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**TECHNICAL REVIEW OF HDFC PROJECTS
AND OPERATIONS
VOLUME I - INDIA**

January 31, 1983

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**OFFICE OF HOUSING
AND URBAN DEVELOPMENT
AGENCY FOR
INTERNATIONAL DEVELOPMENT**

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Prepared by

PADCO

**PLANNING AND DEVELOPMENT
COLLABORATIVE INTERNATIONAL**

**TECHNICAL REVIEW OF HDFC PROJECTS
AND OPERATIONS**

RFS - 06

Submitted to

**Housing Development Finance Corporation (HDFC)
USAID PRE/HUD
USAID PRE/HUD RHUDO/Asia**

Submitted by

PADCO, Inc.

**1834 Jefferson Place, N.W.
Washington, D.C. 20036**

January 31, 1982

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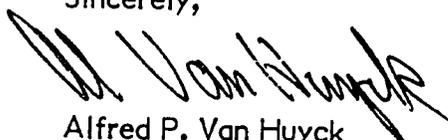
Mr. Jim Grossmann
Housing Officer
USAID
PRE/HUD
Room 625
1875 Connecticut Avenue, N.W.
Washington, D.C. 20523

Dear Mr. Grossmann:

In response to the reporting procedures outlined in the Scope of Work for RFS-06, PADCO is pleased to submit for the review and comment of HDFC, PRE/HUD and RHUDO/Asia, 8 copies of a Technical Review of HDFC Projects and Operations. This assignment was undertaken by Ernest Slingsby, PADCO technical adviser, during a three-week field mission to India in August and two weeks of home office report writing in Washington.

PADCO is pleased with the response from HDFC and RHUDO/Asia to the draft report. In this final draft these comments have been incorporated. The report itself has been divided into two volumes: the actual technical review of projects and supporting annexes and Volume II which contains suggested low income housing policy guidelines.

Sincerely,



Alfred P. Van Huyck
President

Enclosures

AVH/jpf

P A D C O

AN INTERNATIONAL COLLABORATIVE FORMED TO PROVIDE GOVERNMENTS AND PRIVATE CLIENTS IN AFRICA, ASIA, LATIN AMERICA AND THE NEAR EAST WITH INTEGRATED RESEARCH, PLANNING AND MANAGEMENT SERVICES FOR URBAN AND RURAL DEVELOPMENT.

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TECHNICAL REVIEW OF HDFC PROJECTS AND OPERATIONS

I. EXECUTIVE SUMMARY AND INTRODUCTION

A. Introduction

A technical review was conducted during August 1982 of several corporate projects of the Housing Development Finance Corporation, Ltd., (HDFC) which are to be financed under the Housing Guarantee Program of USAID. This review consisted of an evaluation of several corporate projects of HDFC's corporate headquarters in Bombay and included site visits to projects of the Bangalore Office (projects located at Hospet), the Madras Office (projects located at Hosur), and the Delhi Office (projects located in Delhi). A summary of these project reviews is found in the Annexes to Volume I.

The purpose of the technical review was threefold: i) to review the operations of the technical services of the head office in Bombay, ii) to analyze design features of several corporate projects and seek measures to reduce costs, and iii) to prepare a comparative analysis of low income housing projects financed by the Housing and Urban Development Corporation (HUDCO).

Although it was not directly part of the terms of reference of the review, it was hoped that the recommendations from the review could be developed into a Low Income Housing Policy Statement suitable for HDFC lending programs. These recommendations are bound separately in Volume II of the report.

B. Summary of Findings

The review of technical services conducted by Technical Departments in both the Head Office and branch offices indicates that these services are adequate to accomplish the objectives of HDFC's present operational strategy: to ensure that when a loan is granted that the value of the project resulting will be such that the loan can be fully secured by the mortgage and that owners' contributions to the projects are fully made. As such, the technical appraisal of HDFC corporate loan applications is concerned with the physical costs of the land, infrastructure and building costs to ensure that these costs are representative of the costs of similar projects in surrounding areas and that HDFC finance is not being misused for non-project purposes or for excessively expensive luxury housing.

There is no direct link in the appraisal of corporate projects between their standards and costs and the worker beneficiaries' ability to afford these standards and costs. Thus without this link, HDFC technical services do not have a measure of the suitability of standards and costs other than comparability with similar projects. However, to include an affordability analysis into the appraisal of corporate projects would require a more direct statement by HDFC management about its low income housing policy objectives as its present policy makes no mention of supplying affordable housing.

As the HDFC corporate lending program is now constituted, there is little opportunity for HDFC to control costs. Project design parameters are usually determined by consultants hired by corporate clients prior to contact with HDFC. Further, the information provided to HDFC by corporate clients is frequently inadequate to determine the actual components of project costs. For example, land and infrastructure costs are frequently mixed. Average building costs are often provided which overstate the costs of small, lower standard units and understate the costs of larger units. Finally, since HDFC does not fully finance projects (its average loan to cost ratio of corporate projects is 49 percent) and frequently finances only a portion of the costs of a small number of units in a large housing development, its ability to influence costs is limited to either refusing to finance the project or to reducing the proportion of its financing for the project.

Building and planning codes also appear to have a major impact on the costs of large projects in several urban areas. High requirements for public open space, circulation and community facilities frequently force developers into project designs having very high densities to compensate the higher project costs of meeting these codes. The result of these code requirements combined with high land costs has frequently been vertical housing solutions having unit costs which are not affordable to lower income groups without heavy subsidies. Thus, they are excluded from them.

While HDFC may not be able to change these building codes, at least in the short-run, the codes themselves do not preclude the development of lower income housing at more affordable costs and standards, even in metropolitan areas experiencing high land costs. Examples of how existing HDFC projects could have been modified during design stages are given in the technical annexes to Volume I. Further, a computer generated site plan and affordability analysis are given in Volume II which illustrate affordable housing can be developed without resorting to multi-storey development. This latter example, which assumes raw land costs of Rs.100 per square meter, develops gross residential densities of 231 units per hectare at costs which are affordable to households having gross incomes of Rs.440 to Rs.3,265.

C. Recommended Low Income Housing Policy For HDFC

The need for a more definitive low income housing policy for HDFC is illustrated in Chapter III of this report which shows how the combination of

rising construction costs and high interest rates are transforming HDFC's individual loan program into a program benefiting mostly the upper income groups (the average income of beneficiaries under the program as of mid 1982 was Rs.2,400). Further, while the corporate program has been more successful in serving lower income groups (the average income of beneficiaries as of mid 1982 was Rs.1,100), this success has frequently been at the expense of high housing subsidies borne by corporate clients. For example, in some of the projects reviewed these subsidies exceeded 90 percent of project costs.

1. Recommended HDFC Low Income Target Group

It is recommended that HDFC focus a portion of its lending program to serving low income groups not now being served by HDFC financing. Specifically, this group should have monthly incomes ranging from Rs.350 to 600 and should include salaried and non-salaried workers.

As is shown in the technical annexes and in the illustrative computer generated site plan, households in this general income group can afford HDFC's current lending rates if housing projects are developed with that objective. Further, individual households in that group could afford HDFC housing loans if programs were developed specifically for them. One such possible program is described below.

As a target, it is recommended that up to 10 percent of HDFC's lending program be devoted to this group. This would have the impact of increasing the total percentage of HDFC loan beneficiaries having incomes below Rs.1,000 from 39 percent as of mid 1982 to 49 percent by the end of the first year of operation of the program.

2. Affordability in HDFC Lending Programs

There are two methods of treating affordability of housing. The first which has traditionally been adopted by lending institutions is to determine who can afford to purchase housing once it is built and its costs known. Affordability concerns then determine the size of a loan for which an individual can qualify under prevailing financial conditions. Thus, there is no direct link between the standards and costs of housing and household affordability.

The second method of treating affordability is to identify target groups which are usually lacking housing, and then design the standards of housing solutions so that the costs are affordable by the target group without subsidies. This approach is generally taken by development agencies serving low income housing groups. However, financial institutions can also develop programs which are targeted toward specific low income groups without necessarily becoming developers.

3. Recommendations for Implementing HDFC Low Income Housing Policy

Successful implementation of a Low Income Housing Policy by HDFC must recognize that as a private sector financial institution, HDFC must remain profitable to continue to attract new capital. However, within that constraint, there exist several policy options which could be developed to serve low income groups. Therefore, the following recommendations are made:

- o HDFC should establish a technical advisory service which would have the major responsibility of reviewing the standards and costs of corporate loan applications in terms of the socio-economic characteristics of the groups being served by the housing and would make recommendations to corporate clients for reducing costs thus reducing subsidies. This technical advisory service should be viewed as a marketing tool as it could provide prospective corporate clients with the broad parameters of housing programs designed to meet their needs (estimated costs of the program, number of workers served, land required, standards of construction, etc.). If the advisory service's recommendations are not accepted HDFC management would have to decide probably on a project by project basis whether there are mitigating factors which would permit lending to the proposal client anyway.
- o HDFC should investigate more fully the feasibility of establishing a low income housing fund aimed at subsidizing a portion of its loan portfolio targeted towards low income groups. This fund would be created by reserving a portion of the income from HDFC's corporate lending program to finance the interest rate differential of graduated payment mortgages or other such financing mechanisms during the period of negative amortization. Since these funds will be limited, this program should benefit only selected low income groups. The example shown in Volume II illustrates how more than 5,000 households could benefit directly from this program during its first 5 years in operation.
- o HDFC should seek to expand its corporate lending program through creative use of technical advisory services to show prospective clients how such programs can be developed, linking corporate programs with creative financing programs described above whereby corporations would pay the interest rate differential as a worker benefit, and seek out corporate clients which act as intermediaries for low income groups. The Army Welfare Housing Organization is an example of such a client. It assists all ranks of Army personnel in obtaining housing. Groups which serve a broad spectrum of income groups represent a secure market for HDFC for which a variety of lending programs could be developed.

- o Finally, the role of HDFC Developers, Ltd., as a possible corporate vehicle for designing and developing low income housing should be examined to see if portions of its sites can be earmarked for low income owner-occupied dwellings. An illustrative project shown in Volume II demonstrates how such projects could be developed using internal project cross subsidies.

Since the HDFC Developers, Ltd., has just been established it may be premature to emphasize very heavily its potential role in providing lower income housing. Nevertheless, since HDFC has already become a developer through establishment of its subsidiary, this option for intervening directly in the supply of lower income housing should not be ignored in planning future programs.

VOLUME I

VOLUME I

I. REVIEW OF TECHNICAL CAPACITY OF HDFC

This review of the technical capacity of the HDFC's "Technical Department" was initiated to determine current technical appraisal procedures used to determine the suitability of corporate loan requests and then to determine if this capacity is adequate to engage in a broader role of increasing the supply of affordable low income housing. In part, this latter concern is in direct response to the loan implementation agreement between HDFC and USAID, since HDFC's ability to influence the housing costs of its borrower's programs "so that costs are kept at a minimum to provide shelter for as many households as possible. . ." represents a major opportunity to intervene in the process of supplying low income housing.¹ Thus, through its appraisal of project proposals HDFC can ration the supply of housing finance to ensure that a maximum number of households benefit. However, to act in this mode, the technical appraisal of projects must take a broad view of the relationships between project costs and project beneficiaries ensuring that housing supplied meets the socio-economic requirements of the groups receiving the housing.

A. Current Technical Capacity and Appraisal Procedures

The Technical Department of the HDFC Head Office and branch offices along with Legal and Credit Departments comprise HDFC's "Operations" component. These three departments work closely together in appraising both individual and corporate loan applications. Typically a loan request will be received by the Credit Department and scrutinized by both the Legal and Credit Department regarding project size, past performance of the loan applicant, future prospects, etc. Then the application is passed to the Technical Department to review the project's land and building costs and the reasonableness of the total project costs in terms of the housing being built.

This function is now performed at the Head Office by two professionals (applications for a third architect or civil engineer are being sought to fill the authorized third position in the Technical Department). In each of the branch offices, technical functions are performed by at least one technical officer with the exception of the Delhi office where a full-time consultant is employed in the post.

¹ Loan Implementation Agreement between USAID and HDFC, Section 6.03 Standards, Affordability and Eligible Beneficiaries.

As they are presently constituted, the Technical Departments are the smallest "operational" departments. This distribution in staff size follows HDFC's traditional role in the housing sector as a private financial institution rather than a public sector developer. This distribution also reflects HDFC's policy view towards affordability in which the primary concern is an individual's or for that matter a company's ability to repay a housing loan rather than developing housing meeting a particular group's ability to finance it.

Thus, under this policy, affordability considerations are not strictly part of the Technical Department's responsibilities in loan appraisal. Under current loan appraisal procedures, loan size is determined by the Credit Department based on income and other related factors. As such, there is no direct link between the costs of the house and affordability other than an individual's ability to generate non-HDFC financing for the remainder of the house costs.

Affordability questions in appraisal of corporate lending proposals become much more vague since corporate finances are reviewed, not the relationship between beneficiary worker income and the housing being provided. While HDFC does require information regarding the incomes of worker beneficiaries, there is no direct relationship between the proposed costs and incomes. Generally, however, a company's proposal will show an indirect link as larger, more costly housing will be designated for upper income groups. Nevertheless, without affordability criteria, the only measurement of the reasonableness of a proposals housing costs are the costs of similar projects providing similar types of housing.

