '71-'81)	2217 (27)	2811	421 (21)	509	1797 ^a (28)	2301 ^a		
<u>Percentage distribution of units of building materials^b</u>								
permanent	35	42	63	68	32	37	12	23
semi-permanent	57	52	28	24	61	56	85	76
improvised	8	6	9	8	7	7	3	1
Total	100	100	100	100	100	100	100	100
<u>Percentage distribution of units by source of drinking water</u>								
pipied water on tap	20	17	45	46	5	5	75	66
well	69	73	51	49	82	84	15	20
river, tank, other	9	7	2	1	11	9	7	6
not reported	1	3	2	4	2	2	3	8
Total	100	100	100	100	100	100	100	100
<u>Percentage distribution of units by toilet facilities</u>								
flush toilet	7	5	23	16	2	2	8	8
water sealed	14	22	19	39	10	18	34	25
pit	39	38	18	17	44	43	38	32
bucket type	5	2	19	9	1	c	4	2
none	34	31	19	16	42	35	13	28
not reported	1	2	1	3	1	2	2	8
Total	100	100	100	100	100	100	100	100

a. Separate figures on household size needed to derive the number of households is not available for 1971; figures are for both rural and estate sectors.

b. Definitions of categories appear in Annex Table B.1.

c. Less than 0.5 percent

Source: 1971 and 1981 Censuses

larger dwellings and upgrading existing ones led to an overall reduction in occupancy rates over the period from 5.6 to 5.2 persons per unit. In considering the increase in units, one should be aware that the figures include units created through subdivision of units present at the beginning of the period as well as newly constructed ones. An examination of data on dwellings cross-tabulated by vintage from both censuses indicates that among "permanent" units, sub-divisions and the upgrading of "semi-permanent" units more than offset withdrawals from the stock. From low mobility rates in Sri Lanka and the extent of upgrading apparent, one would conclude that up-grading is a very important mechanism for households to obtain units rated as permanent.²

The decade of the 1970s also witnessed modest improvements in dwelling quality, as measured by the strength of building materials. The share of units classified as "improvised", however, was little changed.

The degree of progress in water supply and toilet facilities offers something of a contrast. Overall, little progress was made as to the source of drinking water. An ambitious investment program is underway, however, which will up-grade water service to much of the country in the years immediately ahead.³ Definite progress was evident in the share of units with flush or water sealed toilets as the share rose from 21 to 27 percent over the period, with genuine progress in both urban and rural areas.

2. Marga Institute (1984) Chapter 2 estimated that nationwide, about 40 percent of net additions to the number of permanent units over 1977-1981 was due to up-grading. For suggestive evidence on mobility rates see Chapter 6 of the same study.

3. See Romm (1982) for precise figures.

Private Production

While the foregoing gives a good overall picture of housing conditions in Sri Lanka, it is also important to focus on year-to-year dynamics in public and private production of housing. These trends provide essential background for judging the capacity of the country to produce the number of units needed in the future. Table 4 provides the essential information for the 1977-1981 period.⁴

Two points stand out from these figures. First, there has been a steady acceleration in the number of units built annually of permanent and semi-permanent materials: the level in 1981 is 70 percent greater than that in 1977. This indicates a residential construction industry of substantial current capacity and with considerable potential for rapid expansion. Secondly, while government sponsored housing has been important, the private sector has persistently accounted for the lion's share of total building activity. Hence, the surge in housing activity can be thought of as primarily funded by private demand. This degree of private activity is especially impressive in light of the substantial impediments to residential development: rent controls (although new units are exempt, the spectre of reimposition remains); the very limited amount of mortgage financing available; laws which make site assembly difficult;⁵ and substantial red tape in general. Finally, it might be noted that housing investment over this five year period appears to have accounted for about 5-7 percent of GDP.⁶

4. These figures were compiled in an AID-financed study by PADCO staff using data from the 1981 census and figures on government sponsored housing.

5. See World Bank (1983a) para 3.06 - 3.14.

6. The national income accounts data on residential investment are quite rough and this should be best be considered an order-of-magnitude estimate.

TABLE 4

ANNUAL PRIVATE AND PUBLIC HOUSING PRODUCTION 1977-1981

	1977	1978	1979	1980	1981	TOTALS
1. Total Production of Permanent and Semi-Permanent houses	57,414	71,195	88,417	89,566	96,455(a)	403,048
2. Housing Production by GSL Programs	-	2,545	6,186	12,889	8,841	30,461
3. Government Housing Loans	4,239	9,086	5,555	112	-	18,992
4. Total Public Sector Production	4,239	11,631	11,741	13,001	8,841	-
4. Total Private Sector Production	53,175	59,564	76,676	76,665	87,615	353,595

a. Projected for full year from census estimate for first quarter.

Source: PADCO, Meeting Housing Needs in Sri Lanka: A Strategy for the Future, (Washington, D.C.: Report to the Office of Housing, U.S. Agency for International Development, 1982) Table 9, p. 13.

Summary

The present housing situation in Sri Lanka is clearly a difficult one as reflected in selected measures of dwelling quality and basic services. Still, there has been obvious progress in the past decade, which provides a momentum that might well be built upon. Particularly encouraging is the recent surge in private housing production.

5. DWELLINGS NEEDED BETWEEN 1983 AND 2003

Estimating the number of dwellings needed in the future is probably the most familiar of the computations performed in this paper. Indeed, substantial methodological literature exists on this subject. The following sections consider the number of dwellings required to accommodate increases in the number of households, to make up for losses from the existing stock, to improve dwelling quality, and to reduce crowding to acceptable levels.

Accommodating Population Growth

All developing countries are experiencing population growth and in most cases that growth is rapid. The largest portion of most developing countries' housing needs arises in accommodating this population growth.

Population growth in Sri Lanka has been moderate by the standards of the developing world. Between 1971 and 1981, its population rose by only 17 per cent or 1.6 percent per year. This is the lowest level of all developing nations in its income group.¹

Abeykoon (1982) has projected future population growth using 1981 Census counts as his base.² The results of his projections appear in the last panel of Table 5 in the rows labeled "Population" and "Annual Growth". Note that the 1983 (base year) column in the table has zero values for those figures involving a growth rate. This is because 1983

1. World Bank (1983), Table 1.1.

2. These projections were compared with estimates done independently by the Department of the Treasury (Mrs. Patricia Allai Liama) and the two were found to be in close agreement. Abeykoon's projections are slightly lower, but the Treasury notes that its projections do not account for future migration. This would narrow the gap between the two series even further.

TABLE 5

POPULATION AND HOUSEHOLD FORMATION

	1983	1988	1993	1998	2003
	----	----	----	----	----
Urban Areas					
Population (1000s)	3331.43	3606.60	3866.24	4105.87	4311.04
Annual Growth Rate %	0.00	1.60	1.40	1.21	0.98
Average Household Size	5.51	5.38	5.24	5.11	4.98
Total Households (1000s)	604.62	670.37	737.83	803.50	865.67
New Households per Year	0.00	13.15	13.49	13.13	12.43
Rural Areas					
Population (1000s)	11187.39	12245.68	13235.11	14112.74	14858.00
Annual Growth Rate %	0.00	1.82	1.57	1.29	1.01
Average Household Size	4.91	4.68	4.48	4.35	4.25
Total Households (1000s)	2278.49	2616.60	2967.51	3244.31	3496.01
New Households per Year	0.00	67.62	70.18	55.35	50.34
Estates					
Population (1000s)	976.19	922.62	881.14	878.47	882.26
Annual Growth Rate %	0.00	-1.12	-0.92	-0.06	0.05
Average Household Size	4.58	4.35	4.15	4.05	3.95
Total Households (1000s)	213.14	212.10	212.32	216.91	223.30
New Households per Year	0.00	-0.21	0.05	0.92	1.21
Country					
Population (1000s)	15495.01	16774.90	17982.49	19097.08	20051.3
Annual Growth Rate	0.00	1.60	1.40	1.21	0.9
Average Household Size	5.00	4.79	4.59	4.48	4.3
Total Households (1000s)	3096.25	3499.07	3917.67	4264.71	4585.0
New Households per Year	0.00	80.56	83.72	69.41	64.0

is the initial year for rate-of-change calculations. The growth rate figures for the preceding period are shown in the terminal year column, i.e., rate of change for 1988 - 1993 is shown in the 1993 column.

It is essential to allocate population growth across sectors for the analysis developed here, due to differences in applicable housing standards (e.g., some sanitary facilities are feasible in low density areas that are not in cities), construction costs, and availability of financing. Sri Lanka's experience with urbanization sets her sharply apart from other developing nations. The level of urbanization has been virtually constant over the past two decades, being 21.5 percent in 1981. The reasons for this stability are thought to include government policies of providing free health and education services in the countryside, upgrading of rural infrastructure, massive investments in the Mahaweli Project that are increasing the availability of irrigated farmland, good transportation which facilitates the flow of goods to urban markets and short-term working visits to cities, and the sluggishness of job growth in urban areas.³

The result of these various factors is that the very high density districts of Colombo and Gampala have been growing steadily through immigration, but in the total urban sector this growth has been offset by net out-migration from other high density districts in the wet zone low lands and the hill country.⁴ Future retention of the rural population in the countryside seems probable, given the effects of the Mahaweli Project and the District Integrated Rural Development Programs.

3. These points are expounded in Marga Institute (1984), Chapter 3.

4. This description is from Gunawardena (1982).

Accordingly, the share of the population in urban areas is assumed to remain at 21.5 percent over the period. This yields the population figures in the top panel of Table 5.

The share of the non-urban population is also assumed to remain constant at 78.5 percent but with a declining share being accounted for by the estate sector. Between 1971 and 1981 estate sector population declined at an annual rate of 2.2 percent as Tamils were repatriated to India under a treaty between the two nations. There is some doubt that this rate of repatriation will continue since the treaty has now expired and India has not taken strong measures to ensure that repatriation will continue at its recent pace.

We expect that the estate sector will continue to lose population over the next decade, although at a reduced rate. For this analysis it has been assumed that population in the estate sector will decline at 1.1 percent per year, half of its earlier rate. This reflects both a slower rate of repatriation and some movement of rural area Sri Lankans into the estate sector to fill labor vacancies left by Tamils. In the second decade we have assumed that population on the estate sector will remain constant at its 1993 level as opportunities will attract labor needed on estates.⁵ Table 5 shows that estates accounted for 6.3 percent of total population in 1983. Under our assumption of a slowing

5. Abeykoon (1982) suggests that the backlog of Indian estate laborers wishing to be repatriated should be eliminated by the end of the decade, assuming a renewal of the agreement with India. (p. 28)

rate of decline in the estate sector this share drops to 4.9 percent in 1993 and 4.4 percent in 2003.

Projections of household size by sector are needed to translate future population levels into numbers of households. These have proven difficult to obtain. Since no such projections produced in Sri Lanka could be found, this analysis relies on estimates made by ESCAP (1976) as the basis for extrapolating household sizes in 1981 which we derived from figures on population and household counts contained in the census.⁶ Urban households have been projected directly, but the ESCAP series contains estimates only for a combined rural and estate sector. Separate projections for the rural and estate sectors were made using the combined projections series to extrapolate base household sizes for each sector individually. The results of these computations are the household size figures which appear in each panel in Table 5. As a result of the interaction between declining population growth rates and decreasing household size, the number of incremental households reaches a maximum in the 1988 - 1993 period and declines fairly sharply thereafter. (See the final row of figures in Table 5.)

Replacement of the Existing Housing Stock

The second component of housing needs arises from the need to replace units removed from existing housing stock. If one assumes that the replacement need is 3 percent of the existing stock annually, there are two alternative interpretations of this figure. One is that each housing unit has a life of 33 years, during which period it does not

6. These replace figures we used in earlier analyses which we obtained from the Department of the Treasury which in turn had employed data from the 1980 Socio-Economic Survey.

deteriorate, but at the end of which it drops out of the stock and must be replaced. Another interpretation is that each unit has an indefinite life, but to maintain a constant quality level, improvements amounting to 3 percent of the value of the structure must be made every year. It is important to note that these are capital improvements rather than routine maintenance and repairs. The correct interpretation of the replacement need undoubtedly lies somewhere in between these two extremes. For purposes of generating the overall needs estimate, the precise explanation is not critical.

The actual rate of physical depreciation in housing is one of the more elusive statistics in all countries, and Sri Lanka is no exception. Over the 1971-1981 period, 2 percent of the stock was retired each year - 1.5 percent in urban areas and 2.3 percent in rural areas. These are retirements from all sources, ranging from obsolescence to natural disasters. For the present calculations, we assume that these same rates hold into the future. This assumption is, if anything, slightly pessimistic, since permanent units are retired at lower rates and the share of permanent units in the total stock is increasing.⁷

Upgrading to Minimum Standards

A substantial share of the population in Sri Lanka lives in housing below the minimum acceptable quality level. Housing strategies typically give specific attention to the financial requirements arising from achievement of the social goal of adequate housing for the entire population.

7. Detailed calculations supporting this assertion have been done by the Marga Institute (1984).

Three separate aspects of achieving this minimum quality need to be considered. First, some households live in substandard units that are so deficient that it is unlikely that they could be up-graded. The 1981 housing census in Sri Lanka identifies about 130,000 units nationally as improvised structures. Such units are constructed of extremely nondurable materials. These are taken to constitute the population of unsalvageable units.

Second, there are dwellings that are deficient which could be up-graded. There is no specific government definition of up-gradable units.⁸ Likewise, the census categories by strength of building materials are of little utility because they do not include water and sanitary services. In discussion with staff in the architectural division of the National Housing Development Authority a three item list of critical unit features for which census data are compiled emerged: strength of the roofing materials, source of drinking water, and sanitary facility.⁹ The specific criteria used to determine adequacy for each factor in urban and rural areas and the number of units failing and are shown in Table 6. This list is not intended to be comprehensive; rather it provides an order of magnitude of the units requiring some upgrading. In the total provided, considerable overlap in the presence of deficiencies has been assumed (see table notes). Even so, the majority of the housing stock is estimated as requiring some type of

8. A good idea of the confusion between Census defined improvised units and clearly substandard dwellings, which (were?) made of permanent and semi-permanent materials, surfaces in discussions of slum and shanty housing. These are well illustrated in Selvarajah (1983).

9. Two additional areas considered to be critical, but not measured by the Census, were the floor being above the water seepage level and the unit having adequate ventilation.

TABLE 6
 UNITS REQUIRING UPGRADING 1984
 BY SECTOR AND STRENGTH OF BUILDING MATERIAL.

Component Failed	Urban		Rural		Estate	
	Permanent ^c	Semi permanent	Permanent	Semi permanent	Permanent	Semi permanent
Roof ^a	-	76	1	922	-	7
Drinking water ^b	169	78	193	524	14	27
Toilet ^c	101	95	555	322	27	124
Units failed ^d						
- by strength of material	169	107	555	1,093	27	124
- sector total	267		1,650		151	
Units needing upgrading as share of stock	.52		.79		.71	

a. Unit fails standard if roof is made of palmyrah, cadjan, straw or similar.

b. To pass requires:

Urban - piped water on or off premises

Rural - piped water (on or off premises) or protected well.

c. To pass unit must have water sealed unit (urban) or pit latrine (rural)

d. Assumes that same units have toilet and water deficiency and that two-thirds of these units are those with roof defects. So, for example, for urban semi-permanent units, two-thirds of units with toilet defects are assumed to have roof defects i.e., 64 (=95 * .67) this leaves 12 (=76-64) other units with roof problems giving a total of 107 (=95+12)

e. Refers to durability of roof and wall materials

upgrading. While this may seem extreme, these figures are in agreement with available survey data. For example, a comprehensive 1978 survey for the Colombo Municipality classified 40 percent of the housing stock as slums and shanties.¹⁰

The third element, crowding, can result in inadequate housing, even if the structure itself is physically sound and properly serviced. Crowding component can be seen as generating a need for additional new construction whenever two or more households occupy the same dwelling unit. Also a single, large family is crowded into a small dwelling unit, new construction may be the only solution unless there is room on the lot for expansion of the existing structure.