There are, however, some notable exceptions within the "corporate" housing program. For example, when a borrower acts as either a guarantor of HDFC loans or onlends HDFC finance, individual borrowers are reviewed by either HDFC or the corporate borrower.

With two or three exceptions, the costs of housing have not been major considerations in the corporate lending program. A client comes to HDFC with a housing proposal after having hired a consultant to design and cost the project. The Technical Department of HDFC then ensures that the costs proposed in the loan application will actually represent the value of the housing being constructed so that when a mortgage is granted, HDFC's loan can be fully secured by the property's value. In the two or three exceptions where HDFC has intervened, the housing was clearly very expensive luxury housing. Then prospective borrowers were informed that these units could not be financed because they did not meet HDFC's general objectives "... to provide long term finance to middle and lower income individuals..."²

² Housing Development Finance Corporation, Ltd., Statement of Operating Policies.

In most cases, where an architectural or engineering firm has been hired by a corporate client, the technical review is pro forma since the consultant's drawings and schedule of quantities are accepted as proof of the project's value. When portions of existing housing or of housing complexes are being purchased, the technical appraisal is more important since the value of the land and buildings must be determined through site visits and comparison with the costs of comparable structures in the neighborhood. Where the housing is being purchased in a large housing development, the developer's costs are accepted as justification of the loan. Nevertheless, site visits are necessary to ensure construction progress and quality.

Once a loan has been sanctioned, the HDFC technical appraisal continues as technical officers make periodic site visits throughout the disbursement period to determine the rate of construction and to ensure that corporate borrowers have invested their share of housing costs in the project. These visits also ensure that loan disbursement follows the rate of construction, i.e., so much is disbursed at foundation stage, so much at first floor stage, etc.

HDFC uses similar loan application forms for corporate projects as it does for individual projects. They both solicit information regarding land prices, infrastructure costs and housing costs. However, the quality of the information received is frequently imprecise. For example, in the Premier Mills, Ltd., project, housing is being financed which ranges in size and quality from dormitories where six men share a room with communal toilet and bathing facilities to quarters for the general manager consisting of a 146-square meter house. However, building costs are quoted for all building types as being Rs.818 per square meter, determined by dividing the total project costs by the total built area. Although detailed costs were not provided by Premier Mills, based on costs of similar housing in other parts of India the dormitory units would probably cost around Rs.400 to 500 per square meter while the officer's quarters would cost at least Rs.900 per square meter. As such, these average costs overstate the costs of the smallest units and understate those of the higher standard larger units.

Similarly, there is typically little detail in infrastructure or "development" costs. Although larger projects frequently get involved in a variety of infrastructure costs (water supply, sewerage, electricity supply, roads, etc.), details of these costs are not provided. In some cases such as the housing project at SMIORÉ, contracts have not been let for all of these components and thus costs are not known. In other cases such as the Gokoh Dham project (RMMS workers loan), these costs have been amalgamated along with land prices into building costs. Thus, there is little scope to accurately determine the components of project costs and to identify areas where cost saving could occur. There has been some confusion among branch office Technical Officers as to the amount of HDFC financing available for infrastructure costs. But this confusion has been apparently cleared up as HDFC management states its policy is to finance all components of housing projects.

B. Review of HDFC Developers, Ltd.

The HDFC Developers, Ltd., is a wholly owned subsidiary of HDFC. It was established to broaden HDFC's role in the delivery of housing by becoming directly involved in the design and construction process.

The subsidiary's operations began with what will ultimately be a 544 unit project at the newly emerging industrial area of Chinchwad, Pune. To initiate the project, its professional/technical staff of one architect, two civil engineers and a project manager prepared the project's brief by first conducting a market survey among industries at Pune. Then it supervised preparation of construction documents by consultants and is now supervising construction progress. (A more detailed description of the types of housing being provided is shown in one of the corporate sub-loans discussed in Annex VII.) HDFC Developers has another project aimed at providing housing for HDFC staff in the new industrial area of New Bombay and is negotiating the purchase of a large parcel of land near Mysore for a project there.

So far all of these projects are being conducted by the subsidiary's main office in Bombay. However, the linkage between the parent company and HDFC Developers, Ltd., is such that staff from HDFC branch offices could be seconded to the subsidiary to monitor projects in their regions.

The standards and costs of HDFC's Developer's first project at Chinchwad are relatively high. Building areas range from 46 to 99 square meters while May 1982 selling prices range from Rs.1,000,000 to 3,000,000. These prices include land costs, infrastructure, building costs, as well as the subsidiary's profit margin (including a component of interest during construction paid on a loan to HDFC Developers) ranging from 12 to 35 percent of total selling prices. (See Table 1.) The margin according to the subsidiary is in addition to its overhead costs which are included in base costs. It is important to note that these profits may not be realized on units which were subscribed when the project was started. Rising construction costs have substantially reduced the profits of these units and reduced the project's overall profitability.

The relatively high costs of the project have resulted in part from dramatic increases in building materials costs during the construction phase. These increases have resulted in cost increases of roughly 42 percent. However, since the project was subscribed by corporate clients, affordability considerations on behalf of beneficiaries was not necessarily a design criteria. Thus, while costs are high in terms of low and middle income housing costs, they are not high when measured against housing of similar standards.

Although the project's costs are relatively high, its units are fully subscribed by industrial concerns in the surrounding industrial estate. Nevertheless, it is useful to see which groups could be served by the project

TABLE 1

COSTS OF HDFC DEVELOPERS, LTD., HOUSING PROJECT AT
CHINCHWAD, PUNE

UNIT TYPE	AREA (M ²)	TOTAL NUMBER OF UNITS	SELLING PRICES AS OF FEBRUARY 21, 1980 (Rs. LACS)	SELLING PRICES AS OF MAY 31, 1982		
				ACTUAL COSTS (Rs. LACS)	SELLING PRICES (Rs. LACS)	COSTS AS A PERCENTAGE OF SELLING PRICES (%)
A	92	44	2.00	2.15	3.00	72
B ₁ ¹	80	48	1.50	1.57	2.35	67
Bc ²	80	48	1.50	1.57	2.25	70
C	72	240	1.10 ³	1.17	1.80	65
D	46	96	0.70	0.88	1.00	88

1 Price of ground floor units.

2 Price of first floor units.

3 These units have also been sold at Rs.1.35 Lacs.

Source: HDFC Developers Ltd., and prices quoted in HDFC Telco Corporate Loan Files.

TABLE 2

HOUSEHOLD INCOMES NECESSARY TO QUALIFY FOR HDFC
DEVELOPER HOUSING AT CHINCHWAD, PUNE

UNIT TYPE	SELLING PRICES ¹ (Rs. LACS)	MONTHLY PAYMENT ²		MINIMUM MONTHLY INCOME ³	
		70% FINANCING (Rs)	42% FINANCING (Rs)	70% FINANCING (Rs)	42% FINANCING (Rs)
A	3.00	2,764	1,659	11,057	6,634
B	2.35	2,165	1,299	8,660	5,197
B ₁	2.25	2,073	1,244	8,293	4,976
C	1.80	1,659	995	6,635	4,359
D	1.00	898	539	3,592	2,157

1 Based on May 31, 1982 selling prices.

2 Shows full HDFC 70 percent financing and HDFC individual loan average financing.

3 Assumes 25% of Income available for housing.

Source: May 31, 1982 selling prices and costs from HDFC Developers, Ltd. and PADCO analysis.

if it were being offered to individuals rather than corporate clients at the May 1982 proposed selling prices. The following affordability table shows the minimum qualifying incomes necessary to purchase these units under both HDFC maximum financing terms and at the average loan to cost ratio of its individual loan portfolio.

As the table shows, except for corporate projects where workers receive heavy subsidies, only upper income groups could afford a house at these terms even if HDFC financing covered only 42 percent of the costs. This should not be construed as criticism of the project since it was not necessarily developed to serve low income groups. In future projects, however, if income is a criteria in the project brief a more careful development of affordable standards will be necessary to ensure that such objectives are met.

C. Ability of HDFC to Influence Housing Costs

As the corporate lending program is now structured, HDFC has little ability to influence the costs of housing being financed. The costs of the housing have usually been determined before the corporate body approaches HDFC for financing. Although a corporation may have a housing budget, both in financial terms and in terms of the number of workers they desire to house, the actual standards of the projects are prepared by consultants hired by the corporation. Furthermore, in many projects, HDFC finances only a small portion of the total project. Thus, its ability to influence the project's design is extremely limited. Overall, its average corporate loan is only 49 percent of the total costs of corporate housing program. In some projects, such as the RMMS project, HDFC is financing only a percentage of the costs of a small number of the units in the project. The remainder of the project is being financed by other sources.

The HDFC Developers, Ltd., may have a greater opportunity to influence housing costs since it is a developer. However, at present it is relatively small. Further, the bulk of the development process is left to consultants. While it may be feasible to continue to use consultants for project design, much more careful control over project standards and affordability would be necessary to determine whether it would be more cost effective for it to be directly involved in the design and construction of housing for low income households. Very careful study of the subsidiary would be necessary to determine whether it would be more cost effective for it to be directly involved in the design and construction of housing or whether it would be better to engage consultants and tender construction as is the process now. In any case, more careful rationalization of project overheads and profits will be necessary to ensure that lower priced, smaller units are not bearing a higher percentage of profits than larger units. (See Table 1 for a review of proposed profits and overheads in the subsidiary's Chinchwad, Pune project.)

As they presently are constituted, the technical staffs of the head office and branch offices probably could not carry broader roles in implementing low income housing policy such as project design responsibilities. However, it may be possible with some additional training and suitable equipment (such as programmable calculators) that affordability analysis could be included in the technical appraisal of the standards and costs of project proposals. Appraisals such as those shown in Annexes 1 - 9 could be performed by either Technical or Credit Departments with probably the same staff in the head office and with one additional person in the branch offices. However, this capacity will have to be increased to keep pace with growth in HDFC's loan volume.

While the questions of affordability and costs have been introduced here, the broader issues underlying them are further discussed in Volume II where low income housing policy options for HDFC are discussed.

Planning standards and land costs represent another factor in the costs of providing housing over which HDFC has little control. By international standards, many of the municipal planning standards seem high. For instance, Bombay has planning codes which require that 15 percent of a site be allocated to open space. It also requires that another 5 percent be allocated to community facilities. When these two land uses are combined with internal circulation requirements, roughly 40 percent of the site area is devoted to public uses. To compensate for the high land costs of these areas, developers have resorted to multi-storey construction and reduced internal flat areas (carpet areas) to reduce costs while still recovering land costs and the higher costs of multi-storey construction. High densities have been the result. It might also be argued that reduced environmental standards have also resulted as small one room units constructed in blocks of flats four or five storeys high offer no opportunity for expansion or for owner-occupants to improve housing conditions through self-help techniques.

The example housing project in Volume II and the analysis of HDFC projects in several of the annexes illustrate that such solutions are not necessary. Optimum land use efficiency can be achieved through one-plus-one construction while still meeting planning codes and allowing for some expansion. Frequently through careful design and construction cost control, it is possible to provide housing at affordable costs with higher internal and external space standards than the multi-storied units.

II. REVIEW OF HDFC LENDING PROGRAM

A. HDFC's Individual Loan Program

Very rapid growth has occurred in HDFC's individual loan program. By April of 1982, 18,900 loans had been sanctioned representing an annual growth rate in cumulative loan sanctioning of 85 percent. Even more dramatic growth has been recorded in disbursements of housing loans to individuals as cumulative disbursements have increased at a rate of 248 percent since 1980 to 12,600 loans or Rs.3,862 lacs.

However, due to a combination of factors, HDFC has increasingly, although perhaps unwillingly, become a lender to upper income groups. In 1980, HDFC's average individual borrower had an income of Rs.1,730, while in 1982, the borrower had a monthly income of Rs.2,400. While 7 percent inflation measured by the Consumer Price Index³ would have accounted for some of that increase, households at that income level are at the 78th percentile of urban incomes.⁴ Furthermore, as is shown below, the cumulative portion of individual borrowers having gross incomes of Rs.1,000 per month has shifted from 22 percent in 1981 to 17 percent in 1982. Similarly, although not as dramatic, the group having incomes around the median (Rs.1,001 to 2,000) has dropped from 66 percentile of the 1981 cumulative distribution of individual borrowers to 60 percentile in 1982. (See Table 3.)

Although the trends shown above might be accounted for by increasing interest rates between 1980 and 1982 and generally rising incomes -- the first would have made it more difficult for lower income groups to borrow, while the second would result in a shift upward in the income categories -- at a time of rapidly increasing construction costs there has also been a gradual trend towards financing larger units. As Table 4 indicates, in 1981, 37 percent of the units financed had areas of 50 square meters or less, while in 1982 only 32 percent had. Similarly, the number of units having areas of 96

³ Reserve Bank of India Bulletin, Reserve Bank of India, Bombay, February 1982. P. S. - 98.

⁴ Quoted from "Staff Appraisal Report. Second Bombay Water and Sewerage Project." Report No. 19706 - IN. IBRD, Washington, D.C., July 15, 1978. As updated by the Consumer Price Index quoted in the "Private Sector Housing Finance Program, India." Project Paper, Project No. 386-HG-00, July 1981. P. 35.

TABLE 3

DISTRIBUTION OF HDFC INDIVIDUAL BORROWERS BY INCOME GROUP

GROSS ADJUSTED MONTHLY INCOME (Rs)	1981						1982					
	CURRENT YEAR			CUMULATIVE			CURRENT YEAR			CUMULATIVE		
	NUMBER OF UNITS	PERCENT (\$)	CUMULATIVE (\$)									
Up to 1,000	870	14	14	2,799	22	28	633	9	9	3,551	17	17
1,001-2,000	2,847	46	60	5,604	44	66	2,818	42	51	8,966	43	60
2,001-3,000	1,444	24	84	2,644	21	87	1,736	26	77	4,683	23	83
3,001 & above	<u>967</u>	<u>16</u>	100	<u>1,676</u>	<u>13</u>	100	<u>1,568</u>	<u>23</u>	100	<u>5,500</u>	<u>17</u>	100
TOTALS	6,128	100		12,723	100		6,755	100		20,700	100	

Source: Housing Development Finance Corporation, Limited. Management Report(s) - Operations. As of April 30, 1982 and as of April 30, 1981. 1980 data is available but it is not disaggregated by type of borrower so it is not shown.

TABLE 4

DISTRIBUTION OF HDFC BORROWERS BY SIZE OF UNIT

AREA (m ²)	1981						1982					
	CURRENT YEAR			CUMULATIVE			CURRENT YEAR			CUMULATIVE		
	NUMBER OF UNITS	PERCENT (\$)	CUMULATIVE (\$)									
Up to 50	2,258	37	37	5,426	43	43	2,129	32	32	7,948	39	39
51-80	1,917	31	68	3,574	28	71	2,222	33	65	6,231	30	69
81-95	508	8	76	903	7	78	683	10	75	1,679	8	77
95 +	996	16	92	1,584	13	91	1,434	21	96	3,310	16	93
OTHERS	496	8	100	1,136	9	100	287	4	100	1,532	7	100
TOTALS	6,128	100		12,723	100		6,755	100		20,700	100	

Source: Housing Financing Development Company: Management Report(s) -- Operations, April 30, 1981 and April 30, 1982.

square meters or more increased from 16 percent in 1981 to 21 percent in 1982.⁵ This shift towards financing larger, more costly units combined with an increase in the proportion of borrowers in the Rs.3,001 and above group is indicative of the need to seek methods of attracting lower income borrowers if HDFC is to meet its original objectives, i.e., to serve lower and middle income households.

As had been pointed out by HDFC officials, mortgage financing is perceived as supplemental financing. Over the period for which data was provided the loan to cost ratio of HDFC's individual loan portfolio has remained fairly constant at about 44 percent. This is partially due to higher interest rates which reduce the capacity of low income groups to afford housing finance, although, as is shown above, not necessarily the ability to finance housing through other methods since the number of borrowers has been increasing. Nevertheless, as the effects of interest rates on affordability may not be widely perceived among Indian borrowers, the real reasons for these relatively low loan to cost ratios -- at least by international standards -- may be a reluctance to enter into debt.

A brief review of borrowers having incomes between Rs.700 and 1,200 suggests that this capacity for self-financing averages three times annual income. Although statistics are not available about the sources of this financing, it generally consists of savings, loans from family members, sale of assets (especially jewelry), and borrowing against life insurance policies.

B. HDFC's Corporate Lending Program

HDFC's corporate lending program has been much more successful in reaching lower income groups than has its individual lending program. In 1982, 74 percent of the programs' beneficiaries had incomes of Rs.1,000 or less, while in 1981 only 62 percent were in that group. The success of the program in terms of serving middle and lower income worker households is demonstrated when it is compared with HDFC's individual loan profile. In 1982, 96 percent of the beneficiaries of the corporate lending groups had incomes of less than Rs.2,000 while among individual borrowers only 60 percent were middle and lower income households.⁶ (See Table 5.)

⁵ Part of this increase has occurred due to increased lending away from Bombay in areas where land prices are lower and thus for the same amount of money larger units can be afforded. However, this shift away from Bombay lending has not caused the average income of borrowers to be lowered.

⁶ Some caution needs to be stated in comparing incomes of the two lending programs. For its individual lending program, HDFC includes all sources of household income in its gross income statistics. However, in the corporate program, information is generally only provided about wages. Thus, to an unknown extent, the actual household incomes of workers benefiting from the corporate lending program may be understated.

TABLE 5

BENEFICIARIES OF HDFC CORPORATE LENDING PROGRAM

STATED INCOME (Rs.)	1981						1982					
	CURRENT YEAR			CUMULATIVE			CURRENT YEAR			CUMULATIVE		
	NUMBER OF UNITS	PERCENT (\$)	CUMULATIVE (\$)									
I. BY INCOME GROUP												
Up to 1,000	630	62	62	6,851	86	86	1,526	74	74	8,583	83	83
1,001-2,000	330	33	95	946	12	98	321	16	90	1,307	13	96
2,001-3,000	40	4	99	128	2	100	117	6	96	283	3	99
3,001+	9	1	100	12	--	--	90	4	100	113	1	100
TOTAL	1,009	100		7,937	100		2,054	100		10,286	100	
II. BY SIZE OF UNIT												
Area of Units (m2)												
Up to 50	427	42	42	4,933	62	62	1,412	69	69	6,551	64	64
51-80	516	51	93	2,746	35	97	448	22	91	3,262	31	95
81-95	22	2	95	109	1	98	74	3	94	196	2	97
96 & above	44	5	100	149	2	100	120	6	100	277	3	100
TOTAL	1,009	100		7,937	100		2,054	100		10,286	100	

Source: Housing Finance Development Corporation Management Report(s) - Operation's, April 30, 1981 and April 30, 1982.

Similar to the individual lending program, the average corporate loan financed about 49 percent of the housing project's costs. However, unlike the individual lending program interest rates would seem to have had less an impact on borrowers as the average loan to cost ratio in 1982 was 56 percent while it was 48 percent in 1981. A review of several corporate loan files suggests that debt servicing (both principal and interest) ranged from less than one to eight percent of gross profits before taxes of these corporations.

A profile of selected corporate projects is shown on Table 6. The corporate borrowers fall into four groups: trade unions who guarantee member loans; public sector developers charged with developing a particular site (CIDCO or SIPCO); public sector companies serving a specific group (AWHO), and industrial firms providing worker housing. Table 6 also shows a partial distribution of the income groups served by these corporations and a measure of the extent to which these corporations are subsidizing worker housing.

For the purposes of this assessment subsidies are defined as the percentage of housing costs which beneficiary workers could not finance at full HDFC financing terms (generally 12.5 percent annual interest over 15 years with a downpayment of 30 percent).⁷ The purpose of introducing an affordability assessment is to establish a basis for determining if the costs of corporate housing solutions are excessive, and if they are the extent to which they are. Although affordability of corporate housing programs is somewhat different from affordability in individual loan programs since the housing is generally financed out of corporate surplus income, some measure of the extent to which housing solutions exceed costs which workers themselves are prepared to bear is necessary to ensure that scarce resources are used adequately. The same resources being used to finance housing subsidies could be used to finance other, more affordable housing, or if more housing is not necessary, be used to generate more employment.

Significantly, using the measures discussed above, the highest subsidies are found in housing being provided for industrial workers by private corporations. In some cases, such as the Sandur Manganese Iron Ore Refining Ltd., (SMIORE) project these subsidies can be substantially reduced through modifications in specifications and some design changes. In other cases, the subsidy exists because of company rental policy where workers are provided more-or-less affordable housing, but at very nominal rents. The Western India Glass Works Ltd., is an example of the latter where the EWS and LIG housing being provided is at standards and costs which beneficiary workers could afford if it were being sold to them, however, subsidies result from very low rents. Whether or not such a policy is sound probably needs to be determined almost at company level, but is more broadly discussed later.

⁷ Statistical analysis of Indian borrowers, particularly groups not now being served by HDFC, but which potentially could be, might indicate different affordability measures are appropriate. These include different income criteria, different downpayment capacity and different repayment periods.

TABLE 6

PROFILE OF SELECTED CORPORATE LOANS

CORPORATE BORROWER	TOTAL PROJECT COSTS (Rs., LACS)	NUMBER OF UNITS	AVERAGE UNIT COSTS (Rs.)	GROUPS SERVED ¹	INDICATIVE SUBSIDY ² (\$)	REMARKS
RMS	NA	715	18,700 - 38,700	MIG	8-10	"Borrower" is textile workers' union which <u>guarantees individual loans.</u>
CIDCO	103.3	400	25,825	MIG	7	"Borrower" is public sector developer of New Bombay which <u>onlend HDFC loans at reduced interest rates.</u>
SIPCO	42.3	288	14,700	LIG-MIG	—	"Borrower" is public sector company developing a new industrial estate. <u>Units will be sold to individual workers.</u>
SMIORE	94.4	200	47,200	LIG-MIG	60	"Borrower" is industrial firm working in a remote area. Housing subsidies may partially replace housing allowances granted to workers.
AMHO-NOIDA	370.7	399	1,11,000	LIG-MIG-HIG	91	"Borrower" is public sector company building <u>sole units for Army personnel.</u> No subsidies are involved but lower income groups are not served without large self-financing.
WIGL	5.8	60	9,666	EWS-LIG	94-95	"Borrower" is industrial firm. Subsidy shown is for lowest priced units.
MODI RUBBER	110.4	384	28,750	MIG	18-43	"Borrower" is an industrial firm located in a backward area. Company policy on disposal of the units is not mentioned.

¹ These definitions follow official government income categories: EWS or Economically Weaker Section (households earning less than Rs.350 per month), LIG or Lower Income Group comprised of household incomes between Rs.350 and 600, MIG or Middle Income Group having household monthly incomes of Rs.600 to 1,500, and HIG or Higher Income Groups having incomes above Rs.1,500 per month.

² See the technical annexes to Volume I for a more detailed review of those projects.

Source: Annexes I - VIII.

C. Regional Functions of HDFC's Corporate Housing Program

High standard, highly subsidized housing in "backward" areas is sometimes justified on the grounds that it is necessary to attract workers to these areas. However, experience in most countries indicates that except for workers with very specialized skills, housing is not an attraction to migrate. Workers migrate from region to region in search of employment, either at higher salaries or to escape from unemployment. This is not to say that housing is not necessary to attract workers, just that housing is not the primary reason for inter-regional migration. This fact was borne out by discussions with industrialists in Hopset and Hosur who indicated that they had no difficulty in attracting unskilled or skilled workers.

However, within metropolitan areas housing can be an attraction for workers to migrate to peripheral areas. Housing is also an attraction for highly skilled workers whose skills are much in demand.

The Government of India has embarked on a policy of encouraging decentralization through providing a variety of incentives to industrial firms which locate in what are called "backward areas" (areas lacking industrial development and major urban places). Generally, such a policy may achieve some success due to the status of India's settlement system. A recent study of urban areas in 34 countries conducted by William Wheaton of MIT indicates that India's settlement system has reached a stage where natural decentralization is occurring.⁸ That is to put it in the terminology of regional economists, major settlements within the system have grown to the point where urban economic agglomerations are being seen as disamenities because of their size. Therefore, a policy which supports growth away from primate centers in India may be successful provided that areas selected for industrial promotion have economic potential other than just being backward.

The scope of work requested a review of "projects located in so-called 'underdeveloped regions', whose function is to attract scarce labor. . ."

However, the shortness of the mission to India would not permit any further elaboration on this point than that stated above other than to attempt to put it in context with HDFC's lending program. Such an analysis might require project by project analysis to determine the extent to which housing subsidies are necessary to attract highly qualified workers. For example, a very remote region lacking in other amenities might require the development of housing programs with very high subsidies to attract the correct caliber of industrial worker.

HDFC as a private financial institution is not charged with developing national housing policies, although it may decide to participate in their

⁸ During FY 1980-81, the Government Subsidy was the second largest contributor to HUDCO income after income from loans and accounted for 28 percent of total income.

formulation on its own. Thus, its role in influencing rational policies may be quite limited. However, in its corporate lending program HDFC can influence policy to the extent that it rations the supply of finance to highly subsidized housing. The housing financed should generally aim at standards which are similar to housing that worker households would be willing to finance themselves. Housing of lower standards will probably be unacceptable, while that of drastically higher standards may represent a misuse of scarce resources.

III. HDFC HOUSING PROGRAMS VS. HUDCO HOUSING PROGRAMS

As mentioned in the executive summary, there are two approaches to measuring affordability: i) building a housing and then determining which groups can afford it or portions of its costs under prevailing financial terms, and ii) selecting target groups and then designing housing which is affordable to those groups. While HDFC, being a private sector financial institution, generally gets involved in housing after its costs are determined, and thus determines affordability under the first method, HUDCO imposes standards and cost ceilings on projects which it finances attempting to target that housing towards specific beneficiary groups. Both approaches are valid as long as specific groups are not excluded from the process either because of imposed cost ceilings or because financing terms are too high thus excluding all but the highest income groups.

Although HDFC statistics are not disaggregated in the same manner as HUDCO to allow a complete comparison of beneficiary groups, a percentage distribution of groups served is illustrative of the groups served by each institution.