In this analysis only the additional housing needs arising from the occupancy of the same dwelling by two or more households are considered. It is important to note that in the Sri Lanka Census a household is defined as a group of persons who make common provisions for eating; thus, extended, multigenerational families are classified as a single household. In 1981, some 16 percent of urban households and 9 percent of those living in rural areas shared dwellings.

Adjusting the Baseline to 1983

Before projecting housing needs to 2003, the count of units given in the 1981 Census had to be updated to the 1983 base year. To do this we assumed that housing construction over the two year period was the same as in 1979 and 1980 combined. The distribution of units among sectors and quality levels was held constant. Subtracted from this new total was a number of units corresponding to the average rate at which

10. Survey results reported in Selvarajah et. al. (1979), p. 23.

units had been withdrawn over the 1971-1981 period. We considered the necessity of reducing the starting stock further to reflect the losses experienced during the summer of 1983. However, upon investigation this adjustment appeared unnecessary.¹¹

Defining the "Housing Program"

In computing the number of additional dwellings -- either new units or up-grades -- needed in the future, assumptions must be made about the rate of progress that is to be made in overcoming deficits present in the base year. These assumptions in effect constitute the target housing program. The definition of the program is important because it drives the investment calculations as well as the number of units needed.

For the results presented here the following rules of thumb were adopted: (1) Improvised dwellings present in the base year are replaced at the rate of five percent per year; (2) units requiring upgrading are improved at a five percent rate; (3) the crowding deficit is also eliminated at this rate; (4) replacement dwellings equivalent to 2.2 percent of the urban housing stock and 2.0 percent of the rural stock are required annually; and (5) an additional dwelling is needed for each new household. Under these assumptions all deficits are eliminated over the 20 year planning period. Note that the model explicitly assumes that program targets are accomplished each year.

11. The government agency responsible for protecting property and compensating citizens after the disturbances has recorded about 7,700 households applying to it. Since all damaged properties were vested in the government at the time of the disturbances, all households had to apply to the government or retain their houses. This figure excludes some shanty-type housing, but the number of such units is thought to be no more than two thousand. Thus, since the 7,700 figure includes damaged as well as destroyed units, total losses from the stock would not exceed this number.

Results

The estimates of the number of new and upgraded units needed to satisfy the requirements listed above are given in Table 7. The number of new units needed ranges from 116,400 (in 1983) to 166,730 in 2003. (See last panel of the table.) In addition, about 103,300 units are scheduled to be upgraded each year. Combined with units to be newly constructed, this gives the "Total Construction/Year" figures in the last line of the table. Note that these are the units needed to meet the plan in this year -- these are not five-year cumulative figures. This and following tables all give a snapshot of the flow of units (or investment) required in a particular year.

Units for newly forming households constitute about half of the total new construction needed. For example, in 1993, they account for 49 percent of new construction, the balance being accounted for by replacements and additional units to relieve overcrowding.¹² At the same time, new construction is a majority of all construction (new plus upgrades) over the period, ranging from 53 percent in 1988 to 61 percent in 2003. The fact that new construction is a fairly small share of total construction in Sri Lanka compared to most other developing countries reflects its low population growth rate and the large share of its stock which can be upgraded.

In general, these estimates of the number of dwelling units needed in the future are somewhat lower than other recently completed estimates. The principal reasons for the difference are (a) that these estimates employ more recent population projections which show lower

¹². Note that no overcrowding is relieved in the estate sector, since there is a surplus of units in this section owing to declining estate population over the 1983-1993 period.

TABLE 7

HOUSING STOCK AND REPLACEMENT

	1983	1988	1993	1998	2003
	-----	-----	-----	-----	-----
Urban Areas					
Dwelling Units by Construction Standard					
Acceptable Construction	213.00	376.26	541.22	704.38	864.06
(Annual Planned Repl.)	0.00	4.69	8.28	11.91	15.50
Non-Upgradable Construct.	48.00	36.00	24.00	12.00	0.00
(Annual Planned Repl.)	0.00	2.40	2.40	2.40	2.40
Upgradable Construction	267.00	200.50	134.00	67.50	1.00
(Planned Ann. 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/Yr	0.00	24.04	27.97	31.24	34.13
Total Construction/Year	0.00	37.34	41.27	44.54	47.43
Rural Areas					
Dwelling Units by Construction Standard					
Acceptable Construction	300.00	1132.11	1977.02	2747.82	3493.50
(Annual Planned Repl.)	0.00	6.60	24.91	43.49	60.45
Non-Upgradable Construct.	177.00	133.00	89.00	45.00	1.00
(Annual Planned Repl.)	0.00	8.80	8.80	8.80	8.80
Upgradable Construction	1650.00	1237.50	825.00	412.50	0.00
(Planned Ann. Upgrading)	0.00	82.50	82.50	82.50	82.50
Total Dwelling Units	2127.00	2502.61	2891.02	3205.32	3494.50
Total Overcrowded Units	151.49	113.99	76.49	38.99	1.49
Planned Annual Construction to					
Relieve Overcrowding	0.00	7.50	7.50	7.50	7.50
New Households/Year	0.00	67.62	70.18	55.36	50.34
Construction New Units/Yr	0.00	90.52	111.39	115.15	127.00
Total Construction/Year	0.00	173.02	193.89	197.65	209.50

TABLE 7 (CON'D)

HOUSING STOCK AND REPLACEMENT

Estates

Dwelling Units by Construction Standard

Acceptable Construction	62.00	66.00	132.23	178.81	223.26
(Annual Planned Repl.)	0.00	1.38	2.25	3.13	4.11
Non-Upgradable Construct.	2.00	1.50	1.00	0.50	2.00
(Annual Planned Repl.)	0.00	0.10	0.10	0.10	2.10
Upgradable Construction	151.00	113.50	75.00	32.50	1.00
(Planned Ann. Upgrading)	0.00	7.50	7.50	7.50	7.50
Total Dwelling Units	213.00	213.00	213.23	217.81	224.26
Total Overcrowded Units	0.14	0.20	0.00	0.00	0.00
Planned Annual Construction to					
Relieve Overcrowding	0.23	0.00	0.00	0.00	0.00
New Households/Year	0.00	-0.21	0.05	0.92	1.29
Construction New Units/Yr	0.00	1.48	2.40	4.15	5.50
Total Construction/Year	0.00	8.98	9.90	11.65	13.00

TOTAL COUNTRY

New Construction/Year ^a	0.00	116.04	141.75	150.54	166.73
Total Construction/Year	0.00	219.34	245.06	253.64	270.03

- a. Equals sum of replacements for depreciation of units of acceptable construction, replacements of non-upgradable units, new units to relieve crowding, and new units to meet household formations.

growth than those previously available¹³ and (b) differences in assumptions about replacement rates of various types.¹⁴ Overall, these estimates imply a level of construction which is well within the range of the ability of the economy to provide, judging from the production levels at the end of the 1970s reviewed above.

13. This applies to estimates by Struyk (1983) and Kingsley (1978). On the other hand, these counts agree closely with those by PADCO (1982).

14. This applies to estimates by the Marga Institute (1984), Chapter 5.

4. HOUSING INVESTMENT

This part of the report concentrates on investments in the housing sector over the planning period. Two separate estimates are made: (a) the amount of investment likely to accrue from private resources, i.e., from household savings and private borrowings; and (b) the investment that would be required from public and private sources to insure that all incremental households could occupy minimally adequate housing at a given year in the plan period, i.e., that the "housing program" defined above is successfully accomplished.

In general, the level of a household's accumulated housing investment is computed as the value of a home it would have if it had obtained conventional mortgage financing, using housing expenditures exclusive of expenses for utilities, property, taxes, and maintenance for mortgage payments.¹ This value, which is the asset value of the dwelling unit, can be compared with the design cost of units meeting certain minimum standards, such as the cost of a "shell unit". Comparisons of this type permit one to determine in a general way if the value of the dwellings that the population can afford to occupy exceed or fall below the cost of units meeting the minimum standard. The gap between the value of all occupied units that fail the standard and the minimum cost of an equivalent number of units that just meet the standard is the amount which public resources or more private investment would have to be achieved for all families to be adequately housed.

1. This calculation is described in greater detail later in this section.

Clearly these calculations are sensitive to a number of developments occurring over the planning period. Chief among these are the growth in the number of households and their distribution between urban, rural, and estate sectors; the overall growth of the economy and its distribution between sectors and among different income groups; the movement of prices and interest rates; and the share of income going to housing investments. Hence, all of these factors must be projected over the plan period.

This section presents results based on what we consider the "best" or most likely assumptions about these many inputs. The next section presents results for several other sets of assumptions. These alternative cases are designed to illustrate the sensitivity of results to changes in some of the most important factors underlying investment outcomes, including the rate of economic growth, the cost of capital for housing, and the amount of money households are willing to devote to housing.

Before proceeding to review the data inputs and investment estimates, a word about the role of government is in order. Clearly, the share of household income devoted to housing investment is potentially quite sensitive to government actions. For example, the rental sector constitutes about 30 percent of the urban housing stock. The presence of reasonably effective rent controls and limits on the ownership of rental property in Sri Lanka have strongly discouraged investment in the rental sector, both for new construction and for maintenance of existing units. Removal of these controls would result in both higher rents and a larger share of rents spent on maintenance.

As another example, Strassman (1982) and others have convincingly demonstrated that owner-occupants invest substantially more in their units when water and sewerage services are provided.² Security of land tenure also affects investment, as does the availability of housing finance. Finally, direct government investment can, of course, be very important.

The present model deals with government actions only to a limited extent. In Sri Lanka government actions in the future will take four principal forms. First, and by far the largest, is the Million Houses Program under which Government will make loans of several thousand rupees for specified house improvements. The size of the loan is based on the ability of the household to payoff its debt at subsidized interest rates, with the depth of the interest subsidy varying with family income. Second, infrastructure projects--especially up-grading the water supply of many households--are being implemented.³ Third, up-grading of slum, shanty, and estate housing will be undertaken. Fourth, rent control policy will remain extremely important.⁴

2. For example, Keare and Parris (1983).

3. An inventory of water supply projects currently being implemented is in Romm (1982). This report estimates the total number of beneficiaries to be 6.86 million people.

4. Two policy areas do not appear among the four actions listed. One is the availability of housing finance beyond that associated with the Million Houses Program. While Government banks made about 15,000 loans in the later 1970s, they have largely discontinued this practice owing primarily to collection problems. The private sector makes under 2,000 mortgage loans a year; so the overall level is currently low. For a general description of this area, see Gardner and Tuccillo, (1983). The second is secure land title. While insecure title is in principle a factor inhibiting investment, in practice this is not a significant factor in Sri Lanka, since Government has taken little action to evict squatters. Moreover, land-occupants after several years acquire certain rights to remain on the site.

The main set of computations incorporates assumptions about the last three policies. In particular, infrastructure improvements are assumed to occur at programmed rates and either households are assumed to pay for infrastructure services through user charges or a share of the household's investment is earmarked for this purpose.⁵ The upgrading of deficient units is scheduled to occur at the same rate as indicated in the last section. Finally, rent controls are assumed to remain in effect. Some of the alternative calculations presented in the following section look at possible effects of removing rent controls. We have not, however, been able to examine the effect of implementing the Million Houses Program because of the structure of the model. In particular, the model cannot apply different mortgage interest rates to various income groups. Nor can it treat some members of an income group (e.g., half of the lowest income households in rural areas) differently from the others in the group. These limitations mean that the model is best suited for analyzing policies that are applied quite broadly and affect all or most of the households in a sector. In the section on sensitivity analysis we try to crudely approximate this program by accelerating the rate at which upgrades of existing units are executed.

Underlying Data and Assumptions

As suggested at the start of this section, the investment calculations require that a range of data be provided as raw material. Data on population, households, and the housing stock have already been

5. In other words, these calculations assume that the increased availability of infrastructure service has no effect on the level of income households are devoting to housing investment.

discussed. Below we outline the macro-economic context, household incomes, expenditures on housing, and housing costs. Where appropriate, additional discussion of specific assumptions and data sources has been relegated to Appendix A.

Economic Environment. Sri Lanka's economic growth has been strong in recent years. Over the 1977-1981 period, annual growth in real GDP averaged 6.2 percent, with the industrial (including construction) and service sectors leading the way.⁶ Even in 1983, with its serious disruption of the summer, growth was around 4.2 percent, owing in part to high tea prices. The general view is that real growth in GDP may continue at about 5 percent per annum over the next few years if the demand for exports is sustained.

While the overall growth of the economy is an essential input, it is also important to project the allocation of economic gains between the urban and rural sectors since the housing investment calculations, which depend on income growth, are computed separately for each sector. It has proven infeasible to allocate growth between sectors on an industrial basis (e.g., agriculture, services, construction). Instead, we have allocated incremental growth to the urban and rural sectors on the basis of their shares of aggregate household income, as reported in the 1980/1981 Socio-economic Survey conducted by Bureau of Census and Statistics (1983). These computations show 70 percent of national income belongs to households in the rural and estate sectors and 30 percent to those in the urban sector.⁷ Given that the

6. The Source for these figures is the World Bank (1983).

7. For reference it might be noted that only about 27 percent of GDP has been generated in the agricultural sector in recent years, indicating the importance of non-agricultural activities in rural areas.

distribution of population between urban and non-urban areas is assumed for these calculations to remain as it was in 1981, the distribution of GDP is also assumed to remain constant. The argument in favor of this assumption in light of the greater dynamism of the economic activity concentrated in urban areas is that the enormous long-term investment by Government in the agricultural sector will begin yielding its return and thus balance the urban sector.

Table 8 shows the results of these GDP calculations, in millions of 1983 rupees. The figures labeled "Agricultural GDP" are the GDP generated in rural areas and "Non Agricultural GDP" refers to urban areas. The household income figures are discussed below.

Inflation is another economic factor to be considered. In Sri Lanka, inflation has been persistently high though erratic in recent years. While the Government forecasts that the inflation rate will reach 12 percent in 1984 and decline thereafter, this forecast is quite sensitive to exchange rate developments.⁸ As an alternative, we have adopted a sustained inflation rate of 12 percent, which is itself somewhat optimistic.

In addition to overall inflation rate, we need to know the rate of price increase in the residential sector. Essentially, the premise taken for this calculation is the conventional one that over the long-term the price per unit of housing services will be determined by the price of services from newly constructed units.⁹ So, it is the price of

8. Sri Lanka Ministry of Finance and Planning (1983), p. 34.

9. That is, in markets characterized by (a) growth in the number of households so that new building is necessary and (b) competition, then firms developing new housing will be unable to command excessive profits. Thus, the price charged will be the price of producing the services. In turn, this price establishes the market price since many households could opt for a new unit rather than an existing one.