Although the groups shown in Table 7 do not necessarily coincide, about 98 percent of HUDCO's beneficiary group is below the median income for Bombay (Rs.1,500 per month), while about 55 percent of HDFC beneficiary households fall in that group (assuming that half of the group in the category Rs.1,000 to 2,000 are at or below the median). While HUDCO's distribution of beneficiaries has only been possible because of large subsidies from the Central Government⁹ -- which HDFC as a private sector, profit making organization does not receive -- the distribution does indicate possible lower income markets which are not being served by either financial institution. Namely, the group between Rs.351 and 1,000.¹⁰ Only about 28 percent of the HUDCO

⁹ During FY 1980-81, the Government Subsidy was the second largest contributor to HUDCO income after income from loans and accounted for 28 percent of total income.

¹⁰ A casual perusal of HDFC loan sanctions of individual applications and of corporate loans suggests that the bulk of HDFC beneficiaries have incomes of about Rs.700 or more. However, more careful review of HDFC statistics might tend to lower that figure.

TABLE 7
PERCENTAGE DISTRIBUTION OF HUDCO AND HDFC
BENEFICIARIES

<u>MONTHLY INCOME GROUP</u> (Rs)	<u>PERCENTAGE OF BENEFICIARIES</u> <u>IN EACH GROUP</u>	
	<u>HUDCO¹</u> (%)	<u>HDFC²</u> (%)
0- 350 (EWS)	70	
351 - 600 (LIG)	18	
601 - 1,500 (MIG)	10	
1,000 or less		39
1,001 to 2,000		33
2,001 to 3,000	2	16
3,000 and up		12
TOTAL	100%	100%

1 HUDCO "More Houses for More and More People," Housing and Development Corporation (HUDCO), October 1981.

2 Housing Development Finance Corporation Management Report - Operations. As of April 30, 1982. Individual and Corporate loans are combined.

Source: See footnotes to table.

portfolio serves this group, while only 39 percent of HDFC's beneficiaries are in this group. As is shown in the Annexes, through careful project design and cost control, it is possible to serve this group with affordable housing. The primary questions are whether or not HDFC should attempt to serve this group and if so which mechanism would be most appropriate for HDFC to reach this market.

Two different HUDCO financed projects are shown in Annexes IV and IX. The project shown in Annex IX, located at Bodela, New Delhi, is most comparable to HDFC financed projects in that it was designed by HUDCO to serve a group with incomes similar to a portion of the HDFC financed Army Welfare Housing Organization project nearby at the NOIDA site. Both are providing housing for groups having incomes less than Rs.500 per month. (The Bodela project is aimed at EWS groups, while the AWHO project would benefit a portion of Army retirees who have incomes of Rs.400 per month). However, their comparisons cease since the AWHO project having minimum unit costs of Rs.26,000 is only affordable to lower income groups if households have substantial savings. Otherwise the minimum qualifying income for the project is one room Rs.26,000 units is Rs.945.

High density, vertical construction consisting of one room flats is cited as necessary in land scarce urban areas such as Bombay to counteract high land costs. However, projects in both Bombay and Delhi demonstrate that two storey load bearing wall construction which is probably more socio-economically acceptable to lower income households can be provided at densities similar to high rise developments. For example, the densities of the Bodela project compare favorably with those of the Gokul Dham project, both of which have densities of roughly 200 units per hectare. Further, although the Gokul Dham project was not necessarily designed for EWS households, the 16 square meter carpet area of the smallest Type D units compare favorably with the plinth area of the Bodela units, 18 square meters. However, the Gokul Dham units having multi-storey construction costs of Rs.670 per square meter are about 75 percent higher than those of the Bodela project. It should be noted, however, even at the higher gross land costs and infrastructure costs of the Gokul Dham project, the Bodela units would still be about 56 percent less expensive than the units provided in the Gokul Dham project, i.e., at Rs.102 per gross square meter of land and infrastructure costs the 18 square meter Bodela units would cost roughly Rs.12,060 vs. the Gokul Dham costs of Rs.18,785 per unit.¹¹

The desire to produce quality housing is frequently cited as a need to provide either subsidized housing or higher cost housing which excludes lower income groups. However, the environmental quality of five storey walk-ups

¹¹ The HDFC notes that the Gokul Dham project was cross subsidized. If this is true then the actual costs of the 16 square meter Type D units would be even higher than the prices quoted by the project's developer. Thus, the comparison shown here is even more dramatic.

(four plus one) containing eight one room units sharing four foot wide corridors is at best questionable, particularly since these units do not have separate cooking areas and baths are combined with toilets. Although specifications, such as internal plaster and paint, are lower in projects such as the Bodela project, internal space standards compare favorably with higher priced multi-storey projects and amenities such as separate cooking areas and separated baths and toilets have been provided. Furthermore, and perhaps most importantly, the one plus one construction allows future residents the opportunity to modify their dwellings by adding rooms or improving the standards of internal finishes.

Ultimately, the issues at stake are how to provide lower income housing which is both affordable to the groups being provided housing and is at standards which seeks to improve the quality of their environment. This policy issue is treated in Volume II.

ANNEX

Introduction

The following technical annexes present a detailed review of eight HDFC finance corporate housing projects and two HUDCO projects. Each review consists of a description of the project, the portion of the project which has been proposed for financing under the Housing Guarantee Program of USAID and the financing terms of the loans from HDCF. Each project contains a detailed assessment of project costs and beneficiary groups. This assessment was done in two ways. The first was to determine which income groups could afford the housing at the standards and costs of the projects as they exist now. The second shows an assessment of the standards of housing which are affordable by the worker households if they received HDFC financing without subsidies.

Some of the projects, such as that of WIGL, are already affordable at their current standards to beneficiary worker households without subsidies. Other projects such as the SMIORE project represent very large subsidies. In the case of the SMIORE project roughly 46 percent more housing units could have been built for the same amount of housing finance if the units had been designed at standards more affordable to beneficiary workers.

ANNEX I

PROJECT DESCRIPTION

<u>PROJECT NAME:</u>	Western India Glass Works (WIGL)	
<u>LOCATION:</u>	Kalamboli, West Bombay	
<u>NUMBER OF UNITS:</u>	60	
<u>NUMBER OF UNITS PROPOSED FOR AID FINANCING:</u>	60	<u>AMOUNT OF AID FINANCING:</u> RS. 4,00,000
<u>TOTAL PROJECT COSTS:</u>	RS.5,80,000	
Land:	(RS.NA)	
External Infrastructure:	(RS.NA)	
Building Construction:	(Rs.5,80,000)	
Community Facilities:	(Rs.NA)	

DESCRIPTION:

<u>UNIT TYPE</u>	<u>INCOME GROUP SERVED</u>	<u>NO. OF UNITS</u>	<u>AREA OF UNITS m²</u>	<u>TOTAL COST OF UNIT (Rs.)</u>	<u>RENTED OR SOLD</u>
I.	EWS	50	11.44	8,000	Annual lease/rent Rs.10 ✓
II.	LIG	10	17	18,000	"

HDFC LOAN AMOUNT:	Rs.4,00,000
Period:	84 months
Annual Interest:	17 percent
HDFC EMI*:	Rs.8,499
Effective Rate of Interest:	18.68 percent
Loan to Cost:	70 percent

* Equated monthly installment

Remarks:

As the following affordability analysis shows, the EWS (groups having incomes of Rs.350 or less per month) units are basically affordable to the groups receiving them if these units were actually sold to beneficiary households. (The affordability analysis for these units assumes that EWS households will have smaller savings, therefore, 10 percent of unit costs was allowed for downpayments rather than 30 percent). However, the current policy of WIGL to rent these units at Rs.10 per annum would result in a subsidy of roughly 96 percent of the total project costs (foregone interest and principal) over a 15 year period.

This subsidy was calculated by estimating the implicit interest rate which would result if the EWS units were sold at RS.10 per annum over a 15 year period. This implicit interest rate is 5.4 percent per annum.

The LIG (Low Income Group or households having monthly incomes between Rs.350 and Rs.600) units would have capital subsidies of 64 percent at the lower range of the income group reflected by monthly incomes of Rs.400. However, at the upper range of the income group these subsidies would disappear as groups earning Rs.600 per month could afford these units at HDFC financing terms.

For the LIG group, WIGL's policy of providing this housing at annual lease/rents of Rs.10 results in even higher implicit subsidies, as recovery of Rs.18,000 over 15 years results in a negative interest rate (-0.17 percent). This negative interest rate results in a total project subsidy of 94 percent.

More affordable standards for the LIG group are shown on the right side of the affordability analysis. In the first case, if the same construction costs per square meter which resulted from the standards of the EWS units were used to estimate an affordable unit size for the LIG group earning Rs.400 per month, a unit of 16.7 square meters results. If the same standards of construction represented by the WIGL unit costs (Rs.1060 per square meter) are used to build affordable housing for the group, a unit having a plinth area of only 10.9 square meters could be constructed.

TABLE I

PROJECT NAME: WESTERN INDIA GLASSWORKS (WIGL)

UNIT TYPE	INCOME REQUIRED TO AFFORD CURRENT STANDARDS ¹		STANDARDS AFFORDABLE BY INCOME GROUP ²		
	I	II	I	II	IIa
INCOME GROUP	EWS	LIG	EWS	LIG	LIG
MONTHLY INCOME	356	620	350	400	400
PERCENT OF INCOME FOR HOUSING	25	25	25	25	25
Monthly Payment	89	155	88	100	100
Yearly Interest Rate	12.5	12.5	12.5	12.5	12.5
Recovery Period (yrs)	15	15	15	15	15
Downpayment (%)	10	30	10	30	30
Capital Available Per Household/Unit Cost Rs.	8,000	18,000	7,933	11,591	11,591
Construction Cost Per m ²	699.3	1,058.8	699.3	699.3	1,060
Core House Size (m ²)	11.44	17	11.3	16.6	10.9
Capital Subsidy (%)	1	64			
Total Subsidy (%)	96	94			

¹ Shows household income which would be required to afford these units at their present costs at HDFC financing terms.

² Shows the standards of housing which would be affordable by the monthly incomes of the households which are to benefit from the housing if they received HDFC financing.

ANNEX II

PROJECT DESCRIPTION

PROJECT NAME: Rashtriya Mill Mazdoor Sangh (RMMS)
LOCATION: Gokul Dham Housing Complex, Bombay
NUMBER OF UNITS: Roughly 5,000. Due to changing demand, developer is replanning parts of project

NUMBER OF UNITS PROPOSED FOR AID FINANCING: 715 AMOUNT OF AID FINANCING: Rs.88,00,000

TOTAL PROJECT COSTS: (Rs.N.A.)

Land: (Rs.96.8/net m2)

External Infrastructure: (Rs.107/net m2)

Building Construction: (Rs. see below)

Community Facilities: (Rs.N.A.)

DESCRIPTION:

<u>UNIT TYPE</u>	<u>INCOME GROUP SERVED</u>	<u>NO. OF UNITS</u>	<u>AREA OF UNITS m²</u>	<u>TOTAL COST OF UNIT (Rs.)</u>	<u>RENTED OR SOLD</u>
A.	na	na	60.4**	58,491	sold ✓
B.*	LIG-MIG	NA	39.9**	38,700	"
C.*	LIG-MIG	NA	31.4**	30,361	"
D.*	LIG	NA	20.5**	18,785	"

HDFC LOAN AMOUNT: Rs.88,00,000 (USAID portion only) due to textile workers strike, loan details have not been finalized.

Period:

Annual Interest:

HDFC EMI***:

Effective Rate of Interest:

Loan to Cost:

-
- * Proposed for AID financing.
 ** Area includes share of common corridors and stairs.
 *** Equated monthly installment.

Remarks

The 715 units of the RMMS project are part of a much larger housing development under construction at the Gokul Dham housing project. Thus, total project costs from the developer are not available. The external infrastructure and land costs shown above were rough estimates of those costs given by the developer for the entire housing complex, not just of the 715 RMMS units.

The land use for the entire housing complex is as follows:

Main Roads:	10 percent
Footpaths:	8 to 10 percent
Schools and public facilities:	5 percent (roughly 3.4 m ² /unit)
Open space required by codes:	15 percent
Net saleable land:	52 to 50 percent
Gross density:	76.9 dwelling units/acre or 202 dwelling units/ha.

The relatively high densities result in relatively little net land area per plot as is shown in Table II.

Overall, the project is affordable to the income groups receiving the housing. However, although the project is advertised as a LIG project, only households having incomes of Rs.650 per month could afford full HDFC financing of the project. If low income groups having incomes of Rs.500 per month are to be served by the smallest unit, they would have to finance up to 45 percent of the unit's costs through other means.

Due to the lack of detail about the components of the project's costs, only rough approximations of land, infrastructure and building costs can be made. For land and infrastructure costs, the net costs shown on the previous page were multiplied times the percent of net saleable land to determine gross infrastructure costs. The construction costs per square meter were then calculated from total unit costs after allowances for land and infrastructure had been subtracted out. These costs are shown in Table II.

The small subsidies which are shown at the bottom of the annex result from the RMMS charging 11.5 percent over 15 years for the project. However, if recovery policy changes, as it may well, due to the higher costs of the HDFC financing, these small subsidies would probably vanish.

Although the project is basically affordable to the MIG groups for which it is designated, these same groups could be provided with housing in lower density projects if load bearing wall construction of two storey units were used instead of 5 storey concrete frame construction. Part 2 of Table II shows two examples of how this might be achieved. In the first house sizes (excluding corridors and stairways) have been maintained, but these have been costed at construction costs found at HUDCO projects in West Bombay (ranging from Rs.350 to Rs.450 per square meter) to estimate housing costs. As is shown, 63 square meter plots could be provided to the MIG group earning Rs.650 per month. If higher densities are still required, 58 square meter plots could be provided to the MIG group earning Rs.650 per month. If higher densities are

still required, 58 square meter plots could be provided to the group at densities of 200 units per hectare.¹

¹ Under these two examples, the costs of land and infrastructure are included in the ground floor unit's costs, since the second storey unit would have less access to them. Thus, the upper floor unit would cost Rs.8,700 and could be afforded by groups having incomes as low as Rs.300 per month.

TABLE II (Part I)

PROJECT NAME: RMMS - GOKUL DHAM HOUSING COMPLEX

UNIT TYPE:	INCOME REQUIRED TO AFFORD CURRENT STANDARDS ¹			STANDARDS AFFORDABLE BY INCOME GROUP ²		
	B	C	D	B	C	D
INCOME GROUP	MIG	MIG	MIG	MIG	MIG	MIG
MONTHLY INCOME	1,408	1,104	647	1,408	1,104	650
PERCENT OF INCOME FOR HOUSING	25	25	25	25	25	25
Monthly Payment	352	276	162	352	288	163
Yearly Interest Rate	13.5	13.5	13.5	13.5	13.5	12.5
Recovery Period (yrs)	15	15	15	15	15	15
Downpayment (%)	30	30	30	30	30	30
Capital Available Per Household/Unit Cost Rs.	38,700	30,368	18,785	38,700	31,689	18,892
Land Cost Per m2	48.4	48.4	48.4	48.4	48.4	48.4
On-site Infrastructure Cost/m2	53.5	53.5	53.5	53.5	53.5	53.5
Construction Cost Per m2	843	806	670	843	806	670
Core House Size (m2)	39.9	31.4*	20.5*	33.06	33.06	20.7
Density (Units Per Hectare)	202	202	202	202	202	202
Circulation Space (%)	20	20	20	20	20	20
Parks and Open Space (%)	15	15	15	15	15	15
Community Facilities (m2 per person)	3.4	3.4	3.4	3.4	3.4	3.4
Plot Size m2/unit	28.8	28.8	28.8	28.8	28.8	28.8
Capital Subsidy	—	10.9	7.5			

¹ Shows household income which would be required to afford these units at their present costs at HDFC financing terms.

² Shows the standards of housing which would be affordable by the monthly incomes of the households which are to benefit from the housing if they received HDFC financing.

* Actual unit area net of external circulation is 15.9 square meters while that of the Type C unit is 23.

TABLE II (Part II)

PROJECT NAME: RMMS - GOKUL DHAM HOUSING COMPLEX

UNIT TYPE	INCOME REQUIRED TO AFFORD CURRENT STANDARDS ¹			STANDARDS AFFORDABLE BY INCOME GROUP ²		
	B	C	D	B	C	D
INCOME GROUP	MIG	MIG	MIG	MIG	MIG	MIG
MONTHLY INCOME	1,408	1,150	650	1,408	1,150	650
PERCENT OF INCOME FOR HOUSING	25	25	25	25	25	25
Monthly Payment	352	288	163	352	288	163
Yearly Interest Rate	13.5	13.5	13.5	13.5	13.5	12.5
Recovery Period (yrs)	15	15	15	15	15	15
Downpayment (%)	30	30	30	30	30	30
Capital Available Per Household/Unit Cost Rs.	38,731	31,689	18,892	38,731	31,689	18,892
Land Cost Per m2	48.4	48.4	48.4	48.4	48.4	48.4
On-site Infrastructure Cost/m2	53.5	53.5	53.5	53.5	53.5	53.5
Construction Cost Per m2	500	500	450	741	693	500
Core House Size (m2)	29	23	16	40	31	17.4
Total Built Area for 2 units						
Units Per Plot	2	2	2	2	2	2
Density (Units Per Hectare)	84	100	187	200	200	200
Circulation Space (%)	20	20	20	20	20	20
Parks and Open Space (%)	15	15	15	15	15	15
Community Facilities (m2 per person)	3.4	3.4	3.4	3.4	3.4	3.4
Plot Size m2/unit	148	122	63	58	58	58
Capital Subsidy (%)						
Total Subsidy (%)						

¹ Shows household income which would be required to afford these units at their present costs at HDFC financing terms.

² Shows the standards of housing which would be affordable by the monthly incomes of the households which are to benefit from the housing if they received HDFC financing.

ANNEX III

PROJECT DESCRIPTION

<u>PROJECT NAME:</u>	City Industrial Development Corporation (CIDCO)
<u>LOCATION:</u>	New Bombay
<u>NUMBER OF UNITS:</u>	400 (HDFC financed units only)
<u>NUMBER OF UNITS PROPOSED FOR AID FINANCING:</u>	400
	<u>AMOUNT OF AID FINANCING:</u> Rs.60,00,000
<u>TOTAL PROJECT COSTS:</u>	Rs.103,33,000
Land:	
External Infrastructure:	
Building Construction:	Rs.89,58,000
Community Facilities:	Rs.--

DESCRIPTION:

<u>UNIT TYPE</u>	<u>INCOME GROUP SERVED</u>	<u>NO. OF UNITS</u>	<u>AREA OF UNITS m²</u>	<u>TOTAL COST OF UNIT (Rs.)</u>	<u>RENTED OR SOLD</u>
I	MIG	400	22.9*	25,832	Sold to beneficiaries at 11.5 percent over 15 years

HDFC LOAN AMOUNT:	Rs.60,00,000
Period:	11 years
Annual Interest:	14 percent
HDFC EMI**:	Rs.91,698
Effective Rate of Interest:	14.94 percent
Loan to Cost:	57 percent

-
- * Included corridors and stairways, actual unit area is 17.2m².
 ** Equated monthly installment.

Remarks

The project is to provide housing for traders having variable monthly incomes. Since the traders do not have formal income sources, they constitute a group unable to meet HDFC security requirements. Therefore, the City Industrial Development Corporation, a public sector company owned by the Maharashtra Government charged with developing New Bombay has agreed to guarantee the HDFC loans. Although CIDCO is receiving the Rs.60,00,000 loan at 14 percent, it will be onlent to beneficiaries at terms ranging from 11.5 to 12.5 over 10 to 11 year periods.

Since the 400 units comprising this project are only a small portion of the total New Bombay development, the land and infrastructure costs shown above are based on net saleable land areas only. The gross unit costs for land and infrastructure shown in Table III were derived from a larger, earlier project of which the 400 units are a component. This larger project had a gross density of 213 units per hectare and 53 percent of its land use saleable.

Basically, the CIDCO units are affordable to MIG households at full HDFC financing terms; i.e. 13.5 percent annual interest over 15 years. They are also affordable to LIG groups having monthly incomes of Rs.670 if these households have savings or other means of financing a portion of the total costs not financed by HDFC financing (Rs.10,800).

As in earlier projects, it would appear that reliance on multi-storey construction to achieve high densities is restricting low income groups' access to these projects. As is shown in Table III, the minimum income required to finance these units under HDFC full financing is Rs.940 per month. However, if a load bearing wall construction of two storeys (a ground floor unit plus one storey) is provided, these same units net of stairways and corridors could be built on plots of 53 square meters using the other land use parameters already found in the project. These plots would have a gross density of 106 units per hectare. A higher gross density of 212 units per hectare could be reached by adding the second floor units. Since these upper floor units would not have direct access to the ground, they could be sold net of land and infrastructure costs at roughly Rs.8,500 per unit. At these costs, groups having incomes of Rs.300 per month and up could afford the units.

TABLE III

PROJECT NAME: CITY INDUSTRIAL DEVELOPMENT CORPORATION (CIDC)

	INCOME REQUIRED TO AFFORD CURRENT STANDARDS ¹		STANDARDS AFFORDABLE BY INCOME GROUP ²
	MIG	MIG	MIC
INCOME GROUP			
MONTHLY INCOME	940	940	535
PERCENT OF INCOME FOR HOUSING	25	25	25
Monthly Payment	235	235	134
Yearly Interest Rate	13.5	13.5	12.5
Recovery Period (yrs)	15	15	15
Downpayment (%)	30	30	30
Capital Available Per Household/Unit Cost Rs.	25,832	25,832	1,50,000
Land Cost Per m ²	2.76	2.76	2.76
On-site Infrastructure Cost/m ²	70.6	70.6	70.6
Construction Cost Per m ²	827	827	500
Core House Size (m ²)	22.9	22.9	17.2
Units Per Plot	1	1	2
Density (Units Per Hectare)	213	213	212*
Circulation Space (%)	19.7	19.7	19.7
Parks, Open Space and Community Facilities (%)	24	24	24
Plot Size (m ²)	26	26	53
Capital Subsidy (%)	—		
Total Subsidy (%)	26		

¹ Shows household income which would be required to afford these units at their present costs at HDFC financing terms.

² Shows the standards of housing which would be affordable by the monthly incomes of the households which are to benefit from the housing if they received HDFC financing.

* Consists of 2 storey construction in which the costs of land infrastructure are included in the ground floor costs only. The second floor unit would cost roughly Rs.8,500 and be affordable to groups having incomes of Rs.300 and up.

ANNEX IV

PROJECT DESCRIPTION

<u>PROJECT NAME:</u>	State Industrial Promotion Corporation (SIPCO)
<u>LOCATION:</u>	Hosur, Tamil Nadu
<u>NUMBER OF UNITS:</u>	288
<u>NUMBER OF UNITS PROPOSED FOR AID FINANCING:</u>	288
	<u>AMOUNT OF AID FINANCING:</u> Rs.22,40,000
<u>TOTAL PROJECT COSTS:</u>	Rs.42,34,000*
Land:	(Rs.NA)
External Infrastructure:	(Rs.NA)
Building Construction:	(Rs.NA)
Community Facilities:	(Rs.NA)

DESCRIPTION:

<u>UNIT TYPE</u>	<u>INCOME GROUP SERVED</u>	<u>NO. OF UNITS</u>	<u>AREA OF UNITS m²</u>	<u>TOTAL COST OF UNIT (Rs.)</u>	<u>RENTED OR SOLD</u>
I	LIG** - MIG**	288	16.25***	14,700	✓ sold @ Rs.150/ month over 15 years

HDFC LOAN AMOUNT:	Rs.22,40,000
Period:	NA
Annual Interest:	NA
HDFC EMI****:	Rs.NA
Effective Rate of Interest:	NA
Loan to Cost:	NA

-
- * 1982 updated estimates.
 - ** Aimed at groups earning between Rs.500 - Rs.800 per month.
 - *** The actual unit area net of corridors and stairs is 12.76 m².
 - **** Equated monthly installment

Remarks

The State Industrial Promotion Corporation (SIPCO) is a public sector company established to develop the industrial area of Tamil Nadu. Since this area is officially declared a "backward" area, industries locating in the development receive substantial tax benefits and other incentives. To date 140 major industries have reserved land in the industrial estate, and roughly 60 are operational.

The area is located relatively close to Bangalore, and therefore even though it is underdeveloped, its location being close to a major market should be successful.

As a component of the promotion of the industrial area, SIPCO is developing a worker housing estate adjacent to the industrial estate. Ultimately, this estate will house roughly 10,000 households. Phase I of the estate consists of 5,000 dwelling units for which 80 acres (roughly 31.5 hectares) has been reserved. The overall gross density of Phase I is 159 dwelling units per hectare.

The HDFC financed portion of the housing estate consists of 280 dwelling units built on 2 acres of land. This portion of the estate has a net residential density of 355 units per hectare and a gross density of roughly 195.6 units per hectare. The one room units are built in four storey buildings having four units per floor sharing common corridors and stairs. The average built area of the units is 16.25 square meters while the internal area of the dwellings is 12.8 square meters.

Unlike projects in Bombay and Delhi, land prices are not a major constraint. SIPCO, as a government agency acquired the land at Rs.5,000 per acre when development of the estate began. It is now selling that land at a value of roughly Rs.40,000 per acre (Rs. 10.16 per square meter). Since the housing estate is being developed as part of the industrial promotion program, the costs of infrastructure for the housing estate have been included in the price of industrial land and are not reflected in housing costs.

Although there are no implicit subsidies involved in the HDFC financed portion of the project (other than the infrastructure costs), the design of the units is questionable. As the right-hand portion of Table IV-1 shows, single storey units on individual plots of land could have been provided to these income groups without subsidies. Furthermore, a portion of infrastructure costs could have been included in the unit costs even though the units would have larger useable areas than the SIPCO units. The smallest of these units would have an area similar to the multi-storey housing board units, but at much lower costs.

The low land costs at the SIPCO estate combined with improvements in land use efficiency are the primary reasons which enable these design modifications. When these are coupled with lower cost single storey construction, the result is as shown a likely improvement in the quality of housing being provided to low income groups. The small plot would enable households to grow a portion of their own food and when necessary expand their own unit.

Simultaneous to the HDFC financed housing, SIPCO has also allocated land to the Tamil Nadu Housing Board, Hosur Division, to build an additional 1,000 MIG and HIG dwellings. These dwellings consist of 4 and 5 storey walk-ups and are being

financed by HUDCO. The smallest, Type E unit, consisting of a built area of 24.4 square meters has an internal area similar to the HDFC financed unit, however, to qualify for it, a household would have to have a minimum monthly income of Rs.1,084. An analysis of these units is provided in Table IV-2.