TABLE 8

NATIONAL AND HOUSEHOLD INCOMES

	1983	1988	1993	1998	2003
	-----	-----	-----	-----	-----
National Income (Constant Units)					
GDP (Millions of units)	108582.00	138591.20	176866.50	225734.00	288100.00
GDP Ann. Growth Rate %	0.00	5.00	5.00	5.00	5.00
Agricultural GDP (Mill.)	76007.40	97006.81	123828.00	158213.80	201870.00
Non Agri. GDP (Mill.)	32574.60	41574.35	53067.50	67520.13	86429.99
Urban Areas					
Mean Annual Disposable Income					
All Households (1000s)	28.02	32.25	37.40	43.83	51.93
Annual Growth Rate of Mean Household Income %	0.00	2.65	3.01	3.22	3.45
Quintile Mean Incomes (1000s)					
1	8.27	9.51	11.03	12.93	15.32
2	12.05	13.87	16.08	18.85	22.33
3	17.37	20.00	23.19	27.18	32.19
4	28.02	32.25	37.40	43.83	51.93
5	74.67	85.66	99.67	116.82	138.38
Rural Areas					
Mean Annual Disposable Income					
All Households (1000s)	19.13	20.15	22.67	26.47	31.35
Annual Growth Rate of Mean Household Income %	0.00	2.13	2.39	3.14	3.44
Quintile Mean Incomes (1000s)					
1	6.25	6.95	7.82	9.13	10.82
2	9.25	10.28	11.56	13.50	15.99
3	13.69	15.21	17.12	19.99	23.67
4	18.86	20.96	23.58	27.33	32.61
5	42.51	47.25	53.17	62.07	73.52
Estates					
Mean Annual Disposable Income					
All Households (1000s)	14.71	18.87	24.05	30.05	37.24
Annual Growth Rate of Mean Household Income %	0.00	5.10	4.96	4.55	4.39
Quintile Mean Incomes (1000s)					
1	6.40	8.21	10.46	13.07	16.20
2	10.08	12.92	16.48	20.58	25.51
3	13.31	17.07	21.77	27.20	33.71
4	16.40	21.04	26.82	33.51	41.53
5	27.21	34.90	44.50	55.59	69.92

new housing services (for a constant quality dwelling) over time which should be computed. The cost of a new unit has two basic components: land and structure (inclusive of related infrastructure). Sri Lanka has several residential construction cost indices. The one we have selected applies to a constant quality unit. This index, along with two more general inflation indices, are shown in Table 9 for the period 1979-1983. As is readily apparent, there is little difference between construction price increases and overall inflation during this period.¹⁰ Hence, we assume that in the future residential construction prices move at the same rate as the overall price index.

As to land prices, the data are much less complete; in fact, reliable series on movements over time do not exist. There have been isolated studies of spectacular rises in land prices in Colombo city and its suburbs,¹¹ but these are exceptional cases. The present computations reflect an average rate for the entire country. Based on interviews and fragmentary data, we have taken the rate of inflation in land prices to be twice that of prices in general. Assuming that land on average accounts for 20 percent of the value of residential property, then the overall price rise in new units implied by the assumptions just outlined is 14.4 percent per year.

A final general economic input is the rate of interest on home mortgages. At present, the rate charged by private institutions is

10. This pattern contrasts sharply with that for the middle 1970s when construction accelerated much faster than the overall price index. Apparently, the construction sector has expanded sufficiently that the excess profits commanded during this expansion have been eliminated.

11. One example of such a study is Jinadasa (1982). For more on the land market see Weerapana and Rajalingam (1983).

TABLE 9
 SELECTED PRICE INDICES, 1979 - 1983 (Q3)^a

	House Construction Index ^b	Wholesale Price Index	Colombo Cost of of Living Index
1979	100	100	100
1980	127	133	126
1981	156	156	148
1982	180	165	164
1983 (Q3)	201	207	191

a. The wholesale and Colombo cost of living indices converted to a 1979 base by author.

b. Excludes land.

Source: Various tables from the Central Bank of Ceylon Bulletin, October, 1983.

Note that these figures agree with those compiled independently by the Statistics Unit of the Programming Division of the Ministry of Local Government, Housing and Construction which are published in its Statistical Bulletin on Housing and Construction.

around 24 percent, although only a few hundred are being made each year. Government-sponsored loans carry much lower subsidized rates. Indeed, loans made in the Aided Self-Help Program had a zero interest rate. On the other hand, loans made by the State Mortgage and Investment Bank have carried rates of 12-22 percent, the higher values of which compare favorably with commercial bank rates.

For future years, one could argue for a rate of about 18 percent for two reasons. First, this rate is generally consistent with the rate of inflation projected. Second, it is consistent with the 14 or 15 percent cost of funds to the government (plus administrative costs).¹² Hence, 18 percent is also close to the rate at which government would lend funds if it were realizing full cost recovery.

On the other hand, few households actually finance their housing at such rates. As noted, most government loans have been at zero or very low rates. Likewise, loans made under the Million Houses Program will have mortgage interest rates in the 3 to 9 percent range, depending on the income of the borrower -- a definite problem for rational use of resources. At least as important, intra-family borrowing, which is the most common source of funds, appears to be at rates comfortably below market levels, probably in the 3-8 percent range. For these reasons we use a market-wide rate of 8 percent for the base case. One of the sensitivity analyses examines the effects of a higher average interest rate.

Household Income. In these computations, investment is computed for households in each income quintile in each of three sectors --

12. Central Bank of Ceylon (1983) Tables 11 and 12.

urban, rural, and estate. Data on the distribution of income in each of the sectors comes from the 1980/81 Socio-Economic survey. These data can be thought of as being applicable at the start of 1981. They need, however, to be modified in two ways to compensate for under-reporting of income and to update them to 1983. As to under-reporting in the survey data, the Bureau of Census and Statistics is well aware of the problem but has not made precise estimates of its magnitude. The rule of thumb adopted by the Bureau is that the difference between reported income and expenditures is a good estimate of the least amount of under-reporting. Using this rule, the average amount of under-reporting is equivalent to about 40 percent of reported income.¹³ We have applied sector-specific adjustment factors to raise incomes by this order of magnitude. This is certainly a large adjustment, but commentary by the Central Bank (1983b, p. 11) implies strong incentives to under-report -- for lower income families to remain eligible for some free services and to disguise illicit income, and for high-income families to avoid taxes. These incentives combined with the usual problems of valuing and inventorying in-kind income makes this order-of-magnitude quite possible.

To update the figures to 1983, incomes were increased by the overall rate of inflation and the growth in real GDP, corrected for

13. There may or may not be implications of this underreporting for AID programs. If one assumes that such underreporting occurs when income figures for potential participants in AID programs are compiled, then no adjustments are required as the program is still using a cut-off at the median household income although the median figure itself is wrong. If, on the other hand, one believes that more accurate data is obtained from potential participants, then the figures used in determining the program's income limits must be raised accordingly.

increases in the number of households, for 1981 and 1982.¹⁴ These steps yield average incomes in each sector at the beginning of 1983 as follows: urban, RS.28,500; rural, Rs.18,130; estate, Rs.14,710. In future years household incomes are assumed to increase with inflation and economic growth. These figures are shown in Table 8, along with the average income in each income quintile in each sector.

Housing Expenditures and Investment. To determine the value of housing occupied by households in different income groups and sectors we compute the capitalized value of income presently being spent on housing investment.¹⁵ To arrive at this figure one must identify housing expenditures and isolate that share of housing expenditures available for housing investment. Given the data for Sri Lanka, this turns out to be a somewhat complicated task, a description of which is provided in Appendix A. In capitalizing the relevant expenditures, the present value of continuously making investments at this level is calculated; it is as if the household was able to obtain a mortgage whose debt service equalled his housing investment expenditure. This capitalized value is the value of the unit the household commands, and is referred to as the

14. The rate of inflation employed was the wholesale price index, which is generally thought superior to the Colombo Cost of Living Index. An alternative considered was to use increases in wages over the period, to reflect the possibility of wages lagging behind inflation. An examination of the various wage rate series showed very sharp disparities among them which were found very difficult to reconcile into a general figure. (See Central Bank of Ceylon, 1983, pp. 130-137). Figures for real growth in GDP are from World Bank (1983); the household growth rate was set at 2 percent per annum.

15. Throughout this discussion we have used "income" to mean total personal income. In addition to money income this includes income-in-kind and imputed rental income. Housing expenditures include both money expenditures, and for owners, the opportunity cost of their housing equity.

affordable dwelling unit cost. In reality, these values are, of course, approximations of the actual values the households command at any point in time.¹⁶ But they give a reasonable picture of the housing the household can achieve with its current rate of expenditure over an extended time period.

Table 10 shows the percentage of income going to housing overall (exclusive of utilities) and the affordable dwelling unit cost, based on an 8 percent interest rate. All housing expenditures not needed for recurring expenditures (e.g., property taxes and simple maintenance) are available for investment. The capital values or "affordable dwelling cost" shown in the table have two distinct interpretations. The first is that the household uses the amount of money available for monthly housing investment to make mortgage payments on a unit of this value. The mortgage's terms are a 20-year term at an 8 percent interest rate. With a mortgage the household obtains a dwelling of that value immediately. The second interpretation is that the household does not obtain a mortgage, but rather uses these monthly funds to incrementally construct his unit. The value of the unit shown as the affordable value in the table is the present value (discounted at 8 percent) of sustaining this stream of investments for 20 years. The most important difference between this situation and the one in which a mortgage is obtained, of course, is that the household making the incremental investment only obtains this level of housing at a much later date. Thus, the "affordable dwelling cost" is the value of the dwelling that

16. The difference between the capitalized value computed here and actual values will in general be greater the larger financial market imperfections which inhibit families borrowing against future income.

TABLE 10

AFFORDABLE CAPITAL COST

Urban Areas

Interest Rate (%)	8.00
Loan Term (Years)	20.00
Downpayment Required (%)	0.00

	1983	1988	1993	1998	2003
Thousands of Currency Units	-----	-----	-----	-----	-----
Quintile 1					
Mean Annual Income	8.27	9.51	11.03	12.93	15.30
% Available for Housing	17.60				
% Needed for Recurr. Exp.	18.00				
Monthly Income for Mortg.	0.10	0.11	0.13	0.15	0.17
Affordable Dwelling Cost	11.89	13.68	15.86	18.59	22.00
Quintile 2					
Mean Annual Income	12.05	13.87	15.88	18.85	22.30
% Available for Housing	16.60				
% Needed for Recurr. Exp.	18.00				
Monthly Income for Mortg.	0.14	0.16	0.18	0.21	0.24
Affordable Dwelling Cost	16.34	18.91	21.81	25.53	30.20
Quintile 3					
Mean Annual Income	17.37	20.00	23.19	27.18	32.10
% Available for Housing	14.10				
% Needed for Recurr. Exp.	18.00				
Monthly Income for Mortg.	0.17	0.19	0.22	0.26	0.30
Affordable Dwelling Cost	20.01	23.03	26.71	31.30	37.00
Quintile 4					
Mean Annual Income	28.02	32.25	37.40	43.83	51.50
% Available for Housing	17.10				
% Needed for Recurr. Exp.	18.00				
Monthly Income for Mortg.	0.33	0.38	0.44	0.51	0.60
Affordable Dwelling Cost	39.14	45.06	52.25	61.23	72.50
Quintile 5					
Mean Annual Income	74.67	85.95	99.57	116.82	138.30
% Available for Housing	23.80				
% Needed for Recurr. Exp.	18.00				
Monthly Income for Mortg.	1.21	1.40	1.62	1.90	2.20
Affordable Dwelling Cost	145.19	167.13	193.67	227.13	269.00

TABLE 10 (CON'D)

AFFORDABLE CAPITAL COST

Rural Areas

Interest Rate (%)	8.00
Loan Term (Years)	20.00
Downpayment Required (%)	0.00

	1963	1966	1969	1968	2003
Thousands of Currency Units	----	----	----	----	----
Quintile 1					
Mean Annual Income	6.25	6.95	7.82	9.13	10.82
% Available for Housing	16.30				
% Needed for Recurr. Exp.	7.00				
Monthly Income for Mortg.	0.00	0.09	0.10	0.12	0.14
Affordable Dwelling Cost	9.45	10.53	11.81	13.75	16.34
Quintile 2					
Mean Annual Income	9.25	10.28	11.56	13.50	15.99
% Available for Housing	13.00				
% Needed for Recurr. Exp.	7.00				
Monthly Income for Mortg.	0.09	0.10	0.12	0.14	0.16
Affordable Dwelling Cost	11.14	12.38	13.93	16.26	19.26
Quintile 3					
Mean Annual Income	13.69	15.21	17.12	19.99	23.67
% Available for Housing	19.00				
% Needed for Recurr. Exp.	7.00				
Monthly Income for Mortg.	0.20	0.22	0.25	0.29	0.35
Affordable Dwelling Cost	24.10	26.78	30.14	35.18	41.67
Quintile 4					
Mean Annual Income	18.85	20.96	23.58	27.53	32.61
% Available for Housing	11.40				
% Needed for Recurr. Exp.	7.00				
Monthly Income for Mortg.	0.17	0.19	0.21	0.24	0.29
Affordable Dwelling Cost	19.92	22.13	24.91	29.06	34.44
Quintile 5					
Mean Annual Income	42.51	47.25	53.17	62.07	73.52
% Available for Housing	9.00				
% Needed for Recurr. Exp.	7.00				
Monthly Income for Mortg.	0.30	0.33	0.37	0.43	0.51
Affordable Dwelling Cost	35.45	39.40	44.34	51.76	61.31

TABLE 10 (CON'D)

AFFORDABLE CAPITAL COST

Estates

Interest Rate (%)	8.00
Loan Term (Years)	20.00
Downpayment Required (%)	2.00

	1963	1968	1993	1998	2003
	----	----	----	----	----
Thousands of Currency Units					
Quintile 1					
Mean Annual Income	6.40	8.21	10.46	13.07	16.2
% Available for Housing	13.40				
% Needed for Recurr. Exp.	77.00				
Monthly Income for Mortg.	0.02	0.02	0.03	0.03	0.0
Affordable Dwelling Cost	1.58	2.52	3.21	4.01	4.5
Quintile 2					
Mean Annual Income	10.00	12.92	16.48	21.53	25.5
% Available for Housing	10.00				
% Needed for Recurr. Exp.	77.00				
Monthly Income for Mortg.	0.02	0.03	0.03	0.04	0.0
Affordable Dwelling Cost	2.35	3.01	3.85	4.81	5.9
Quintile 3					
Mean Annual Income	13.31	17.07	21.77	27.22	33.7
% Available for Housing	9.40				
% Needed for Recurr. Exp.	77.00				
Monthly Income for Mortg.	0.02	0.03	0.04	0.05	0.0
Affordable Dwelling Cost	2.67	3.68	4.69	5.65	7.2
Quintile 4					
Mean Annual Income	16.40	21.24	26.82	33.51	41.5
% Available for Housing	11.00				
% Needed for Recurr. Exp.	77.00				
Monthly Income for Mortg.	0.03	0.04	0.05	0.07	0.0
Affordable Dwelling Cost	4.13	5.30	6.75	8.45	10.4
Quintile 5					
Mean Annual Income	27.21	34.90	44.50	55.53	68.9
% Available for Housing	12.00				
% Needed for Recurr. Exp.	77.00				
Monthly Income for Mortg.	0.06	0.08	0.10	0.13	0.1
Affordable Dwelling Cost	7.48	9.67	12.04	15.27	18.9

households will eventually obtain -- some quickly, some far in the future. Thus, for example, the households in the lowest income quintile in urban areas, spend 17.6 percent of their income on housing, of which 19 percent is used for recurring expenses, leaving 14.4 percent [$17.6 * (1-.18)$] for investment. As one would expect, higher valued housing is available to higher income households and to those in the same income quintile over time as income rises. The house values shown for 1983 generally accord with values perceived by those familiar with housing in Sri Lanka for various income groups in urban and rural sectors. Finally, it should be noted that the figures for the estate sector are essentially illustrative, since housing is provided as part of the compensation package.

In these computations the ratio of housing investment to income is held constant over time (for each income quintile in each sector). This implies an income elasticity of demand of one. While this is somewhat higher than conventional estimates would indicate, recent estimates done on a consistent basis for several developing countries by Mayo and Malpezzi (1983) find the same share of income going to housing in higher income cities as in lower income cities, suggesting an income elasticity of this value. Moreover, recent estimates of income elasticities by the Central Bank (1983, Table 145) indicate an elasticity at least this large, although one should be concerned about the definition of housing expenditures employed.

Housing Standards and Costs. In these computations, the cost (value) of minimally standard housing is specified, so that the value of housing obtained by households from their own investments can be

compared to the value of the unit meeting the minimum standard. In fact, two standards are specified. These are listed below for urban areas:

Standard A. A shell house of 300 sq. ft., cement floor, roof on columns (no walls); laterite pathway, water from a public standpipe, public toilet.

Standard B. A completed house of 430 sq. ft., consisting of hall, 2 bedrooms, kitchen; laterite street, individual water connection, water-sealed toilet with septic tank.