TABLE IV-1

PROJECT NAME: STATE INDUSTRIES PROMOTION CORPORATION (SIPCO)

UNIT TYPE	INCOME REQUIRED TO AFFORD CURRENT STANDARDS ¹	STANDARDS AFFORDABLE BY INCOME GROUP ²		
	I	Ia	II	III
INCOME GROUP	LIG	LIG	LIG	MIG
MONTHLY INCOME	507	507	600	800
PERCENT OF INCOME FOR HOUSING	25	25	25	25
Monthly Payment	127	127	150	200
Yearly Interest Rate	12.5	12.5	12.5	13.5
Recovery Period (yrs)	15	15	15	15
Downpayment (%)	30	30	30	30
Capital Available Per Household/Unit Cost Rs.	14,700	14,700	17,386	22,006
Land Cost Per m ²	10.16	10.16	10.16	10.16
On-site Infrastructure Cost/m ²		30	30	30
Construction Cost Per m ²	872.7	500	500	500
Core House Size (m ²) ³	16.25	23.9	29.3	38.5
Density (Units Per Hectare)	195.6	146	146	146
Circulation Space (%)	25	17	17	17
Parks, Open Space and Community Facilities (%)	20	10	10	10
Plot Size (m ²)	28	50	50	50
Capital Subsidy (%)	—			
Total Subsidy (%)	—			

¹ Shows household income which would be required to afford these units at their present costs at HDFC financing terms.

² Shows the standards of housing which would be affordable by the monthly incomes of the households which are to benefit from the housing if they received HDFC financing.

TABLE IV-2

PROJECT NAME: HUDCO FINANCE: TAMIL NADU HOUSING BOARD PROJECT

UNIT TYPE	INCOME REQUIRED TO AFFORD CURRENT STANDARDS ¹				
	A.	B.	C.	D.	E.
INCOME GROUP	HIG	HIG	HIG	MIG	MIG
MONTHLY INCOME	4,296	3,424	2,084	1,300	1,084
PERCENT OF INCOME FOR HOUSING	25	25	25	25	25
Monthly Payment	1,074	856	521	325	271
Yearly Interest Rate	19.7	20.3	15.3	12.9	12.9
Recovery Period (yrs)	8	8	8	10	10
Downpayment (%)	35	32	38	38	30
Capital Available Per Household/Unit Cost Rs.	1,000,000	77,000	52,000	39,000	30,000
Land Cost Per m2	10.16	10.16	10.16	10.16	10.16
Construction Cost Per m2	1,164.6	1,161	1,023	1,086	1,201
Core House Size (m2)	85.3	65.8	50.2	35.3	24.4
Density (Persons Per Hectare)	159	159	159	159	159

¹ Shows household income which would be required to afford these units at their present costs at HUDCO financing terms.

ANNEX V

PROJECT DESCRIPTION

PROJECT NAME: Sandur Manganese and Iron Ores, Ltd.
(SMIORE)

LOCATION: Hospet, Karnataka State

NUMBER OF UNITS: 200 (under construction)
581 (complete estate)

NUMBER OF UNITS PROPOSED FOR AID FINANCING: 200 AMOUNT OF AID FINANCING: Rs.46,00,000

TOTAL PROJECT COSTS: Rs.94,44,000 (200 units only)

Land: (Rs.--)

External Infrastructure: (Rs.40,81,940*)

Building Construction: (Rs.73,33,400)

Community Facilities: (Rs.20,50,000*)

DESCRIPTION:

<u>UNIT TYPE</u>	<u>INCOME GROUP SERVED</u>	<u>NO. OF UNITS</u>	<u>AREA OF UNITS m²</u>	<u>TOTAL COST OF UNIT (Rs.)</u>	<u>RENTED OR SOLD</u>
A.	MIG	95	49.4	50,168**	policy not established
B.	MIG	105	42.4	44,554**	"

HDFC LOAN AMOUNT: Rs.46,00,000
 Period: 84 months (estimated)
 Annual Interest: 17 percent
 HDFC EMI***: Rs.97,730
 Effective Rate of Interest: 18.39 percent
 Loan to Cost: 49 percent

* Components of costs serve entire estate.

** These costs include components of infrastructure and community facilities costs. Costs presented to HDFC are: Type A - Rs.39,600 and Type B - Rs.34,000

*** Equated monthly installment

Remarks

The Sandur Manganese and Iron Ores, Ltd. (SMIORE) project is unique in that the company already provides workers with above average benefit packages and is combining those benefits with high quality housing. Further, the construction manager for the company with management's approval took an active role in seeking to maintain construction schedules and control costs through innovative uses of local building materials and labor intensive building technologies. Finally, through the use of these materials and technologies, an attempt to control energy inputs and thus costs was made.

The housing estate is to provide shelter for industrial workers of SMIORE's refining plants who are now living in surrounding villages or in Hospet about 14 kilometers away. Workers targetted for the estate receive base salaries ranging from Rs.700 to Rs.1,000 per month. In addition, they receive a housing allowance equal to 20 percent of base pay plus an additional allowance granted to them for being in a hardship area. Overall, the company's total benefit package equals about 200 percent of base pay. Normally, benefits in India range about 100 to 150 percent of base pay, so that SMIORE's provisions are generous. The company's policy towards disposal of the housing is not finalized as to whether it will charge a rent for the housing or whether it will simply reduce housing allowances granted to workers living away from the plant in lieu of rent.

As mentioned above, a great deal of effort was spent in attempting to control costs through innovative technologies and use of local materials. For example, during the time when cement was in short supply throughout India, rough cut stone masonry set in lime mortars was substituted for brick or concrete block masonry as originally specified by the project designers. To further reduce cement content, basalt stone slabs about three inches thick and about three feet long were laid over precast beams instead of using a concrete slab. Further reductions in cement content were made through using thin slabs of basalt for flooring rather than concrete slabs.

All of these cost control measures were made through the efforts of the plant's construction manager. This resulted in frequent conflicts with the project's Bombay-based designers who had produced a design which relied heavily on conventional materials and technologies. Use of these materials would have been no doubt more costly as most materials needed to be transported from Bangalore about seven hours by truck.

Before describing the detailed analysis of the project, it is important to note that this analysis should not be viewed as an unfair criticism of the project. This more detailed analysis was possible in this case simply because more details about the project could be provided. For instance, the project manager provided a set of drawings, a priced bill of quantities, a site plan, and information about infrastructure costs not provided in the other projects reviewed. It is quite likely that many of the other projects may actually understate total costs, particularly of infrastructure and community facilities. However, unlike the Sandur project, these costs were not available.

The entire 581 dwelling unit project is sited on a level parcel of land consisting of 19.1 hectares. (Unbuildable land and greenbelts have been excluded since they do

not affect costs). Of that amount, about 2.5 hectares of recreation space was also excluded from the project analysis since it also would not be provided with infrastructure and land prices are not included in project costs. This leaves a developable area of 16.6 hectares with a gross density of 35 dwelling units per hectare. Land use for this portion of the project is shown on the next page:

Net residential area	8.25 ha	50 Percent
Community facilities	3.55	21
Utilities	0.40	2
Roads	<u>4.40</u>	<u>27</u>
Subtotal	16.60 ha	100 Percent

The layout of the housing uses a staggered street network, which while it creates architectural interest, results in higher costs because it increases the amount of street area. Fortunately, the site is located outside city planning areas. If it were, within planning boundaries, a layout such as that proposed for the Sandur project would result in unnecessarily high infrastructure cost: since streets do not line up extra lengths of water and sewer lines are required as are extra manholes and water valves. For example, one sector of the project containing 167 units would require roughly 27 manholes under the current design. A more simplified design in which streets are lined up into a more regular grid pattern would require 12 to 14 manholes. This modification in sewerage layout would result in a savings of about 37 percent.

The staggered street network also results in higher circulation costs. Again in a cost saving measure, the SMIORE project is using graveled roads since the settlement will not have high vehicular traffic. Nevertheless, a reduction in circulation area from 27 percent to 17 percent of the project area results in a cost savings of over 60 percent. These savings are illustrated in Table V.

Several areas exist in the house plans where savings could have occurred. For example, in the Type B houses (single storey row houses), putting kitchen and shower-toilet blocks together with the adjoining unit would result in a reduction in the number of catch pits required. Each pit costs roughly Rs.1,700. By sharing them, their number could be reduced by about 50 percent.

Similarly in the house specifications, removal of external and internal plaster on the stone walls as well as external paint, specifying a lower standard window and door, and removing parapets and unnecessary ceiling heights (they are now 3.15 meters or 10 feet 3 inches floor to ceiling) along with decorative trim could result in reductions of construction costs of 24 percent (Rs.801 vs. Rs.611 per square meter) or an overall savings of Rs.8,084 in the costs of the Type B unit without altering the floor plan of the unit. In this particular design, ceiling fans could be mounted directly on the ceiling rather than the beams to save ceiling height.

These cost savings are illustrated in the right-hand portion of Table V. Since densities are fairly low in the original project, the illustration shows increases in densities from 35 units to 70 units per hectare, still very low compared with other HDFC financed projects. This increase in densities would result in a reduction of plot sizes, but individual plots of 85 square meters could be allocated to households. For

this example, where more affordable housing costs are being illustrated, unit sizes have been reduced to 28 and 40 square meters.

Although site conditions may not allow savings of the magnitude shown, this simple illustration shows that considerable savings are possible while still providing worker housing that is substantially better than presently available. Further, savings of the magnitude shown would have permitted SMIORE to provide more of its workers with housing for the same total amount of money. For example, the total costs of the Type B units -- 105 units at Rs.44,554 per unit or a total of Rs.46,80,000 -- could have financed an additional 93 units if the Type B units had been in the more affordable cost range shown in Table V, Rs.23,800.

1. Existing Infrastructure Costs

Item	- Water Tank	Rs.5.50
	- Water Supply	Rs.5.96
	- Sanitation (External)	Rs.5.46
	- Electricity (External)	Rs.15.5
	- Substation Building	<u>Rs.0.8</u>
	*SUBTOTAL	Rs.33.22 x 10 ⁵
	- Roads (not included in existing SMIORE contracts) Assume 4.4ha @ Rs.15/m ² for Gravel/Slag Roads	Rs.6.6 x 10 ⁵
	Landscaping @ Rs.0.6/m ²	<u>Rs.1.0</u>
	Total External Infrastructure Cost	<u>Rs.40.82 x 10⁵</u>
	or	Rs.24.59/gross m ²

2. Reductions in Infrastructure Costs

A. Southwest Sector Containing:
79 2 storey Type A Units
88 1 storey Type B Units

i.	Sewers Existing Layout	
	- Estimated Length 1,172m @ Rs.45/m	52,740
	- Manholes 27 Nos @ Rs.3000/unit	<u>81,000</u>
		1,33,740
ii.	Water Supply - Existing Layout	
	- Estimated Length 1,172m @ Rs.50/m	58,600 *
iii.	Total Water & Sewer	Rs.1,92,340

* Additional cost details about water were not available to enable further breakdown of costs.

B. Southwest Sector Ordered Layout

i. Sewer	
- Estimated Length 1070m @ Rs.50/m	48,105
- Manholes 14 Nos @ 3000/unit	<u>42,000</u>
	90,105
ii. Water	
- Estimated Length 1070m @ Rs.50/m	53,500
iii. Water and Sewer combined	1,43,605
SAVINGS	48,735
or	25 percent

3. Overall Savings Possible

- Water Tank	Rs.5.50 x 10 ⁵
- Water Supply 10 percent reduction	Rs.5.36
- Sewerage 33 percent reduction	Rs.3.60
- Electricity 10 percent reduction	Rs.13.95
- Substation	<u>Rs.0.80</u>
SUBTOTAL	Rs.29.21
Or for 16.6 ha	RS.17.60/gross m2
Roads - Reduce area from 27 percent to 17 percent for density of 70 Du/ha = 1.41 ha @ Rs.15/m2	Rs.2,11,650
of for 8.3 ha	<u>Rs.2.55/gross ha</u>
TOTAL INFRA COSTS/Per m2	Rs.20.15/m2

TABLE V

PROJECT NAME: SANDUR MANGANESE AND IRON ORES, LTD. (SMIORE)

UNIT TYPE	INCOME REQUIRED TO AFFORD CURRENT STANDARDS				STANDARDS AFFORDABLE BY INCOME GROUP ²		TOTAL UNIT COSTS (INCLUDING COMMUNITY FACILITIES)	
	B	A	B ³	A ³				
INCOME GROUP	HIG	HIG	HIG	HIG	MIG	MIG		
MONTHLY INCOME	1,620	1,825	1,492	1,696	700	1,000		
PERCENT OF INCOME FOR HOUSING	25	25	25	25	25	25		
Monthly Payment	405	456	373	424	175	250	205	282
Yearly Interest Rate	13.5	35	13.5	13.5	12.5	13.5	12.5	13.5
Recovery Period (yrs)	15	15	15	15	15	15	15	15
Downpayment (%)	30	30	30	30	30	30	30	30
Capital Available Per Household/Unit Cost Rs.	44,554	50,168	41,026	40,649	20,284	27,508	23,830	31,040
Land Cost Per m2	--	--	--	--	--	--	--	--
On-site Infrastructure Cost m2	24.59	24.59	24.59	24.59	20.15	20.15	20.15	20.15
Construction Cost/m2	801.9	801.9	801.9	801.9	611	611	611	611
Core House Size (m2)	42.4	49.4	42.4	49.4	28.5	40.3	28.5	40.3
Community Facilities Cost x 10 ³	20.5	20.5					20.5	20.5
Number of Households Per Community Facility	581	581					581	581
Density (Units per Hectare)	35	35	35	35	70	70	70	70
Parks, Open Space and Community Facilities (%)	23	23	23	23	23	23	23	23
Circulation Space (%)	27	27	27	27	17	17	17	17
Plot Size (m2)	143	143	143	143	86	86	85	85
Capital Subsidy (%)			49	59				
Total Subsidy (%)			61	59				

¹ Shows household income which would be required to afford these units at their present costs at HDFC financing terms.

² Shows the standards of housing which would be affordable by the monthly incomes of the households which are to benefit from the housing if they received HDFC financing.

³ Excludes community facilities costs from selling prices.

ANNEX VI

PROJECT DESCRIPTION

PROJECT NAME: Army Welfare Housing Organization (AWHO)

LOCATION: NOIDA, New Delhi

NUMBER OF UNITS: 349

NUMBER OF UNITS PROPOSED FOR AID FINANCING: NA AMOUNT OF AID FINANCING: Rs.

TOTAL PROJECT COSTS: Rs.3,70,68,000 (estimated)

Land: (Rs.96,34,000)

External Infrastructure:

Building Construction: (Rs.2,74,34,000)

Community Facilities: (Rs.NA)

DESCRIPTION:

<u>UNIT TYPE</u>	<u>INCOME GROUP SERVED</u>	<u>NO. OF UNITS</u>	<u>AREA OF UNITS m²</u>	<u>TOTAL COST OF UNIT (Rs.)</u>	<u>RENTED OR SOLD</u>
I.A	MIG	89	27.9	26,000	sold
I.B	MIG	11	44.1	36,000	"
II.A	HIG	48	55.8	46,000	"
III	HIG	14	92.9	100,000	"
IV.B	HIG	70	113.9	140,000	"
V	HIG	117	132.4	180,000	"

HDFC LOAN AMOUNT: Rs. see remarks

Period:

Annual Interest:

HDFC EMI*: Rs.

Effective Rate of Interest:

Loan to Cost:

* Equated monthly installment

Remarks

The Army Welfare Housing Organization (AWHO) is a public sector company established to build housing for army personnel either for their families while they are in active service or for the personnel and their families after retirement. The AWHO is providing such housing throughout the country. In support of the AWHO program, the HDFC has earmarked up to Rs.9 crores (Rs.90 million) for loans to individual army personnel in projects such as the one shown above. Of that amount about Rs.6 crores has been sanctioned. Although individuals borrow directly from HDFC, their loans are guaranteed by the AWHO.

The NOIDA project shown above is part of a new industrial estate being developed about 14 kilometers from the center of New Delhi. The total AWHO site will have 8,000 dwelling units having an average gross density of 70 dwelling units per hectare. The project shown above comprising 349 units is the first phase of the housing complex.

Detailed costs of the project were not available from the on-site developers. However, some rough unit costs for building construction and estimated total selling prices of the various units were provided. The selling prices are shown on the previous page, while building costs are shown on Table VI. From those costs and overall gross densities, estimates of land costs were made for the first four dwelling units. These show considerable variation, but indicate a trend towards developing project cross subsidies.

Overall, there would be no external subsidies in the project as costs would be passed onto beneficiaries. However, even the smallest units would not be affordable to lower income army personnel unless they had substantial savings. For example, in order for a soldier earning Rs.400 per month to afford even the smallest unit, he would have to have savings or alternative financing for 69 percent (Rs.17,887) of its costs assuming he could qualify for a HDFC loan at 12.5 percent over 15 years for the remainder of house's costs. Even at HDFC's average loan exposure (loan to cost ratio for individual loans) of 46 percent, a soldier would have to have a minimum income of Rs.637 per month, an income, incidentally, which would place the soldier at the lower level of the officer ranks.

More affordable housing solutions for lower ranks of the army are suggested in the right-hand portion of Table VI. These solutions assume one-plus-one construction at costs which allow higher standard of constructions than those found in a nearby HUDCO project (Rs.444 per square meter vs. Rs.500 shown in Table VI). Although the AWHO housing complex has relatively low densities compared with other projects, these densities were maintained in the example. At these densities, if roughly 45 percent of the land is not saleable, individual plots of 78 square meters could be provided.

Although the AWHO selling prices indicate a trend towards cross subsidization, the lowest priced units appear to bear an unequal share of the burden. Therefore, in the example land prices were gradually increased as dwelling unit sizes increased to increase the burden of land costs on upper income groups. Another way of accomplishing this same thing would be to vary plot sizes and the densities of individual components of the project. However, land use within the project was not sufficiently detailed to permit such an analysis.

TABLE VI

PROJECT NAME: ARMY WELFARE HOUSING ORGANIZATION (AWHO)

UNIT TYPE	INCOME REQUIRED TO AFFORD CURRENT STANDARDS ¹				STANDARDS AFFORDABLE BY INCOME GROUP ²				
	IA	IIB	IIA	III	LIG	LIG	MIG	MIG	MIG
INCOME GROUP	MIG	MIG	HIG	HIG					
MONTHLY INCOME	945	1,308	1,672	3,729	400	600	700	800	1,000
PERCENT OF INCOME FOR HOUSING	25	25	25	25	25	25	25	25	25
Monthly Payment	236.3	327	418	932	100	150	175	200	250
Yearly Interest Rate	13.5	13.5	13.5	14	12.5	12.5	12.5	13.5	13.5
Recovery Period (yrs)	15	15	15	15	15	15	15	15	15
Downpayment (%)	30	30	30	30	30	30	30	30	30
Capital Available Per Household/Unit Cost Rs.	26,000	36,000	46,000	100,000	11,590	17,386	20,284	22,006	27,508
Land Cost Per m ²	34.9	19.49	27.8	91.2	19.5	25	25	27.8	34.9
Construction Cost Per m ²	753.2	753.2	753.2	936	500	500	500	500	500
Core House Size (m ²)	27.9	44.1	55.8	92.9	17.6	27.6	33.4	36.1	45.1
Density (Units Per Hectare)	70	70	70	70	70	70	70	70	70
Capital Subsidy (%)	--	--	--						
Total Subsidy (%)	--	--	--						

¹ Shows household income which would be required to afford these units at their present cost at HDFC financing terms.

² Shows the standards of housing which would be affordable by the monthly incomes of the households which are to benefit from the housing if they received HDFC financing.

ANNEX VII

PROJECT DESCRIPTION

<u>PROJECT NAME:</u>	TELCO
<u>LOCATION:</u>	Chinchwad, Pune (HDFC Developers, Inc., Site)
<u>NUMBER OF UNITS:</u>	160
<u>NUMBER OF UNITS PROPOSED FOR AID FINANCING:</u>	48
	<u>AMOUNT OF AID FINANCING:</u> Rs.27,00,000
<u>TOTAL PROJECT COSTS:</u>	Rs.1,77,60,000
Land:	(Rs.NA)
External Infrastructure:	(Rs.NA)
Building Construction:	(Rs.NA)
Community Facilities:	(Rs.NA)

DESCRIPTION:

<u>UNIT TYPE</u>	<u>INCOME GROUP SERVED</u>	<u>NO. OF UNITS</u>	<u>AREA OF UNITS m²</u>	<u>TOTAL COST OF UNIT (Rs.)</u>	<u>RENTED OR SOLD</u>
A	HIG	8	98.5	2,00,000**	Rented
B	MIG*-HIG	24	83.2	1,50,000**	"
C	MIG	80	70.0	1,35,000**	"
D*	LIG-MIG	48	46.0	70,000**	"

HDFC LOAN AMOUNT:	Rs.1,00,000
Period:	5 years
Annual Interest:	13.5 percent
HDFC EMI***:	Rs.2,39,826
Effective Rate of Interest:	15.37 percent
Loan to Cost:	56 percent

-
- * Proposed for AID financing.
 - ** 1980 selling prices.
 - *** Equated monthly installment.

Remarks

TELCO is a company that has relocated in the rapidly expanding industrial area located at Pune. This area is being sponsored by the state government as an attempt to encourage industrial location away from the Greater Bombay area.

The company has purchased the housing from the HDFC Developers, Ltd., a subsidiary of HDFC. These housing units are targetted for workers earning the following base salaries:

Type A	Rs.2,200 per month
Type B	Rs.1,200 to Rs.2,200
Type C	Rs. 1,300 to Rs. 1,800
Type D	Rs.600 to Rs.1,500

The company's policy for disposal of the units is to rent them to workers at 10 percent of base salary. While this will result in fairly large subsidies as is shown in Table VII, the total annual EMI which the company will be paying to HDFC amounts to only 1.9 percent of its net profits before taxes during the six months (April - September of 1981). Thus, the subsidies will have little impact on the company.

However, as is shown in Table VII, if more affordable housing were provided for the group earning between Rs.600 to Rs.1,500, 41 additional units could have been built for the same Rs.33.6 lacs. This incidentally was estimated using the 35 square meter unit shown under the second column of Table VII.

The data for costs and land use shown on the Table were derived from the HDFC developers and are for the first phase only which consists of 476 units. The infrastructure costs shown on the column may be somewhat understated as road networks may not have been included. If this is so, some reductions in either unit sizes or increases in densities may be necessary to compensate for increased costs.

TABLE VII

PROJECT NAME: TELCO, PUNE LOCATED ON HDFC DEVELOPER'S SITE

UNIT TYPE	INCOME REQUIRED TO AFFORD CURRENT STANDARDS ¹		STANDARDS AFFORDABLE BY INCOME GROUP ²		
	D	C	LIG	MIG	MIG
INCOME GROUP	HIG	HIG	LIG	MIG	MIG
MONTHLY INCOME	2,544	5,034	600	1,000	1,300
PERCENT OF INCOME FOR HOUSING	25	25	25	25	25
Monthly Payment	636	1,259	150	250	325
Yearly Interest Rate	13.5	14	12.5	13.5	13.5
Recovery Period (yrs)	15	15	15	15	15
Downpayment (%)	30	30	30	30	30
Capital Available Per Household/Unit Cost Rs.	70,000	1,35,000	17,385	28,976	37,669
Land Cost Per m2	50	50	50	50	50
On-site Infrastructure Cost/m2	26.67	26.67	26.67	26.67	26.67
Construction Cost Per m2	1,311	1,790	500	800	800
Core House Size (m2)	46	70	15.4	24.1	35.0
Density (Units Per Hectare)	79.3	79.3	79.3	79.3	79.3
Circulation Space (%) ^{14.5}	14.5	14.5	14.5	14.5	14.5
Parks and Open Space (%)	13	13	13	13	13
Plot Size (m2)	91.4	91.4	91.4	91.4	91.4

¹ Shows household income which would be required to afford these units at their present costs at HDFC financing terms.

² Shows the standards of housing which would be affordable by the monthly incomes of the households which are to benefit from the housing if they receive HDFC financing.

³ Based on the 476 units to be constructed on the first phase consisting of 6 hectares.

ANNEX VIII

PROJECT DESCRIPTION

<u>PROJECT NAME:</u>	Modi Rubber, Ltd.	
<u>LOCATION:</u>	Modipuryan, U.P.	
<u>NUMBER OF UNITS:</u>	384	
<u>NUMBER OF UNITS PROPOSED FOR AID FINANCING:</u>	384	<u>AMOUNT OF AID FINANCING:</u> Rs.50,00,000
<u>TOTAL PROJECT COSTS:</u>	Rs.110,40,000	
Land:	(Rs.3,07,000)	
External Infrastructure:	(Rs.23,08,000)	
Building Construction:	(Rs.84,25,000)	
Community Facilities:	(Rs.—)	

DESCRIPTION:

<u>UNIT TYPE</u>	<u>INCOME GROUP SERVED</u>	<u>NO. OF UNITS</u>	<u>AREA OF UNITS m²</u>	<u>TOTAL COST OF UNIT (Rs.)</u>	<u>RENTED OR SOLD</u>
B	MIG	94	63.3	40,293	Company policy not stated
C	LIG-MIG	288	34.7	25,163	"

HDFC LOAN AMOUNT:	Rs.60,00,000
Period:	60 months
Annual Interest:	15 percent
HDFC EMI*:	Rs.1,24,293
Effective Rate of Interest:	17.4 percent
Loan to Cost:	

* Equated monthly installment

Remarks

Modi Rubber, Ltd., is building worker housing in "Backward areas," thus, it benefits from substantial tax incentives. The project shown is the second loan from HDFC to the company.

A full distribution of worker incomes was not provided by the company. However, if they range from Rs.500 to Rs.1,200 per month, capital subsidies for the smallest units could be in the range of 43 percent. At the upper end of the scale, subsidies could range about 18 percent of capital costs.

A distribution of affordable housing for various income groups is shown on the right side of Table VIII.

Total annual EMI shown above is 2.7 percent of 1980 gross profits.