These two standards must be related to three cost levels. An extra cost level arises because Standard A can be obtained through either upgrading an existing unit or through entirely new construction. These cost levels in 1983 are as follows:¹⁷

<u>Standard and Cost Level</u>	<u>Urban</u>	<u>Cost</u>	<u>Rural</u>
Standard A.			
Cost level 1 (upgrade)	Rs. 9,000		Rs. 5,000
Cost level 2 (new unit)	29,000		26,000
Standard B.			
Cost level 3 (new unit)	45,000		40,000

It is important to note that the income needed to afford the capital required for an up-grade includes both the cost of the actual up-grade and the value of the initially occupied unit. The initial unit values used in these calculations are Rs. 3,500 and 5,000 for rural and urban

¹⁷. See Appendix A for details on these costs. The computer model used to allocate investment is also capable of allocating unit cost (and overall investment) among land, infrastructure, and structure. We divided the allocations of housing costs generally into these components, and these figures are also given in the Appendix.

areas. Hence, for example, an urban household would need to be able to sustain investments for a Rs.14,000 unit to up-grade his dwelling. The housing quality indicated by Standard A is roughly the level being used in the Million Houses Program. This appears to be a highly appropriate solution for Sri Lanka.

Meeting the Annual Needs

The previous major section provided an estimate of the number of dwellings that would be needed to meet the annual need for additional dwellings in Sri Lanka under a specific program, i.e., the specified rates at which units are upgraded, overcrowding relieved, and so forth. Here we present estimates of the ability of households actually to afford units meeting the minimum standard each year. Making such calculations requires a fairly stringent set of assumptions. Among the more important is that new households and households occupying units scheduled for replacement due to obsolescence are distributed evenly among income groups in their sector of the country.¹⁸

This analysis focuses on those households unable to afford dwellings meeting Standard B (Cost Level 3). Households in this group are defined as "target households". It is assumed that units that are overcrowded, unsalvageable, and needing upgrading are evenly distributed among the income categories making up the "target group" in each sector.

Two categories of housing are provided to target households: upgrade of existing units and new units meeting Standard A, Cost Levels

18. For details see R.R. Nathan and The Urban Institute (1984).

1 and 2.¹⁹ The amount of housing each household group (income quintile in each sector) can afford is established by the capitalized value of its housing investment. The model allocates upgrades and new units evenly to all income groups in the target group in a sector. Hence, some households who can afford a Level 2 unit ("shell house") are assigned an upgrade. Similarly, some households who cannot afford either solution are assigned to upgrades and shell houses. For households not able to afford the assigned solution, the model calculates the shortfall between the design cost of a "shell house" (Cost Level 2) and the capital value the household can afford.

The number of upgrades and new units for each sector is established by the plan defined by the analyst, which was discussed in the last section. Note that the model explicitly assumes that the plan is accomplished each year.

Before turning to the results of these computations, a further word about what is represented by the capital values computed by the model is in order. If a household bought exactly the package of housing upon which the Cost Level 1 or Cost Level 2 figures are based, it would occupy a unit meeting the minimum standards as they have been defined. In many cases, a household may occupy house worth this amount but still not meet the standard because the necessary infrastructure is not available or because the household chooses a larger unit with fewer amenities. Likewise, in some cases, the standard will be realized at a lower capital value, as when adequate water services are freely provided

¹⁹. It is also assumed that all households occupying units to be upgraded are evenly distributed among the income quintiles that make up the target group.

by the government. Hence, these computations give a general picture of what would happen if the program described in the previous section was an actual planning goal.

The results are shown in Tables 11 and 12. The entries in Table 11 summarize the number of households which can afford dwelling units at various cost levels. These data are for those households scheduled under the plan to be seeking a new unit or to have a unit upgraded in the year indicated at the head of the column; they are not five-year totals or averages. Thus, in urban areas in 1988, 37,340 households require a unit, either because they are new households, because their units are obsolete and must be replaced, because overcrowding needs to be relieved, or because their units are scheduled for up-grading. (See Table 7 for details.) Of these, 16,880 (45 percent) can afford to upgrade a unit but only about 8,440 (22 percent) can afford a entirely new unit (Cost Level 2). Fully, 22 percent cannot afford even to upgrade their unit. Thus, altogether 90 percent can afford only a unit below Cost Level 3 and hence are in the target group by definition.

For 1988 the results for the country as a whole are broadly similar to those of urban areas. About 72 percent of all households can afford an upgraded unit, and only about 7 percent cannot even afford this level. This certainly indicates that the incremental approach emphasized in the Million Houses Program is atuned to the realities of the country. In the later years of the analysis period, the number of households who cannot afford an upgrade declines slightly, but, there is virtually no increase in the number able to afford higher solutions -- shell houses and full units. This pattern of stability is brought

TABLE 11
TARGET GROUP IDENTIFICATION

	<u>1988</u>	<u>1993</u>	<u>1998</u>	<u>2003</u>
Thousands of Households				
Metropolitan Area				
Affordable Level 0	8.44	9.23	0.00	0.00
Affordable Level 1	16.88	18.46	29.65	36.26
Affordable Level 2	8.44	9.23	9.88	0.00
Subtotal, Target Group	33.77	36.92	39.53	36.26
Affordable Level 3	3.57	4.35	5.01	11.17
Total	37.34	41.27	44.54	47.43
Rural Areas				
Affordable Level 0	0.00	0.00	0.00	0.00
Affordable Level 1	138.42	155.11	158.12	140.57
Affordable Level 2	34.60	38.78	39.53	46.86
Subtotal, Target Group	173.02	193.89	197.65	187.43
Affordable Level 3	0.00	0.00	0.00	22.16
Total	173.02	193.89	197.65	209.59
Estates				
Affordable Level 0	7.18	7.92	9.32	10.40
Affordable Level 1	1.80	1.98	2.33	2.60
Affordable Level 2	0.00	0.00	0.00	0.00
Subtotal, Target Group	8.98	9.90	11.65	13.00
Affordable Level 3	0.00	0.00	0.00	0.00
Total	8.98	9.90	11.65	13.00
Country				
Affordable Level 0	15.62	17.15	9.32	10.40
Affordable Level 1	157.10	175.55	190.10	179.43
Affordable Level 2	42.71	48.01	49.41	46.86
Subtotal, Target Group	215.43	240.71	248.83	236.68
Affordable Level 3	3.57	4.35	5.01	33.33
Total	219.00	245.06	253.84	270.01

TABLE 12
 TARGET HOUSEHOLDS, TOTAL INVESTMENT
 AND SUBSIDIES

	<u>1988</u>	<u>1993</u>	<u>1998</u>	<u>2003</u>
<u>Country</u>				
Target households (1000s)				
Total	215.8	240.7	248.8	236.7
Requiring subsidies	98.6	118.6	121.9	113.2
Investment (Millions)				
Target group	4358.6	5608.0	6833.4	6056.9
Subsidy	1077.2	1412.6	1553.2	1623.4
Non target group	596.2	843.8	1137.5	3266.7
Total	6032.1	7864.5	9524.0	10947.0
<u>Urban Areas</u>				
Target households (1000s)				
Total	33.8	36.9	39.5	36.3
Requiring subsidies	18.7	21.4	20.0	23.0
Investment (Millions)				
Target group	782.6	1009.9	1284.4	1013.9
Subsidy	215.3	255.7	289.3	333.4
Non target group	596.2	843.8	1137.5	1908.3
Total	1594.1	2109.4	2711.2	3255.5
<u>Rural Areas</u>				
Target households (1000s)				
Total	173.0	193.9	197.6	187.4
Requiring subsidies	72.4	89.1	92.1	78.7
Investment (Millions)				
Target group	3558.9	4563.5	5485.7	4945.5
Subsidy	793.7	1064.3	1119.9	1100.0
Non target group	---	---	---	1358.5
Total	4352.6	5627.8	6605.6	7404.0
<u>Estates</u>				
Target households (1000s)				
Total	9.0	9.9	11.6	13.0
Requiring subsidies	7.5	8.4	10.1	11.5
Investment (Millions)				
Target group	17.1	34.6	63.3	97.6
Subsidy	68.2	92.7	144.0	190.1
Non target group	---	---	---	---
Total	85.3	127.3	207.3	287.7

about by rising household incomes being balanced by rising construction costs.

We have also compared the housing that these households can afford with the cost of getting all households to housing consistent with a minimum standard, either through an upgrade or new shell unit, given the assignment of households to housing solutions. The top panel of Table 12 gives the results for the country as a whole. Nationally in 1988, for example, 98,600 of the 215,800 incremental home seekers in the target group are unable to afford adequate accommodations, about 46 percent. Moreover, the gap between what they can afford and the value of minimally standard housing is substantial: Rs.1,077 million or Rs.10,922 per household (in 1983 prices). This is the value of capital resources that would have to be mobilized and allocated to those households to meet the shortfall. It is equivalent to 18 percent of the total investment necessary in that year to meet the goals of the plan specified in the previous section.

It is important to note that these resources need not come exclusively from government. Households might well be willing to devote more of their own income to housing investment, if the opportunity to achieve adequate housing were greater. It is evident that extraordinary resources have been mobilized by shanty dwellers when they have been provided with clear title to their properties and basic infrastructure.

The figures in Table 13 amplify the results for the later years somewhat. They show essentially no reduction in the share of households in the target group and those needing subsidies until the last five years of the period (1998-2003). The slight decline occurs in the rural sector and reflects that the growth in household incomes finally permits

TABLE 13
 NUMBER OF INCREMENTAL HOUSEHOLDS AND THE
 PERCENTAGE IN THE TARGET GROUP AND NEEDING A SUBSIDY

	<u>1988</u>	<u>1993</u>	<u>1998</u>	<u>2003</u>
<u>Country</u>				
Total "incremental" households ^a	219.3	245.1	253.7	270.0
Percentage of total				
- in target group	98.3	98.2	98.0	89.6
- requiring subsidy	44.9	48.4	48.1	41.9
<u>Urban Areas</u>				
Total "incremental" households	37.3	41.3	44.5	47.4
Percentage of total				
- in target group	90.5	89.3	88.8	76.5
- requiring subsidy	50.1	50.9	44.0	48.4
<u>Rural Areas</u>				
Total "incremental" households	173.0	193.9	197.6	209.6
Percentage of total				
- in target group	100.0	100.0	100.0	89.4
- requiring subsidy	41.9	45.9	46.6	37.5
<u>Estates</u>				
Total "incremental" households	9.0	9.9	11.6	13.0
Percentage of total				
- in target group	100.0	100.0	100.0	100.0
- requiring subsidy	83.0	84.8	87.1	88.4

a. Households scheduled under the plan to receive a new unit or upgraded unit; in thousands

some additional households to afford higher quality units. Country-wide, however, the number of households needing subsidies in 2003 is larger than the number needing them in 1988. Thus, overall economic growth will not significantly mitigate the housing problem.

At the same time, the 1988 gap of Rs.1,077 million can be compared with the level of government spending in 1984. The Ministry of Local Government, Housing, and Construction will have an appropriation of about Rs.674 Million for housing in 1984 plus some Rs.200 million in repayments, Rs.874 altogether.²⁰ If these resources are targeted so as to be strictly additive to the amounts households failing the minimum standard would have otherwise spent, and if they are received only by households in this group, government contributions alone could fill about 80 percent of this gap. While these are stringent assumptions about the efficiency with which government deploys its resources, they suggest that with the continued mobilization of public resources at their current level, a very substantial improvement in housing quality is within reach. Of course, it is possible that government may want to reduce the back-log of unacceptable dwellings at a higher rate than implied by the plan being analyzed here, which would likely entail greater subsidy commitments.

Housing Investment in GDP

The final indicator examined is the aggregate annual flow of investment into the housing sector. This flow is computed like the figures in the national income accounts as the value of new residential

20. Sri Lanka Ministry of Finance and Planning (1983), p. 198 and unpublished data. Note that all of these funds are not presently available for the new Million Houses Program because of the closing out of the prior programs.

construction put in place plus the value of "authorized" upgrading. Like the national income accounts in practice, it ignores the value of upgrading ongoing in other parts of the housing sector. This economy-wide figure is most readily interpreted in relation to GDP. The relevant figures are displayed in Table 14, and show housing investment to constitute about 4.4 percent of GDP in 1988. In light of other estimates of this figure, this result is somewhat lower than expected.²¹ The reasons for the differences are potentially numerous. One fact which is clear from discussions with Sri Lankans who compile the official statistics, however, is that the official figures are extremely rough and could be in error by a wide margin, although year-to-year changes are probably in the correct direction.

A couple of points about the figures in the table are of interest. In particular, investment as a share of GDP declines somewhat over time and the government's share of this share also declines. The decline in government's role mirrors rising household incomes that have been noted earlier. The declining share of GDP constituted by housing investment seems to result from household incomes rising less rapidly than aggregate GDP due to the growth in the number of households. Some sensitivity analyses confirm this to be the most likely explanation, although we are not certain that this is the sole explanation.

21. See Marga Institute, (1984) Chapter 9.

TABLE 14
RESIDENTIAL CONSTRUCTION AS A PERCENTAGE OF GDP

	<u>1988</u>	<u>1993</u>	<u>1998</u>	<u>2003</u>
Housing Investment/GDP	4.4	4.4	4.2	3.8
Percentage distribution				
private	82.2	82.1	83.7	85.2
public	17.8	17.9	16.3	14.8

5. OUTCOMES UNDER ALTERNATIVE ASSUMPTIONS

The last section gave our best or most informed estimate of housing investment in Sri Lanka in the years ahead. This section briefly explores four variations to the main case. The variants have been selected to provide a sense of the sensitivity of the outcomes to changes in the assumptions about economic conditions and household behavior and to illustrate some types of policy questions that might be addressed within the "housing needs" framework. The balance of this section consists of two parts: a description of the four cases and a comparative presentation of the results of these cases versus the base case.

The Four Cases

No. 1: Interest Rates at 12 percent

One can conceive of the situation in which the government is making mortgage loans widely available at a rate which covers its cost of borrowing -- which was indicated above to be 18 percent. It is unlikely, however, that this would eliminate all intra-family borrowing. We set the rate at 12 percent, which reflects a 60/40 mix between 8 percent intra-family borrowing and 18 percent government loans. Note that the analysis assumes that households continue to devote the same share of income to housing but that it is capitalized into a smaller value.

No. 2: A Less Robust Economy

The base case employs a fairly upbeat economic forecast. This case employs a less positive one, based on the possibilities of less

favorable export growth and further devaluation of the currency. Real economic growth is set at 4 percent per year; general inflation at 15 percent per year; residential construction price inflation is 18 percent.

No. 3: Removal of Rent Controls

The debilitating effects of rent controls and related laws on investment in rental housing have been suggested at several previous points. This case implements rent control removal by assuming that on average rents would rise by 40 percent. Moreover, it is assumed that the share of rental payments going to housing investment rises from an average of 20 to 40 percent (a combination of the share for existing and new units). Rental households have to devote more of their income to rents to cover the rent hikes. A secondary effect is that the percentage of the housing stock which is rented is assumed to remain constant over time, as construction of rental housing is encouraged. This contrasts with the base case in which a steady decline in the rental sector was posited (see Appendix A). Clearly, the "what if" nature of this analysis is even greater than for the other cases. The 40 percent rent hike is merely a guess; and the results are presented to provide an initial benchmark and to stimulate discussion.

No. 4 Accelerated Upgrades

One of the striking aspects of the affordability calculations was that the majority of lower income households could afford to upgrade their units. (See Annex Table B.2 for details.) Indeed, it

is this realization that underpins the government's Million Houses Program. Hence, this case examines the effect of scheduling additional units to be upgraded in the early years of the plan period. In particular, the following schedules show the differences between the base case and this case:

Units Upgraded Per Year

<u>Sector</u>	<u>Base Case</u>	<u>Accelerated Upgrading</u>	
		<u>First 10 Years</u>	<u>Last 10 Years</u>
Urban	13,300	20,000	6,600
Rural	82,500	125,000	45,000
Estate	7,500	8,500	6,500

The total number of upgrades accomplished over the period is the same, since the number is limited by the total number of units that are physically upgradable. Also note that since upgrades cannot meet the need for newly constructed units, increasing the number of upgrades means that the rate of progress in meeting the back-log of housing needs is accelerated.

Results

The most lucid way to review these results is on a case-by-case basis. Hence, the discussion proceeds in this way, commenting on the figures in Tables 15 and 16. Table 15 contains the results for the first three cases, while Table 16 has those for Case 4. (More complete results are given in the tables in Appendix C.)

Before proceeding, a general note on the data in Table 15 will be helpful. The table gives figures for 1993 for the base case, and then

TABLE 15
RESULTS FOR THE BASE CASE AND SELECTED ALTERNATIVES IN 1993

	base case	<u>Case 1</u> 12% interest rate	<u>Case 2</u> less robust economy	<u>Case 3</u> no rent controls
A. Affordability (thousands of households)				
No standard unit (level 0)	7.9	57.9	17.3	1.9
Up-grade (level 2)	165.7	134.8	175.2	193.6
Shell house (level 2)	43.7	48.0	48.1	40.8
Full unit (level 3)	27.7	4.3	4.4	8.7
	<u>245.0</u>	<u>245.0</u>	<u>245.0</u>	<u>245.0</u>
B. Households needing subsidies (thousands)	118.3	136.6	118.6	111.8
C. Subsidy level (Millions of 1983 Rs.)	1413	1971	1620	1273
D. Housing investment as percentage of GDP	4.4	3.8	4.6	4.5

TABLE 16
COMPARISON OF THE BASE CASE AND ACCELERATING THE RATE
AT WHICH UNITS ARE UP-GRADED

	1988		1993		1998		2003	
	base	accelerated	base	accelerated	base	accelerated	base	accelerated
A. Incremental Units - thousands								
New construction	116.0	116.0	141.8	147.3	150.5	161.6	166.7	172.8
Total construction	219.3	269.5	245.1	300.8	253.8	219.7	270.0	230.9
B. Affordability (percentage distribution)								
No standard unit (level 0)	7	7	7	7	4	4	4	4
Up-grade (level 1)	72	72	72	72	74	74	64	64
Shell house (level 2)	20	20	20	20	19	19	17	17
Full unit (level 3)	1	1	1	1	2	2	15	15
C. Households Needing Subsidy (thousands)	98.6	101.0	118.6	125.3	121.9	129.7	113.2	116.0
D. Subsidies								
Total (Millions of Rs.)	1077	1083	1412	1471	1553	1659	1623	1673
E. Housing Investment as Percentage of GDP	4.4	5.0	4.4	5.2	4.2	3.9	3.8	3.5

for each of the three variants. The year 1993 was selected as being far enough distant in time that the order-of-magnitude of any differences should be evident. Indeed, with the exception of Case 2, involving a less robust economy, the other cases essentially cause a one-time shift in the level of investment or housing capital that can be purchased with a given income stream. After the initial shock the system settles on to a trajectory similar to that for the base case.

The table provides data on affordability and investment. Omitted are figures on the number of units needed; these are excluded as none of the cases under analysis changes the number of incremental households, assumptions about replacements or other factors that effect the number of new and upgraded dwellings required each year. The figures in Panel C of the table -- the size of the annual capital gap discussed in the previous section -- are in 1983 rupees.

No. 1: Interest Rates at 12 percent

Hiking interest rates from 8 to 12 percent has marked effect on the value of housing affordable by all income groups. There is a sharp rise in the number of incremental households who could not even afford to upgrade a unit from 7,900 to 57,900. Likewise, those who could afford a full unit (and thus are outside of the target group) decline from 27,700 to 4,300. The number of households needing subsidies rises and subsidy levels increase by about two-fifths.

In most ways the effects of this 4 percentage point rise in interest rates are predictable without reference to these calculations. Probably most importantly they emphasize the role that intra-family and other informal below market financing is

presently playing in facilitating housing investment by substituting for formal housing financing. Given the apparent importance of such financing, the objective of government should be to complement it by making financing available to those who are left out of the informal net. While market mortgage rates will produce less housing capital than negative real rates, they will produce more for the borrowers involved than no financing at all. At the same time a gradual movement to market interest rates should be fostered so that the overall allocation of resources to various sectors of the economy is improved.

No. 2: A Less Robust Economy

The combined effects of a slightly lower rate of growth in GDP and the acceleration of inflation -- sustained over a decade -- appear to have moderate effects on housing. Turning to shifts in the allocation of households among housing affordability levels (Panel A), one sees a shift of 23,000 households from out of the target group into it. On the other hand, there is essentially no change in the number who are in the lowest two affordability categories. But because incomes declines, the subsidies necessary to execute the plan rise by Rs.207 million. Similarly, the share of GDP going to housing rises both because units cost more due to greater inflation in this sector and because GDP levels are lower.

No. 3: Dropping Rent Controls

Under the assumptions we used to implement the deregulation of rents, the impact of this action is quite substantial. The

principal reason is that deregulations of rents has the effect of raising expenditures of the lowest income groups sufficiently to make an upgrade affordable. Other affordability assignments are also effected; most notably fewer households purchase a full unit because of the shift of households from homeownership to renters, with renters devoting a smaller share of income to housing. An important result of these increased expenditures by lower income households is a slight decline in those receiving a subsidy and a Rs.140 million fall in subsidy levels, which constitutes 10 percent of those in the base case.

No. 4: Accelerating Upgrades

Table 16 presents figures comparing the base case with one in which upgrades are sharply accelerated, as described above. The first panel of the table shows that about 50,000 additional units are brought above the minimum standard annually with the accelerated rate of upgrading units. The level of housing that households can afford is unaffected by this program (Panel B). The program does have the effect, however, of allowing more households who can afford an upgrade to realize this improvement sooner. Hence, there is little change in the number of households receiving subsidies or in the aggregate level of subsidies between the base case and the accelerated case. The share of GDP going to residential construction rises under the accelerated case in the first ten years as more units are improved but then declines below the share going to housing in the base case in the second half of the period.

On balance, accelerating the rate at which upgrades takes place looks extremely attractive. This is in essence the central thrust of the Million Houses Program and one which should be encouraged.

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APPENDIX A

DETAILS ON DATA INPUTS

Housing Expenditures

The data employed here are from the 1980/1981 Socio-Economic Survey. The objective is to isolate the expenditures households are making on housing investments. We proceed in two steps. In the first, the ratio of housing expenditures (exclusive of utilities) is identified. In the second, the portion of these expenditures going to investment is isolated.

In identifying expenditures on housing, one wants to employ a broad definition, so that all of the resources being used for this purpose are included. To this end we included the following elements in housing expenditures:

1. Out-of-pocket expenditures on property taxes, maintenance and repairs and investment, including mortgage payments;
2. Imputed rents on units occupied rent free (which constitute about 10 percent of units occupied); and
3. The imputed net rent on owner-occupied units.

The latter are included to reflect the opportunity cost of the funds invested, just as the foregone income on the equity in a house is included in full housing cost calculations in other countries. When these elements are added together and divided by income, we obtain the ratios which appear in the text table. It should be noted that these

ratios are substantially larger than those typically published in Sri Lanka, which include only the first of three elements we have included.¹

The second step is the more complicated. Because separate data for the expenditures of owner-occupants and renters are not available, the starting point is to assume that the gross housing expenditure ratios calculated above apply to both groups.² Next recurring housing expenditures must be deducted from the gross expenditures of each tenure group; and finally, the separate estimates for homeowners and renters are combined on a weighted basis.

In considering the adjustments to reported gross expenditures to obtain net (i.e., available for investment) expenditures, two counter-vailing facts must be kept in mind. First, reported expenditures are biased downwards. The main factors in work here are the omission of some maintenance and repair expenses (an often observed recall problem in such surveys), the omission of the value of contributed labor from maintenance and investment expenditures that are reported, and the

1. See Sri Lanka Department of Census and Statistics (1983), Table 6.1 and Central Bank of Ceylon (1983b), Table 136. In defense of the procedures used here, analysis by the Marga Institute (1984) shows that reported expenditures would not have been nearly adequate to finance the level of new construction over the past decade. It should also be noted that in computing housing expenditure to income ratios for the estate sector, we employ rural expenditures and estate incomes on the grounds that the market rent (imputed rent for rent free units) would not be well-known by the plantation workers. Also we thought this would give a better measure of willingness to spend.

2. The Bureau of Census and Statistics was able to make available some unpublished tabulations which showed rents or imputed rents by tenure and income class, but unfortunately actual expenditures were available only by expenditure class by tenure. This difference precluded merging the two data series. One might note, however, that at each income class the imputed rent of owners and the actual rent paid by renters were very similar: on this basis one expects homeowners total housing expenditures to be substantially greater than those of renters.

downward bias in 'market rents' upon which imputed rents are based due to rent controls. Because contributed labor and effective rent controls are most prominent in the lower income portion of the market, the bias is greater for expenditures by lower income households. Against this is the second factor, namely, that the gross expenditures are too high because they include recurring expenditures, especially property taxes and routine maintenance. Because the housing of lower income households is made of less durable material, it requires greater maintenance. So this offsets the pattern of greater downward bias to this group from underreporting. Confronted with these facts, and lacking the data to explore them thoroughly, it has been assumed that gross reported expenditures (excluding those for utilities) are fully available for investment by homeowners.

For rental properties, the starting point was the rule of thumb (cited by several persons interviewed) that 30 percent of gross rent would go to investment for a non effectively rent controlled unit. This fact combined with the observation that probably about one-third of the rental stock is effectively controlled, and these being primarily lower income units where no investment is occurring, yields a rule of thumb that 20 percent of gross housing expenditures are going to investment.

A weighted average of the fraction of gross expenditures used for investment for owners and renters was computed separately for each sector. The weights are the share of homeowners and the share of renters in each sector. Because of the negative effects of rent control and associated legislation on the development of rental housing, it was assumed that the number of rental units remains at the 1981 level, with

the stock being owner-occupied.³ This causes the portion of owner-occupied stock to change as follows:

	<u>Proportion Owner-Occupied</u>	
	<u>1983</u>	<u>2003</u>
Urban	.61	.83
Rural	.87	.93

The tenure pattern in the estate sector is assumed not to change.

Cost of Standard Units

All of the figures for rural cost levels and those for urban cost levels 2 and 3 are based on the experience of the National Housing Development Authority (NHDA) in building these units. The NHDA cost figures were obtained for 1983 for units built in rural areas. These were then converted into value for similar urban units (for Levels 2 and 3) using the cost differentials estimated by PADCO (1983, pp. 18, 23) for these units for 1982.⁴ The cost for upgrading urban units was obtained for 1983 from the Slum and Shanty Division of the Urban Development Authority. It represents an average over a range of rather diverse solutions, with the upgrading costs from slums generally being less than that for shanties or squatter housing.

3. Note that this implies that rental units which are destroyed or shifted to owner-occupancy are replaced by new rental units. Hence, there is some provision for new construction.

4. Actually, NHDA does not build the type house described as Cost Level 2 but rather full core houses. A differential of about Rs.4,000 was estimated as the difference. The Cost Level 3 unit corresponds to the "L4" NHDA unit. Note that NHDA only builds these units in rural areas.

As to the division of costs among land, infrastructure and dwelling components, these estimates had to be pieced together from a variety of sources. Essentially, the problem was divided into two parts, ascertaining the share of land in total property value and the share of infrastructure in the sum of infrastructure plus structure. This division was made on this basis of the cost divisions about which various persons interviewed had knowledge. The results of gathering this information and manipulating it are shown in Table A.1. As expected they show land to be less important in rural areas than in urban areas and infrastructure somewhat more important in rural areas as compared to urban.

TABLE A.1

DIVISION OF UNIT COSTS AMONG LAND,
INFRASTRUCTURE AND DWELLING

	<u>Urban</u>	<u>Rural</u>
Land as a share of property value (L/T) ^{a, b}	.35	.10
Infrastructure and dwelling as share of property value (C/T)	.65	.90
Infrastructure as share of total property value (I/T) ^c		
- Serviced site with core	(.29)	(.36)
- Serviced site with unit	(.10)	(.14)
Dwelling Unit as share of total property value (U/T) ^d		
- serviced site with core	(.36)	(.54)
- serviced site with unit	(.55)	(.76)
Total property value		
- Sum of above components	1.0	1.0

- a. Figures from Chief Government Valuer
- b. Based on values for central Colombo, suburban Colombo, other urban areas.
- c. $I/T = I/C * C/T$; value for I/C obtained from NHDA Architectural Division and PADCO (1982)
- d. $U/T = U/C * C/T$; value for U/C obtained from NHDA Architectural Division and PADCO (1982)

Definition of Symbols:

T is total property value
 L is the value of land
 I is the value of infrastructure
 U is the value of the unit
 $C = I + U$
 $T = L + C$

APPENDIX B

SUPPLEMENTAL TABLES TO SECTIONS 2-4

APPENDIX TABLE B.1

CLASSIFICATION OF HOUSING UNITS IN THE SRI LANKA CENSUS

<u>Material of Wall</u>	<u>Material of Roof</u>	<u>Material of Floor</u>	<u>Type of Housing Unit</u>
1. Cement blocks, stone, bricks or cabook	Tile, asbestos or metal sheets	Cement or wood	Permanent
2. - do -	- do -	Mud	Semi-Permanent
3. - do -	Cadjan or palmyrah	Cement, wood or mud	Semi-Permanent
4. Mud	Tile, asbestos or metal sheets	Cement	Permanent
5. - do -	- do -	Wood or mud	Semi-Permanent
6. - do -	Cadjan or palmyrah or straw	Cement, wood or mud	Semi-Permanent
7. Wood	Tile, asbestos or metal sheets	Cement, wood or mud	Semi-Permanent
8. - do -	Cadjan or palmyra or straw	Cement	Semi-Permanent
9. - do -	- do -	Wood or mud	Improvised
10. Cadjan, palmyrah or straw	Any material	Any material	Improvised

Source: Census of Population & Housing, Sri Lanka - 1981, Housing Tables, Preliminary Release No. 3, June 1982.

TABLE B.2
 QUINTILE DESIGN COSTS CLASSIFICATION

	1983 ----	1988 ----	1992 ----	1998 ----	2003 ----
Urban Areas					
Quintile 1					
Affordable Costs	11.89	13.82	15.80	18.59	22.02
Affordable Level	0.00	0.00	1.00	1.00	1.00
Design Cost	0.00	0.00	9.39	9.59	9.82
Quintile 2					
Affordable Costs	16.34	18.81	21.81	25.58	30.88
Affordable Level	1.00	1.00	1.00	1.00	1.00
Design Cost	9.00	9.19	9.39	9.59	9.82
Quintile 3					
Affordable Costs	22.01	23.03	25.71	31.30	37.23
Affordable Level	1.00	1.00	1.00	2.00	2.00
Design Cost	9.00	9.19	9.39	32.93	31.57
Quintile 4					
Affordable Costs	39.14	45.08	52.25	61.23	72.54
Affordable Level	2.00	2.00	3.00	3.00	3.00
Design Cost	23.00	29.62	48.95	47.93	48.98
Quintile 5					
Affordable Costs	145.19	167.13	193.80	227.13	259.06
Affordable Level	3.00	3.00	3.00	3.00	3.00
Design Cost	45.00	45.95	46.95	47.90	48.98

TABLE B.2 (CON'D)

QUINTILE DESIGN COSTS CLASSIFICATION

Rural Areas
Quintiles

Quintile 1					
Affordable Cost	0.45	10.50	11.81	13.73	16.34
Affordable Level	1.00	1.00	1.00	1.00	1.00
Design Cost	5.00	5.11	5.22	5.33	5.44
Quintile 2					
Affordable Cost	11.14	12.38	13.93	16.25	19.25
Affordable Level	1.00	1.00	1.00	1.00	1.00
Design Cost	5.00	5.11	5.22	5.33	5.44
Quintile 3					
Affordable Cost	24.10	26.78	30.14	35.18	41.67
Affordable Level	1.00	2.00	2.00	2.00	2.00
Design Cost	5.00	26.55	27.13	27.71	28.30
Quintile 4					
Affordable Cost	18.92	22.13	24.91	29.03	34.44
Affordable Level	1.00	1.00	1.00	2.00	2.00
Design Cost	5.00	5.11	5.22	27.71	28.30
Quintile 5					
Affordable Cost	35.45	39.40	44.34	51.75	61.31
Affordable Level	2.00	2.00	3.00	3.00	3.00
Design Cost	28.00	28.55	41.73	42.63	43.54

TABLE B.2 (CON'D)

QUINTILE DESIGN COSTS CLASSIFICATION

Estates

Quintiles

Quintile 1					
Affordable Costs	1.95	2.52	3.21	4.01	4.97
Affordable Level	0.00	0.00	0.00	0.00	0.00
Design Cost	0.00	0.00	0.00	0.00	0.00
Quintile 2					
Affordable Costs	2.36	3.03	3.85	4.81	5.96
Affordable Level	0.00	0.00	0.00	0.00	0.00
Design Cost	0.00	0.00	0.00	0.00	0.00
Quintile 3					
Affordable Costs	2.87	3.68	4.65	5.86	7.26
Affordable Level	0.00	0.00	0.00	0.00	0.00
Design Cost	0.00	0.00	0.00	0.00	0.00
Quintile 4					
Affordable Costs	4.13	5.30	6.76	8.45	10.47
Affordable Level	0.00	0.00	0.00	0.00	1.00
Design Cost	0.00	0.00	0.00	0.00	5.44
Quintile 5					
Affordable Costs	7.48	9.60	12.24	15.29	18.95
Affordable Level	0.00	1.00	1.00	1.00	1.00
Design Cost	0.00	5.11	5.22	5.33	5.44

APPENDIX C

SUPPLEMENTAL TABLES FOR SECTION 5

These tables are organized in four groups, the groups corresponding to the case numbers used in the text. Hence Table C 1.1 is the first table for Case 1.

Also, these computer generated tables use standard labels for the sectors. For Sri Lanka these should be interpreted as follows:

<u>Computer label</u>	<u>Meaning for Sri Lanka</u>
metropolitan	urban areas
other urban areas	rural areas
rural areas	estates

Metropolitan Area

Interest Rate (%)	12.00
Loan Term (Years)	20.00
Downpayment Required (%)	0.00

	1985	1988	1993	1998	2003
Thousands of Currency Units	-----	-----	-----	-----	-----
Quintile 1					
Mean Annual Income	6.27	9.51	11.03	12.93	15.32
% Available for Housing	17.60				
% Needed for Recurr. Exp.	18.00				
Monthly Income for Mortg.	0.10	0.11	0.13	0.16	0.18
Affordable Dwelling Cost	9.03	10.39	12.05	14.12	16.73
Quintile 2					
Mean Annual Income	12.05	13.87	16.08	18.85	22.33
% Available for Housing	16.60				
% Needed for Recurr. Exp.	18.00				
Monthly Income for Mortg.	0.14	0.16	0.18	0.21	0.25
Affordable Dwelling Cost	12.41	14.29	16.57	19.42	23.00
Quintile 3					
Mean Annual Income	17.37	20.00	23.19	27.18	32.19
% Available for Housing	14.10				
% Needed for Recurr. Exp.	18.00				
Monthly Income for Mortg.	0.17	0.19	0.22	0.26	0.31
Affordable Dwelling Cost	15.20	17.50	20.29	23.78	28.17
Quintile 4					
Mean Annual Income	28.02	32.25	37.40	43.83	51.93
% Available for Housing	17.10				
% Needed for Recurr. Exp.	18.00				
Monthly Income for Mortg.	0.33	0.38	0.44	0.51	0.61
Affordable Dwelling Cost	29.74	34.23	39.69	46.52	55.10
Quintile 5					
Mean Annual Income	74.67	85.96	99.67	116.82	138.38
% Available for Housing	23.80				
% Needed for Recurr. Exp.	18.00				
Monthly Income for Mortg.	1.21	1.40	1.62	1.90	2.25
Affordable Dwelling Cost	110.29	126.96	147.22	172.54	204.39

Other Urban Areas

Interest Rate (%)	12.00
Loan Term (Years)	20.00
Downpayment Required (%)	0.00

	1983	1988	1993	1998	2003
Thousands of Currency Units	-----	-----	-----	-----	-----
Quintile 1					
Mean Annual Income	6.25	6.95	7.82	9.13	10.82
% Available for Housing	16.30				
% Needed for Recurr. Exp.	7.00				
Monthly Income for Mortg.	0.08	0.09	0.10	0.12	0.14
Affordable Dwelling Cost	7.18	7.98	8.97	10.48	12.41
Quintile 2					
Mean Annual Income	9.25	10.26	11.56	13.50	15.99
% Available for Housing	13.00				
% Needed for Recurr. Exp.	7.00				
Monthly Income for Mortg.	0.09	0.10	0.12	0.14	0.16
Affordable Dwelling Cost	8.46	9.40	10.58	12.35	14.63
Quintile 3					
Mean Annual Income	13.69	15.21	17.12	19.99	23.67
% Available for Housing	19.00				
% Needed for Recurr. Exp.	7.00				
Monthly Income for Mortg.	0.20	0.22	0.25	0.29	0.35
Affordable Dwelling Cost	18.31	20.34	22.89	26.73	31.65
Quintile 4					
Mean Annual Income	18.86	20.96	23.58	27.53	32.61
% Available for Housing	11.40				
% Needed for Recurr. Exp.	7.00				
Monthly Income for Mortg.	0.17	0.19	0.21	0.24	0.29
Affordable Dwelling Cost	15.13	16.81	18.92	22.09	26.16
Quintile 5					
Mean Annual Income	42.51	47.25	53.17	62.07	73.52
% Available for Housing	9.00				
% Needed for Recurr. Exp.	7.00				
Monthly Income for Mortg.	0.30	0.33	0.37	0.43	0.51
Affordable Dwelling Cost	26.93	29.93	33.88	39.32	46.57

Rural Areas

Interest Rate (%)	12.00
Loan Term (Years)	20.00
Downpayment Required (%)	0.00

	1983	1988	1993	1998	2003
Thousands of Currency Units	-----	-----	-----	-----	-----
Quintile 1					
Mean Annual Income	6.40	8.21	10.46	13.07	16.20
% Available for Housing	13.40				
% Needed for Recurr. Exp.	77.00				
Monthly Income for Mortg.	0.02	0.02	0.03	0.03	0.04
Affordable Dwelling Cost	1.49	1.91	2.44	3.05	3.78
Quintile 2					
Mean Annual Income	10.08	12.92	16.48	20.58	25.51
% Available for Housing	10.20				
% Needed for Recurr. Exp.	77.00				
Monthly Income for Mortg.	0.02	0.03	0.03	0.04	0.05
Affordable Dwelling Cost	1.79	2.29	2.93	3.65	4.53
Quintile 3					
Mean Annual Income	13.31	17.07	21.77	27.20	33.71
% Available for Housing	9.40				
% Needed for Recurr. Exp.	77.00				
Monthly Income for Mortg.	0.02	0.03	0.04	0.05	0.06
Affordable Dwelling Cost	2.18	2.79	3.56	4.45	5.52
Quintile 4					
Mean Annual Income	16.40	21.04	26.82	33.51	41.53
% Available for Housing	11.00				
% Needed for Recurr. Exp.	77.00				
Monthly Income for Mortg.	0.03	0.04	0.06	0.07	0.09
Affordable Dwelling Cost	3.14	4.03	5.14	6.42	7.95
Quintile 5					
Mean Annual Income	27.21	34.90	44.50	55.59	68.90
% Available for Housing	12.00				
% Needed for Recurr. Exp.	77.00				
Monthly Income for Mortg.	0.06	0.08	0.10	0.13	0.16
Affordable Dwelling Cost	5.68	7.29	9.30	11.61	14.39

Thousands of Households	1983	1988	1993	1998	2003
Metropolitan Area					
Affordable Level 0	0.00	16.88	9.23	9.88	10.46
Affordable Level 1	0.00	8.44	18.46	19.77	20.92
Affordable Level 2	0.00	8.44	9.23	9.88	10.46
Subtotal, Target Group	0.00	33.77	36.92	39.53	41.84
Affordable Level 3	0.00	3.57	4.35	5.01	5.59
Total	0.00	37.34	41.27	44.54	47.43
Other Urban Areas					
Affordable Level 0	0.00	34.60	38.78	0.00	0.00
Affordable Level 1	0.00	103.31	116.33	158.12	167.67
Affordable Level 2	0.00	34.60	38.78	39.53	41.92
Subtotal, Target Group	0.00	173.02	193.89	197.65	209.59
Affordable Level 3	0.00	0.00	0.00	0.00	0.00
Total	0.00	173.02	193.89	197.65	209.59
Rural Areas					
Affordable Level 0	0.00	8.98	9.90	9.32	10.40
Affordable Level 1	0.00	0.00	0.00	2.33	2.60
Affordable Level 2	0.00	0.00	0.00	0.00	0.00
Subtotal, Target Group	0.00	8.98	9.90	11.65	13.00
Affordable Level 3	0.00	0.00	0.00	0.00	0.00
Total	0.00	8.98	9.90	11.65	13.00

SRI LANKA HIGH INTEREST RATES: JUNE 4
 TARGET GROUP INVESTMENT AND SUBSIDY REQUIREMENTS

TABLE C.1.3

	1983	1986	1993	1998	2003
Country					
Target Households (1000s)					
Not Requiring Subsidy	0.00	95.87	104.16	123.56	126.53
Requiring Subsidy	0.00	119.90	136.55	125.27	137.91
Total	0.00	215.77	240.70	248.84	264.44
Target Group Cost (Millions)					
Subsidy Portion	0.00	1498.71	1971.74	2221.00	2566.68
Supported by Target Group	0.00	2454.27	3236.34	3870.67	4837.11
Total	0.00	3952.98	5208.08	6091.66	7403.78
Metropolitan Area					
Target Households (1000s)					
Not Requiring Subsidy	0.00	11.77	15.88	16.53	17.11
Requiring Subsidy	0.00	22.00	21.04	23.00	24.73
Total	0.00	33.77	36.92	39.53	41.84
Target Group Cost (Millions)					
Subsidy Portion	0.00	296.90	359.75	419.06	470.90
Supported by Target Group	0.00	496.20	634.83	791.02	977.01
Total	0.00	793.10	994.57	1210.07	1447.91
Other Urban Areas					
Target Households (1000s)					
Not Requiring Subsidy	0.00	64.11	68.26	105.53	107.92
Requiring Subsidy	0.00	68.92	105.61	92.12	101.67
Total	0.00	173.02	193.89	197.65	209.59
Target Group Cost (Millions)					
Subsidy Portion	0.00	1123.99	1508.52	1641.99	1882.77
Supported by Target Group	0.00	1951.41	2581.52	3039.97	3797.17
Total	0.00	3075.40	4090.04	4681.95	5679.94
Rural Areas					
Target Households (1000s)					
Not Requiring Subsidy	0.00	0.00	0.00	1.50	1.50
Requiring Subsidy	0.00	8.98	9.90	10.15	11.50
Total	0.00	8.98	9.90	11.65	13.00
Target Group Cost (Millions)					
Subsidy Portion	0.00	77.82	103.47	159.95	213.01
Supported by Target Group	0.00	6.66	20.00	39.88	62.93
Total	0.00	84.48	123.47	199.84	275.94

	1983	1988	1993	1998	2003
	-----	-----	-----	-----	-----
(Millions of Currency Units)					
Country					
Total Housing Expend.	7479.50	9545.95	12163.32	15549.34	19845.32
Non-target Group Invest.	0.00	452.92	640.99	864.07	1141.78
Target Group Investment	0.00	3219.35	4168.44	5099.27	6508.50
Subsidy Required	0.00	1498.71	1971.74	2221.00	2566.68
Total Housing Investment	0.00	5170.98	6781.17	8184.33	10217.06
Metropolitan Area					
Total Housing Expend.	2622.60	3602.69	4598.04	5868.40	7489.72
Non-target Group Invest.	0.00	452.92	640.99	864.07	1141.78
Target Group Investment	0.00	578.56	751.18	959.72	1220.31
Subsidy Required	0.00	296.90	359.75	419.06	470.90
Total Housing Investment	0.00	1328.38	1751.92	2242.84	2832.99
Other Urban Areas					
Total Housing Expend.	4576.24	5840.57	7454.21	9513.67	12142.11
Non-target Group Invest.	0.00	0.00	0.00	0.00	0.00
Target Group Investment	0.00	2634.14	3397.26	4097.81	5220.49
Subsidy Required	0.00	1123.99	1508.52	1641.99	1882.77
Total Housing Investment	0.00	3758.12	4905.78	5739.79	7103.26
Rural Areas					
Total Housing Expend.	80.46	102.69	131.06	167.27	213.48
Non-target Group Invest.	0.00	0.00	0.00	0.00	0.00
Target Group Investment	0.00	6.66	20.00	41.74	67.81
Subsidy Required	0.00	77.82	103.47	159.95	213.01
Total Housing Investment	0.00	84.48	123.47	201.70	280.82
Total Housing Investment in the Base Year	4980.00				
Subsidy as a Percent of Public Expenditures	0.00	167.75	172.93	152.62	138.19
Total Housing Investment as a Percent of GDP	4.59	3.73	3.83	3.63	3.55

Metropolitan Area

Interest Rate (%)	8.00
Loan Term (Years)	20.00
Downpayment Required (%)	0.00

	1983	1988	1993	1998	2003
Thousands of Currency Units	----	----	----	----	----
Quintile 1					
Mean Annual Income	8.27	9.07	10.03	11.20	12.65
% Available for Housing	17.60				
% Needed for Recurr. Exp.	18.00				
Monthly Income for Mortg.	0.10	0.11	0.12	0.13	0.15
Affordable Dwelling Cost	11.89	13.04	14.42	16.11	18.19
Quintile 2					
Mean Annual Income	12.05	13.22	14.61	16.33	18.44
% Available for Housing	16.60				
% Needed for Recurr. Exp.	18.00				
Monthly Income for Mortg.	0.14	0.15	0.17	0.19	0.21
Affordable Dwelling Cost	16.34	17.93	19.82	22.14	25.01
Quintile 3					
Mean Annual Income	17.37	19.06	21.07	23.54	26.59
% Available for Housing	14.10				
% Needed for Recurr. Exp.	18.00				
Monthly Income for Mortg.	0.17	0.18	0.20	0.23	0.26
Affordable Dwelling Cost	20.01	21.96	24.27	27.12	30.62
Quintile 4					
Mean Annual Income	28.02	30.75	33.99	37.97	42.88
% Available for Housing	17.10				
% Needed for Recurr. Exp.	18.00				
Monthly Income for Mortg.	0.33	0.36	0.40	0.44	0.50
Affordable Dwelling Cost	39.14	42.95	47.48	53.05	59.90
Quintile 5					
Mean Annual Income	74.67	81.94	90.58	101.20	114.28
% Available for Housing	23.80				
% Needed for Recurr. Exp.	18.00				
Monthly Income for Mortg.	1.21	1.33	1.47	1.63	1.86
Affordable Dwelling Cost	145.19	159.32	176.11	196.76	222.19

Other Urban Areas

Interest Rate (%)	8.00
Loan Term (Years)	20.00
Downpayment Required (%)	0.00

	1983	1988	1993	1998	2003
Thousands of Currency Units	-----	-----	-----	-----	-----
Quintile 1					
Mean Annual Income	6.25	6.63	7.11	7.91	8.93
% Available for Housing	16.30				
% Needed for Recurr. Exp.	7.00				
Monthly Income for Mortg.	0.08	0.08	0.09	0.10	0.11
Affordable Dwelling Cost	9.45	10.01	10.74	11.95	13.49
Quintile 2					
Mean Annual Income	9.25	9.80	10.51	11.69	13.20
% Available for Housing	13.00				
% Needed for Recurr. Exp.	7.00				
Monthly Income for Mortg.	0.09	0.10	0.11	0.12	0.13
Affordable Dwelling Cost	11.14	11.80	12.66	14.09	15.90
Quintile 3					
Mean Annual Income	13.69	14.50	15.56	17.31	19.55
% Available for Housing	19.00				
% Needed for Recurr. Exp.	7.00				
Monthly Income for Mortg.	0.20	0.21	0.23	0.25	0.29
Affordable Dwelling Cost	24.10	25.53	27.39	30.48	34.41
Quintile 4					
Mean Annual Income	18.86	19.98	21.43	23.65	26.93
% Available for Housing	11.40				
% Needed for Recurr. Exp.	7.00				
Monthly Income for Mortg.	0.17	0.18	0.19	0.21	0.24
Affordable Dwelling Cost	19.92	21.10	22.64	25.19	28.44
Quintile 5					
Mean Annual Income	42.51	43.04	48.32	53.77	60.71
% Available for Housing	9.00				
% Needed for Recurr. Exp.	7.00				
Monthly Income for Mortg.	0.30	0.31	0.34	0.38	0.42
Affordable Dwelling Cost	35.45	37.56	40.29	44.34	50.63

Rural Areas

Interest Rate (%)	6.00
Loan Term (Years)	20.00
Downpayment Required (%)	0.00

	1983	1988	1993	1998	2003
Thousands of Currency Units	-----	-----	-----	-----	-----
Quintile 1					
Mean Annual Income	6.40	7.82	9.51	11.32	13.38
% Available for Housing	13.40				
% Needed for Recurr. Exp.	77.00				
Monthly Income for Mortg.	0.02	0.02	0.02	0.03	0.03
Affordable Dwelling Cost	1.96	2.40	2.92	3.48	4.11
Quintile 2					
Mean Annual Income	10.08	12.32	14.97	17.83	21.07
% Available for Housing	10.20				
% Needed for Recurr. Exp.	77.00				
Monthly Income for Mortg.	0.02	0.02	0.03	0.03	0.04
Affordable Dwelling Cost	2.36	2.88	3.50	4.17	4.92
Quintile 3					
Mean Annual Income	13.31	16.28	19.78	23.56	27.84
% Available for Housing	9.40				
% Needed for Recurr. Exp.	77.00				
Monthly Income for Mortg.	0.02	0.03	0.04	0.04	0.05
Affordable Dwelling Cost	2.87	3.51	4.26	5.07	6.00
Quintile 4					
Mean Annual Income	16.40	20.05	24.37	29.03	34.29
% Available for Housing	11.00				
% Needed for Recurr. Exp.	77.00				
Monthly Income for Mortg.	0.03	0.04	0.05	0.06	0.07
Affordable Dwelling Cost	4.13	5.05	6.14	7.32	8.64
Quintile 5					
Mean Annual Income	27.21	33.27	40.44	48.16	56.90
% Available for Housing	12.00				
% Needed for Recurr. Exp.	77.00				
Monthly Income for Mortg.	0.06	0.08	0.09	0.11	0.13
Affordable Dwelling Cost	5.48	9.15	11.12	13.24	15.65

	1983	1988	1993	1998	2003
Thousands of Households	-----	-----	-----	-----	-----
Metropolitan Area					
Affordable Level 0	0.00	8.44	9.23	9.88	10.46
Affordable Level 1	0.00	15.82	18.46	19.77	20.92
Affordable Level 2	0.00	8.44	9.23	9.88	10.46
Subtotal, Target Group	0.00	33.77	36.92	39.53	41.84
Affordable Level 3	0.00	3.57	4.35	5.01	5.59
Total	0.00	37.34	41.27	44.54	47.43
Other Urban Areas					
Affordable Level 0	0.00	0.00	0.00	0.00	0.00
Affordable Level 1	0.00	138.42	155.11	158.12	167.67
Affordable Level 2	0.00	34.60	38.78	39.53	41.92
Subtotal, Target Group	0.00	173.02	193.89	197.65	209.59
Affordable Level 3	0.00	0.00	0.00	0.00	0.00
Total	0.00	173.02	193.89	197.65	209.59
Rural Areas					
Affordable Level 0	0.00	7.18	7.92	9.32	10.40
Affordable Level 1	0.00	1.80	1.98	2.33	2.60
Affordable Level 2	0.00	0.00	0.00	0.00	0.00
Subtotal, Target Group	0.00	8.98	9.90	11.65	13.00
Affordable Level 3	0.00	0.00	0.00	0.00	0.00
Total	0.00	8.98	9.90	11.65	13.00

SRI LANKA SLOW ECONOMIC GROWTH: JUNE 4
 TARGET GROUP INVESTMENT AND SUBSIDY REQUIREMENTS

TABLE C.2.3

	1983	1988	1993	1998	2003
	-----	-----	-----	-----	-----
Country					
Target Households (1000s)					
Not Requiring Subsidy	0.00	117.20	122.16	123.56	126.53
Requiring Subsidy	0.00	98.57	118.55	125.27	137.91
Total	0.00	215.77	240.70	248.84	264.44
Target Group Cost (Millions)					
Subsidy Portion	0.00	1154.69	1620.30	1922.91	2325.46
Supported by Target Group	0.00	2798.29	3587.76	4168.95	5076.33
Total	0.00	3952.98	5208.06	6091.86	7403.78
Metropolitan Area					
Target Households (1000s)					
Not Requiring Subsidy	0.00	15.09	15.88	16.53	17.11
Requiring Subsidy	0.00	18.68	21.04	23.00	24.73
Total	0.00	33.77	36.92	39.53	41.84
Target Group Cost (Millions)					
Subsidy Portion	0.00	230.68	295.21	359.70	423.85
Supported by Target Group	0.00	562.42	699.37	850.38	1024.06
Total	0.00	793.10	994.57	1210.07	1447.91
Other Urban Areas					
Target Households (1000s)					
Not Requiring Subsidy	0.00	100.61	104.78	105.53	107.92
Requiring Subsidy	0.00	72.42	89.11	92.12	101.67
Total	0.00	173.02	193.89	197.65	209.59
Target Group Cost (Millions)					
Subsidy Portion	0.00	854.44	1228.54	1410.37	1694.91
Supported by Target Group	0.00	2220.96	2861.50	3271.59	3985.02
Total	0.00	3075.40	4090.04	4681.95	5679.94
Rural Areas					
Target Households (1000s)					
Not Requiring Subsidy	0.00	1.50	1.50	1.50	1.50
Requiring Subsidy	0.00	7.48	8.40	10.15	11.50
Total	0.00	8.98	9.90	11.65	13.00
Target Group Cost (Millions)					
Subsidy Portion	0.00	69.57	96.56	152.85	206.70
Supported by Target Group	0.00	14.91	26.91	46.98	67.24
Total	0.00	84.48	123.47	199.84	273.94

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SRI LANKA SLOW ECONOMIC GROWTH: JUNE 4
HOUSING INVESTMENT IN RELATION TO GDP

TABLE C.2.4

	1983	1988	1993	1998	2003
(Millions of Currency Units)					
Country					
Total Housing Expend.	7479.50	9099.96	11071.49	13470.16	16388.51
Non-target Group Invest.	0.00	568.37	766.79	985.36	1241.23
Target Group Investment	0.00	4137.18	5061.43	5868.63	7108.70
Subsidy Required	0.00	1154.69	1620.30	1922.91	2325.46
Total Housing Investment	0.00	5860.24	7448.52	8776.90	10675.39
Metropolitan Area					
Total Housing Expend.	2622.80	3434.37	4178.44	5083.71	6185.10
Non-target Group Invest.	0.00	568.37	766.79	985.36	1241.23
Target Group Investment	0.00	742.98	911.67	1103.77	1332.38
Subsidy Required	0.00	230.68	295.21	359.70	423.83
Total Housing Investment	0.00	1542.03	1973.67	2448.83	2997.46
Other Urban Areas					
Total Housing Expend.	4576.24	5567.70	6773.96	8241.55	10027.10
Non-target Group Invest.	0.00	0.00	0.00	0.00	0.00
Target Group Investment	0.00	3379.16	4120.69	4713.57	5700.32
Subsidy Required	0.00	854.44	1228.54	1410.37	1694.91
Total Housing Investment	0.00	4233.60	5349.23	6123.93	7395.23
Rural Areas					
Total Housing Expend.	80.46	97.89	119.10	144.90	176.30
Non-target Group Invest.	0.00	0.00	0.00	0.00	0.00
Target Group Investment	0.00	15.04	29.07	51.29	76.00
Subsidy Required	0.00	69.57	96.56	152.85	206.70
Total Housing Investment	0.00	84.61	125.63	204.14	282.70
Total Housing Investment in the Base Year	4980.00				
Subsidy as a Percent of Public Expenditures	0.00	135.58	156.37	152.53	151.62
Total Housing Investment as a Percent of GDP	4.59	4.44	4.63	4.49	4.49

Metropolitan Area

Interest Rate (%) 8.00
Loan Term (Years) 20.00
Downpayment Required (%) 0.00

	1983	1988	1993	1998	2003
Thousands of Currency Units					
Quintile 1					
Mean Annual Income	8.27	9.51	11.03	12.93	15.32
% Available for Housing	20.34				
% Needed for Recurr. Exp.	23.00				
Monthly Income for Mortg.	0.11	0.12	0.14	0.17	0.20
Affordable Dwelling Cost	12.90	14.85	17.22	20.18	23.90
Quintile 2					
Mean Annual Income	12.05	13.87	16.08	18.85	22.33
% Available for Housing	19.20				
% Needed for Recurr. Exp.	23.00				
Monthly Income for Mortg.	0.15	0.17	0.20	0.23	0.28
Affordable Dwelling Cost	17.75	20.43	23.69	27.76	32.89
Quintile 3					
Mean Annual Income	17.37	20.00	23.19	27.18	32.19
% Available for Housing	16.30				
% Needed for Recurr. Exp.	23.00				
Monthly Income for Mortg.	0.18	0.21	0.24	0.28	0.34
Affordable Dwelling Cost	21.72	25.01	29.00	33.98	40.26
Quintile 4					
Mean Annual Income	28.02	32.25	37.40	43.83	51.93
% Available for Housing	20.00				
% Needed for Recurr. Exp.	23.00				
Monthly Income for Mortg.	0.36	0.41	0.46	0.56	0.67
Affordable Dwelling Cost	42.99	49.49	57.38	67.25	79.67
Quintile 5					
Mean Annual Income	74.67	85.96	99.67	116.82	136.36
% Available for Housing	27.50				
% Needed for Recurr. Exp.	23.00				
Monthly Income for Mortg.	1.32	1.52	1.76	2.06	2.44
Affordable Dwelling Cost	157.53	181.34	210.27	246.44	291.93

Other Urban Areas

Interest Rate (%)	8.00
Loan Term (Years)	20.00
Downpayment Required (%)	0.00

	1983	1988	1993	1998	2003
Thousands of Currency Units	-----	-----	-----	-----	-----
Quintile 1					
Mean Annual Income	6.25	6.95	7.82	9.13	10.82
% Available for Housing	17.10				
% Needed for Recurr. Exp.	8.00				
Monthly Income for Mortg.	0.08	0.09	0.10	0.12	0.14
Affordable Dwelling Cost	9.80	10.90	12.26	14.31	16.95
Quintile 2					
Mean Annual Income	9.25	10.28	11.56	13.50	15.99
% Available for Housing	13.60				
% Needed for Recurr. Exp.	8.00				
Monthly Income for Mortg.	0.10	0.11	0.12	0.14	0.17
Affordable Dwelling Cost	11.53	12.81	14.42	16.83	19.93
Quintile 3					
Mean Annual Income	13.69	15.21	17.12	19.99	23.67
% Available for Housing	20.00				
% Needed for Recurr. Exp.	8.00				
Monthly Income for Mortg.	0.21	0.23	0.26	0.31	0.36
Affordable Dwelling Cost	25.09	27.89	31.38	36.64	43.39
Quintile 4					
Mean Annual Income	18.86	20.96	23.58	27.53	32.61
% Available for Housing	12.00				
% Needed for Recurr. Exp.	8.00				
Monthly Income for Mortg.	0.17	0.19	0.22	0.25	0.30
Affordable Dwelling Cost	20.74	23.05	25.94	30.28	35.86
Quintile 5					
Mean Annual Income	42.51	47.25	53.17	62.07	73.52
% Available for Housing	9.40				
% Needed for Recurr. Exp.	8.00				
Monthly Income for Mortg.	0.31	0.34	0.38	0.45	0.53
Affordable Dwelling Cost	36.63	40.71	45.81	53.48	63.34

Rural Areas

Interest Rate (%)	8.00
Loan Term (Years)	20.00
Downpayment Required (%)	0.00

	1983	1988	1993	1998	2003
Thousands of Currency Units	-----	-----	-----	-----	-----
Quintile 1					
Mean Annual Income	6.40	8.21	10.46	13.07	16.20
% Available for Housing	18.20				
% Needed for Recurr. Exp.	54.00				
Monthly Income for Mortg.	0.04	0.06	0.07	0.09	0.11
Affordable Dwelling Cost	5.54	6.85	8.73	10.90	13.51
Quintile 2					
Mean Annual Income	10.08	12.92	16.48	20.58	25.51
% Available for Housing	13.90				
% Needed for Recurr. Exp.	54.00				
Monthly Income for Mortg.	0.05	0.07	0.09	0.11	0.14
Affordable Dwelling Cost	6.42	8.23	10.50	13.11	16.23
Quintile 3					
Mean Annual Income	13.31	17.07	21.77	27.20	33.71
% Available for Housing	12.80				
% Needed for Recurr. Exp.	54.00				
Monthly Income for Mortg.	0.07	0.08	0.11	0.13	0.17
Affordable Dwelling Cost	7.81	10.02	12.77	15.95	19.77
Quintile 4					
Mean Annual Income	16.40	21.04	26.82	33.51	41.53
% Available for Housing	15.00				
% Needed for Recurr. Exp.	54.00				
Monthly Income for Mortg.	0.09	0.12	0.15	0.19	0.24
Affordable Dwelling Cost	11.28	14.46	18.44	23.03	28.55
Quintile 5					
Mean Annual Income	27.21	34.90	44.50	55.59	68.90
% Available for Housing	16.30				
% Needed for Recurr. Exp.	54.00				
Monthly Income for Mortg.	0.17	0.22	0.28	0.35	0.43
Affordable Dwelling Cost	20.33	26.07	33.24	41.53	51.47

SRI LANKA NO RENT CONTROLS: JUNE 4
TARGET GROUP IDENTIFICATION

TABLE C.3.2

	1983	1988	1993	1998	2003
	-----	-----	-----	-----	-----
Thousands of Households					
Metropolitan Area					
Affordable Level 0	0.00	8.44	0.00	0.00	0.00
Affordable Level 1	0.00	16.88	32.56	34.52	36.26
Affordable Level 2	0.00	8.44	0.00	0.00	0.00
Subtotal, Target Group	0.00	33.77	32.56	34.52	36.26
Affordable Level 3	0.00	3.57	8.71	10.02	11.17
Total	0.00	37.34	41.27	44.54	47.43
Other Urban Areas					
Affordable Level 0	0.00	0.00	0.00	0.00	0.00
Affordable Level 1	0.00	138.42	155.11	118.59	140.57
Affordable Level 2	0.00	34.60	38.78	79.06	46.86
Subtotal, Target Group	0.00	173.02	193.89	197.65	187.43
Affordable Level 3	0.00	0.00	0.00	0.00	22.16
Total	0.00	173.02	193.89	197.65	209.59
Rural Areas					
Affordable Level 0	0.00	3.59	1.98	0.00	0.00
Affordable Level 1	0.00	5.39	5.94	9.32	10.40
Affordable Level 2	0.00	0.00	1.98	2.33	2.60
Subtotal, Target Group	0.00	8.98	9.90	11.65	13.00
Affordable Level 3	0.00	0.00	0.00	0.00	0.00
Total	0.00	8.98	9.90	11.65	13.00

SRI LANKA NO RENT CONTROLS: JUNE 4
 TARGET GROUP INVESTMENT AND SUBSIDY REQUIREMENTS

TABLE C.3.3

	1983	1988	1993	1998	2003
Country					
Target Households (1000s)					
Not Requiring Subsidy	0.00	120.20	124.56	150.17	130.64
Requiring Subsidy	0.00	95.57	111.79	93.63	106.06
Total	0.00	215.77	236.35	243.80	236.70
Target Group Cost (Millions)					
Subsidy Portion	0.00	957.11	1273.50	1240.81	1384.75
Supported by Target Group	0.00	2995.86	3778.50	4651.45	4691.08
Total	0.00	3952.98	5052.00	5892.25	6275.83
Metropolitan Area					
Target Households (1000s)					
Not Requiring Subsidy	0.00	15.09	13.30	13.30	13.30
Requiring Subsidy	0.00	18.68	19.26	21.22	22.96
Total	0.00	33.77	32.56	34.52	36.26
Target Group Cost (Millions)					
Subsidy Portion	0.00	187.07	241.73	266.40	274.77
Supported by Target Group	0.00	606.03	596.76	744.07	925.58
Total	0.00	793.10	838.49	1010.46	1200.35
Other Urban Areas					
Target Households (1000s)					
Not Requiring Subsidy	0.00	100.61	104.78	128.56	108.73
Requiring Subsidy	0.00	72.42	89.11	69.09	78.70
Total	0.00	173.02	193.89	197.65	187.43
Target Group Cost (Millions)					
Subsidy Portion	0.00	742.42	992.85	908.06	1021.01
Supported by Target Group	0.00	2333.28	3097.19	3773.89	3778.53
Total	0.00	3075.40	4090.04	4681.95	4799.55
Rural Areas					
Target Households (1000s)					
Not Requiring Subsidy	0.00	4.50	6.48	8.33	8.60
Requiring Subsidy	0.00	4.48	3.42	3.32	4.40
Total	0.00	8.98	9.90	11.65	13.00
Target Group Cost (Millions)					
Subsidy Portion	0.00	27.93	38.92	66.33	88.97
Supported by Target Group	0.00	56.56	64.35	133.49	166.97
Total	0.00	84.48	103.27	199.84	255.94

	1983	1988	1993	1998	2003
(Millions of Currency Units)					
Country					
Total Housing Expend.	3033.76	10253.89	13089.40	16705.76	21321.23
Non-target Group Invest.	0.00	646.91	1165.37	1570.94	3479.45
Target Group Investment	0.00	4654.62	5576.34	6795.18	6570.34
Subsidy Required	0.00	957.11	1273.50	1240.81	1384.75
Total Housing Investment	0.00	6258.64	8015.41	9606.93	11434.54
Metropolitan Area					
Total Housing Expend.	3089.44	3917.47	4999.79	6381.14	8144.12
Non-target Group Invest.	0.00	646.91	1165.37	1570.94	2075.85
Target Group Investment	0.00	860.18	692.18	876.23	1106.39
Subsidy Required	0.00	187.07	241.73	266.40	274.77
Total Housing Investment	0.00	1694.16	2099.27	2713.57	3457.01
Other Urban Areas					
Total Housing Expend.	4747.39	6059.00	7732.98	9869.46	12596.20
Non-target Group Invest.	0.00	0.00	0.00	0.00	1403.60
Target Group Investment	0.00	3702.82	4744.96	5701.65	5137.28
Subsidy Required	0.00	742.12	992.85	908.06	1021.01
Total Housing Investment	0.00	4444.95	5737.81	6609.71	7577.89
Rural Areas					
Total Housing Expend.	218.94	279.43	356.63	485.16	580.91
Non-target Group Invest.	0.00	0.00	0.00	0.00	0.00
Target Group Investment	0.00	91.62	139.41	217.30	310.67
Subsidy Required	0.00	27.92	38.92	66.35	88.97
Total Housing Investment	0.00	119.54	178.33	283.65	399.64
Total Housing Investment in the Base Year	4980.00				
Subsidy as a Percent of Public Expenditures	0.00	107.13	111.69	85.26	74.56
Total Housing Investment as a Percent of GDP	4.59	4.52	4.53	4.26	3.97

Metropolitan Area

Interest Rate (%)	8.00
Loan Term (Years)	20.00
Downpayment Required (%)	0.00

	1983	1988	1993	1998	2003
Thousands of Currency Units	-----	-----	-----	-----	-----
Quintile 1					
Mean Annual Income	8.27	9.51	11.05	12.55	15.32
% Available for Housing	17.60				
% Needed for Recurr. Exp.	18.00				
Monthly Income for Mortg.	0.10	0.11	0.13	0.16	0.18
Affordable Dwelling Cost	11.89	13.68	15.86	18.59	22.02
Quintile 2					
Mean Annual Income	12.05	13.87	16.08	18.65	22.33
% Available for Housing	16.60				
% Needed for Recurr. Exp.	18.00				
Monthly Income for Mortg.	0.14	0.16	0.18	0.21	0.25
Affordable Dwelling Cost	16.34	18.81	21.81	25.56	30.28
Quintile 3					
Mean Annual Income	17.37	20.00	23.19	27.19	32.19
% Available for Housing	14.10				
% Needed for Recurr. Exp.	18.00				
Monthly Income for Mortg.	0.17	0.19	0.22	0.26	0.31
Affordable Dwelling Cost	20.01	23.03	26.71	31.30	37.08
Quintile 4					
Mean Annual Income	28.02	32.25	37.40	43.83	51.93
% Available for Housing	17.10				
% Needed for Recurr. Exp.	18.00				
Monthly Income for Mortg.	0.33	0.38	0.44	0.51	0.61
Affordable Dwelling Cost	39.14	45.06	52.25	61.23	72.54
Quintile 5					
Mean Annual Income	74.67	85.96	99.67	114.82	138.38
% Available for Housing	23.80				
% Needed for Recurr. Exp.	18.00				
Monthly Income for Mortg.	1.21	1.40	1.62	1.90	2.25
Affordable Dwelling Cost	145.19	167.13	193.80	227.13	269.06

Other Urban Areas

Interest Rate (%)	8.00
Loan Term (Years)	20.00
Downpayment Required (%)	0.00

	1983	1988	1993	1998	2003
Thousands of Currency Units	-----	-----	-----	-----	-----
Quintile 1					
Mean Annual Income	6.25	6.95	7.82	9.13	10.82
% Available for Housing	16.30				
% Needed for Recurr. Exp.	7.00				
Monthly Income for Mortg.	0.08	0.09	0.10	0.12	0.14
Affordable Dwelling Cost	9.45	10.50	11.61	13.79	16.34
Quintile 2					
Mean Annual Income	9.25	10.28	11.56	13.50	15.99
% Available for Housing	13.00				
% Needed for Recurr. Exp.	7.00				
Monthly Income for Mortg.	0.09	0.10	0.12	0.14	0.16
Affordable Dwelling Cost	11.14	12.38	13.93	16.26	19.26
Quintile 3					
Mean Annual Income	13.69	15.21	17.12	19.99	23.67
% Available for Housing	19.00				
% Needed for Recurr. Exp.	7.00				
Monthly Income for Mortg.	0.20	0.22	0.25	0.29	0.35
Affordable Dwelling Cost	24.10	26.78	30.14	35.18	41.67
Quintile 4					
Mean Annual Income	18.86	20.96	23.58	27.53	32.61
% Available for Housing	11.40				
% Needed for Recurr. Exp.	7.00				
Monthly Income for Mortg.	0.17	0.19	0.21	0.24	0.29
Affordable Dwelling Cost	19.92	22.13	24.91	29.08	34.44
Quintile 5					
Mean Annual Income	42.51	47.25	53.17	62.07	73.52
% Available for Housing	9.00				
% Needed for Recurr. Exp.	7.00				
Monthly Income for Mortg.	0.30	0.33	0.37	0.43	0.51
Affordable Dwelling Cost	35.45	39.40	44.34	51.75	61.31

Rural Areas

Interest Rate (%)	8.00
Loan Term (Years)	20.00
Downpayment Required (%)	0.00

	1983	1988	1993	1998	2003
Thousands of Currency Units	-----	-----	-----	-----	-----
Quintile 1					
Mean Annual Income	6.40	8.21	10.46	13.07	16.20
% Available for Housing	13.40				
% Needed for Recurr. Exp.	77.00				
Monthly Income for Mortg.	0.02	0.02	0.03	0.03	0.04
Affordable Dwelling Cost	1.96	2.52	3.21	4.01	4.97
Quintile 2					
Mean Annual Income	10.08	12.92	16.48	20.38	25.51
% Available for Housing	10.20				
% Needed for Recurr. Exp.	77.00				
Monthly Income for Mortg.	0.02	0.03	0.03	0.04	0.05
Affordable Dwelling Cost	2.36	3.02	3.85	4.81	5.96
Quintile 3					
Mean Annual Income	13.31	17.07	21.77	27.20	33.71
% Available for Housing	9.40				
% Needed for Recurr. Exp.	77.00				
Monthly Income for Mortg.	0.02	0.03	0.04	0.05	0.06
Affordable Dwelling Cost	2.87	3.63	4.69	5.86	7.26
Quintile 4					
Mean Annual Income	16.40	21.04	26.82	33.51	41.53
% Available for Housing	11.00				
% Needed for Recurr. Exp.	77.00				
Monthly Income for Mortg.	0.03	0.04	0.06	0.07	0.09
Affordable Dwelling Cost	4.13	5.30	6.76	8.45	10.47
Quintile 5					
Mean Annual Income	27.21	34.90	44.50	55.39	68.90
% Available for Housing	12.00				
% Needed for Recurr. Exp.	77.00				
Monthly Income for Mortg.	0.06	0.08	0.10	0.13	0.16
Affordable Dwelling Cost	7.48	9.60	12.24	15.29	18.95

Thousands of Households	1983	1988	1993	1998	2003
Metropolitan Area					
Affordable Level 0	0.00	10.12	11.05	0.00	0.00
Affordable Level 1	0.00	20.23	22.10	25.51	30.00
Affordable Level 2	0.00	10.12	11.05	8.50	0.00
Subtotal, Target Group	0.00	40.47	44.21	34.01	30.00
Affordable Level 3	0.00	3.57	4.50	5.30	11.47
Total	0.00	44.04	48.71	39.31	41.47
Other Urban Areas					
Affordable Level 0	0.00	0.00	0.00	0.00	0.00
Affordable Level 1	0.00	172.42	192.85	135.60	115.58
Affordable Level 2	0.00	43.10	48.21	33.90	38.53
Subtotal, Target Group	0.00	215.52	241.06	169.50	154.11
Affordable Level 3	0.00	0.00	0.00	0.00	23.20
Total	0.00	215.52	241.06	169.50	177.32
Rural Areas					
Affordable Level 0	0.00	7.98	8.81	8.70	9.69
Affordable Level 1	0.00	2.00	2.20	2.15	2.42
Affordable Level 2	0.00	0.00	0.00	0.00	0.00
Subtotal, Target Group	0.00	9.98	11.01	10.85	12.12
Affordable Level 3	0.00	0.00	0.00	0.00	0.00
Total	0.00	9.98	11.01	10.85	12.12

TABLE C.4.3

 SLR LANKA HIGH RATE OF UPGRADING: JUNE 4
 TARGET GROUP INVESTMENT AND SUBSIDY REQUIREMENTS

	1985	1988	1993	1998	2003
	-----	-----	-----	-----	-----
Country					
Target Households (1000s)					
Not Requiring Subsidy	0.00	164.92	170.97	84.63	80.13
Requiring Subsidy	0.00	101.05	125.32	129.74	116.05
Total	0.00	265.97	296.29	214.37	196.23
Target Group Cost (Millions)					
Subsidy Portion	0.00	1083.78	1471.17	1659.92	1673.98
Supported by Target Group	0.00	3178.06	4255.41	4473.83	4405.79
Total	0.00	4261.84	5726.58	6133.75	6079.76
Metropolitan Area					
Target Households (1000s)					
Not Requiring Subsidy	0.00	20.12	21.05	13.45	6.60
Requiring Subsidy	0.00	20.35	23.15	20.56	23.40
Total	0.00	40.47	44.21	34.01	30.00
Target Group Cost (Millions)					
Subsidy Portion	0.00	217.50	262.51	302.33	339.78
Supported by Target Group	0.00	642.64	827.75	871.86	788.02
Total	0.00	860.14	1090.25	1174.20	1127.80
Other Urban Areas					
Target Households (1000s)					
Not Requiring Subsidy	0.00	143.11	148.21	69.90	72.28
Requiring Subsidy	0.00	72.42	92.85	99.60	81.83
Total	0.00	215.52	241.06	169.50	154.11
Target Group Cost (Millions)					
Subsidy Portion	0.00	793.72	1108.96	1210.85	1147.82
Supported by Target Group	0.00	2517.95	3394.03	3547.52	3535.28
Total	0.00	3311.67	4502.98	4758.37	4679.10
Rural Areas					
Target Households (1000s)					
Not Requiring Subsidy	0.00	1.79	1.70	1.30	1.30
Requiring Subsidy	0.00	8.28	9.31	9.58	10.82
Total	0.00	9.98	11.01	10.88	12.12
Target Group Cost (Millions)					
Subsidy Portion	0.00	72.56	99.71	146.73	190.37
Supported by Target Group	0.00	17.47	33.64	54.43	82.49
Total	0.00	90.04	133.35	201.18	272.87

SLR LANKA HIGH RATE OF UPGRADING: JUNE 3
HOUSING INVESTMENT IN RELATION TO GDP

TABLE C.4.4

	1983	1988	1993	1998	2003
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(Millions of Currency Units)					
Country					
Total Housing Expend.	7479.80	9545.75	12133.32	15549.34	19845.32
Non-target Group Invest.	0.00	596.22	872.36	1204.41	3381.15
Target Group Investment	0.00	5291.31	6822.28	5984.63	5099.82
Subsidy Required	0.00	1033.78	1471.17	1659.92	1673.98
Total Housing Investment	0.00	6971.32	9145.81	8848.96	10154.95
Metropolitan Area					
Total Housing Expend.	2822.80	3602.69	4598.04	5868.40	7489.72
Non-target Group Invest.	0.00	596.22	872.36	1204.41	1958.61
Target Group Investment	0.00	917.62	1188.95	1129.25	860.90
Subsidy Required	0.00	217.50	362.51	302.33	339.78
Total Housing Investment	0.00	1731.35	2323.81	2635.99	3159.29
Other Urban Areas					
Total Housing Expend.	4576.24	5840.57	7454.21	9513.67	12142.11
Non-target Group Invest.	0.00	0.00	0.00	0.00	1422.54
Target Group Investment	0.00	4355.30	5595.34	4794.54	4146.27
Subsidy Required	0.00	793.72	1108.96	1210.85	1143.82
Total Housing Investment	0.00	5149.02	6704.30	6005.40	6712.64
Rural Areas					
Total Housing Expend.	80.46	102.69	131.06	167.27	213.48
Non-target Group Invest.	0.00	0.00	0.00	0.00	0.00
Target Group Investment	0.00	18.39	37.99	60.84	92.64
Subsidy Required	0.00	72.56	99.71	146.73	190.37
Total Housing Investment	0.00	90.95	137.69	207.57	283.01
Total Housing Investment in the Base Year	4980.00				
Subsidy as a Percent of Public Expenditures	0.00	121.31	129.02	114.08	90.13
Total Housing Investment as a Percent of GDP	4.59	5.03	5.18	3.92	3.52