TABLE VIII

PROJECT NAME: MODI RUBBER, LTD., MODIPURYAM (NEW DELHI)

UNIT TYPE	INCOME REQUIRED TO AFFORD CURRENT STANDARDS ¹		STANDARDS AFFORDABLE BY INCOME GROUP ²			
	C	D	LIG	MIG	MIG	MIG
INCOME GROUP	MIG	MIG	LIG	MIG	MIG	MIG
MONTHLY INCOME	1,465	915	500	700	900	1,200
PERCENT OF INCOME FOR HOUSING	25	25	25	25	25	25
Monthly Payment	366	229	125	175	225	300
Yearly Interest Rate	13.5	13.5	12.5	12.5	13.5	13.5
Recovery Period (yrs)	15	15	15	15	15	15
Downpayment (%)	30	30	30	30	30	30
Capital Available Per Household/Unit Cost Rs.	40,293	25,163	14,488	20,284	24,757	33,010
Land Cost Per m2	5.05	5.05	5.05	5.05	5.05	5.05
On-site Infrastructure Cost/m2	37.97	37.97	37.97	37.97	37.97	37.97
Construction Cost Per m2	529	529	529	529	529	529
Core House Size (m2)	63.2	34.7	14.5	25.5	33.3	49.5
Density (Units Per Hectare)	63.2	63.2	63.2	63.2	63.2	63.2
Capital Subsidy (%)	18	0-43				

¹ Shows household income which would be required to afford these units at their present costs at HDFC financing terms.

² Shows the standards of housing which would be affordable by the monthly incomes of the households which are to benefit from the housing if they received HDFC financing.

ANNEX IX

PROJECT DESCRIPTION

PROJECT NAME: HUDCO Project, Bodela, New Delhi

LOCATION: New Delhi

NUMBER OF UNITS: 1180

NUMBER OF UNITS PROPOSED FOR AID FINANCING: NA AMOUNT OF AID FINANCING: NA

TOTAL PROJECT COSTS: Rs,94,00,000

Land: (Rs.11,81,000)

External Infrastructure: (Rs.*)

Building Construction: (Rs.82,19,000)

Community Facilities: (Rs.—)

DESCRIPTION:

<u>UNIT TYPE</u>	<u>INCOME GROUP SERVED</u>	<u>NO. OF UNITS</u>	<u>AREA OF UNITS m²</u>	<u>TOTAL COST OF UNIT (Rs.)</u>	<u>RENTED OR SOLD</u>
	EWS	1,180	18.19	7966	sold

* Included in building construction.

Remarks

The Bodela Low Cost Housing Project was a HUDCO turnkey project whose objective was to demonstrate that EWS housing could be built in Delhi at costs of Rs.8,000 per unit.

To achieve these costs, a relatively high density was necessary. However, this density of 200 dwellings per hectare was achieved through provision of one plus one dwelling construction in a cluster design. Ground floor plots have nominal plot areas of 25 square meters, while first floor plots were provided with verandahs of at least 9 square meters. The design allows first floor occupants to enclose these verandahs at a later date to provide an additional room.

Open space provisions are relatively generous in such a high density project. Overall, it reaches about 35 percent of the project area through development of two large parks and a series of pocket parks. Circulation space has been minimized in the project by providing individual plot access via 4 meter footpaths. The only access road has a 9 meter wide right-of-way.

The primary area where costs were reduced to meet affordability criteria was in specifications for the dwelling units. While external walls were plastered and painted, internal walls consisting of brick construction were only painted with a lime wash. Rather than using flush doors costing between Rs.250 - Rs.350 per square meter, these units use frameless batten doors ranging in costs between Rs.50 to Rs.60 per square meter. Windows consist of either lightly reinforced concrete jallies costing about Rs.32 per square meter or frameless wood batten windows similar in cost to the batten doors. By way of comparison, metal windows being specified in other "low cost" housing projects in the Delhi area range Rs.270 per square meter.

Other cost saving measures in the design of the units include provision of concrete floor slabs without finishing streets, ceilings without plaster and the lining up of toilets and kitchens to reduce plumbing stacks, external catch pits and street connections.

The result of these construction cost savings is unit construction costs of Rs.383 per square meter of built area. It should be noted that these unit costs included an undisclosed component of external infrastructure (water supply, sewerage, road and footpath construction, electricity and landscaping).

Present HUDCO policy is to offer subsidized interest rates to lower income groups based on the costs of the units. For example, EWS units costing less than Rs.8,000 receive financing at 5 percent annual interest over 20 years. LIG units costing up to Rs.18,000 receive financing of 7 percent over 15 years. These subsidized interest rates are made possible by an annual subsidy to HUDCO from the government of India which has equalled about 28 percent of its gross income over the last two financial years.

It is unclear from HUDCO documents whether or not there is an element of capital subsidy in these units. However, at more economic interest rates reflecting current Bank of India lending rates, there would be an implicit capital subsidy of about 36 percent if an income group earning Rs.210 per month were served by the project.

Over the project life, this capital subsidy plus subsidized interest rates would equal a total program subsidy of 63 percent.¹ If the same units were offered to LIG beneficiaries at higher HUDCO repayment terms (7 percent over 15 years), this total program subsidy would reduce to 27 percent.

¹ If these units were offered to EWS beneficiaries earning Rs.308 per month, no capital subsidy would be necessary and total program subsidies would reduce to 42 percent.

TABLE IX

PROJECT NAME: HUDCO PROJECT: BODELA, NEW DELHI

UNIT TYPE	INCOME REQUIRED TO AFFORD CURRENT STANDARDS ¹		STANDARDS AFFORDABLE BY INCOME GROUP ²		
	EWS	LIG	EWS	EWS	LIG
MONTHLY INCOME	210	400	200	308	354
PERCENT OF INCOME FOR HOUSING	25	18	25	25	25
Monthly Payment	52.6	71.6	52.5	76.9	88.4
Yearly Interest Rate	5	7	12.5	12.5	12.5
Recovery Period (yrs)	20	15	20	20	20
Downpayment (%)			10	10	10
Capital Available Per Household/Unit Cost Rs.	7,966	7,966	5,134	7,966	7,966
Land Cost Per m2	20	20	20	20	20
Construction Cost Per m2	382.9	382.9	382.9	382.9	382.9
Core House Size (m2)	18.19	18.19	10.8	18.19	18.19
Density (Units Per Hectare)	200	200	200	200	200
Circulation Space (%)	15	15	15	15	15
Parks and Open Space (%)	35	35	35	35	25
Plot Size (m2)	25	25	25	25	25
Capital Subsidy (%)	36	—			
Total Subsidy (%)	62.6	27.1			

¹ Shows household income which would be required to afford these units at their present costs at HDFC financing terms.

² Shows the standards of housing which would be affordable by the monthly incomes of the households which are to benefit from the housing if they received HDFC financing.

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VOLUME II

VOLUME II

INTRODUCTION

The development of a low income housing policy for HDFC was outside the scope of work the technical review of HDFC's projects being financed under the USAID Housing Guarantee Program. It was undertaken to provide a policy base from which to evaluate the standards and costs of HDFC's housing loans and to suggest new opportunities for expanding HDFC lending to lower income groups. Thus, the recommended policies should be viewed as preliminary in character subject to change as the policy dialogue evolves, and for that matter as HDFC's portfolio evolves.

The policy recommendations made here can hardly be viewed in a national context, primarily because they were made for a single institution. Nor should they be viewed as an attempt at making major changes in HDFC's structure. What they do attempt to do is illustrate the options open to HDFC for more aggressively serving lower income groups.

Some of the recommendations aim at reducing the "supply" problem of low income housing by encouraging its construction through the corporate loan program or possibly the HDFC Developers, Ltd. Other recommendations are targeted more at developing housing finance schemes which are earmarked for low income groups. HDFC has already developed procedures for financing housing of lower income groups (reduced interest rates, savings plans linked mortgage loans, etc.). Thus, all of these recommendations aim at expanding policy options already explored by HDFC.

I. LOW INCOME HOUSING POLICY FOR HDFC

The primary issue underlying the study of housing costs is to determine a policy base from which programs and projects aimed at providing housing for lower income groups can be evolved. Costs in themselves are relatively unimportant unless there is either an affordability constraint (households under any condition except for upper income groups are excluded from housing because they lack the ability to finance it either through savings or borrowings) or there is a resource constraint -- the amount of funds available for financing housing is inadequate. Most commonly, both constraints operate together. The results of which are either highly subsidized housing for a few since costs are too high to be affordable and the total financial resources available are not sufficient to allow all households to benefit from the subsidies.

Developing low income housing policy for HDFC requires special consideration since HDFC operates under different constraints than public sector housing institutions or the government. Therefore, before making policy suggestions, it is useful to describe these policy constraints.

First and foremost, HDFC is a private sector financial institution that is responsible to largely private sector stockholders. These stockholders, in order to be attracted to HDFC, expect to get a rate of return which is at least similar to what they would receive for other types of investments. Although not strictly comparable, HDFC 6 to 11 month certificates of deposit attract annual interest of 9 percent. By way of comparison, at the end of FY 81, HDFC declared a 5 percent dividend on the par value of its stock. In FY 82, this has been increased to 7.5 percent. Nevertheless, as a private sector institution, profitability must remain an important management concern if HDFC is to continue to attract equity capital.

Secondly, the Income Tax Law of 1961 as it applies to HDFC as a financial institution allows up to 40 percent of gross profits be maintained as reserves and thus qualify for tax advantages. The 40 percent reserve requirement while it is available for re-investment also constrains profitability as it reduces the pool of funds available for distribution to shareholders.

As noted above, HDFC as a private sector institution is subject to corporate income taxes which range 33 percent of gross profits.¹ Finally, while HUDCO receives special borrowing privileges in the form of Central Government guaranteed loans at below market rates, HDFC borrows at market rates. It also does not receive special subsidies from government to compensate it for lower than market rate loans to low income groups.

¹ As quoted from the HDFC Profit and Loss Account of its June 30, 1982 Annual Report.

These financial constraints require that a low income housing policy for HDFC must be tailored to meet its special growth conditions while still meeting low income household affordability criteria. Therefore, the following sections attempt to outline such a policy by first identifying potential beneficiary groups. Then several policy mechanisms are discussed which could be used to provide those groups with either housing finance or housing itself.

A. Recommended HDFC Beneficiary Groups

As previously mentioned, 39 percent of HDFC's beneficiaries earn less than Rs.1,000 per month, the bulk of which probably have incomes of Rs.650 or more. Further, under present lending conditions most of this group is served by HDFC's corporate lending program. However, as was briefly discussed in Chapter IV, and is illustrated in the annexes, it is possible to provide housing finance at market terms for households having lower incomes than Rs.650 per month.

Therefore, since the bulk of HUDCO's loan portfolio is earmarked for the EWS group (households earning Rs.350 per month or less), it is recommended that HDFC should target its low income housing policy at the next income group, i.e., those earning Rs.350 to 650 per month. This target is not suggested to replace the next tier of incomes already being served by HDFC, but rather to increase the size of its market. This would enable HDFC to reach a much larger percentage of urban households. Further, such a group would include public servants such as police constables and other low income groups not now being served by HDFC.

Past HDFC lending has generally excluded most households which do not have salaried incomes, such as the traders in New Bombay. However, where possible, HDFC has sought an intermediary to guarantee such loans. As such, it has not been necessary for HDFC to make provisions for defaults. While the policy of seeking guarantor intermediaries wherever possible should continue, such a policy may conflict with other components of low income housing policy, e.g., attempting to reach households with lower incomes than are presently benefiting from HDFC lending activities. Therefore, it is recommended that where such potential beneficiaries could benefit from HDFC lending, that a default charge be included in loan repayments to cover the additional risk which lending to these groups would represent to HDFC. In many countries, this default charge has taken the form of a quarter percent interest charge added to interest rates charged to borrowers.

Another method to reduce the risk in lending to lower income groups, or any group for that matter, is for the lending institution to either carry mortgage insurance or require beneficiaries to carry it. The actual costs to either the financial institution or the borrower vary according to the size of the loan, interest rates and the degree of risk involved. While mortgage

insurance is probably a much better method of reducing the risk of lending to "high risk" groups, it is not presently available in India. Therefore, to illustrate how a lending program geared to lower income groups might be engineered, a one quarter of one percent default charge has been included in an illustrative low income lending program described below. If mortgage insurance were instituted, such a charge would not be necessary. However, if monthly mortgage insurance premiums are levied against borrowers, the impact on a household's capacity to afford a housing loan might be much the same as the default charge.

HDFC's general policy statement lists as one of its objectives the provision of long term housing finance for middle and lower income households. The policy statement encourages self-occupancy. While any increase in the housing stock is desirable, provision of owner-occupied dwellings has the greatest chance of improving the standard of living of lower income households since they receive an asset which if it is maintained increases in value and encourages the owner to invest resources in its improvement. While it is likely that the quality of housing financed under the corporate lending program will be maintained since corporations will have large investments in it, combining that program with individual loan programs will have the greatest impact on improving worker living conditions. Such a combined program of rental and owner-occupant housing would have the impact of providing temporary housing (workers benefit from it during the period of employment), while also encouraging workers to acquire more permanent housing. Vacated worker housing can be re-used for new workers or expanded work forces. Such a program represents a relatively secure market for HDFC as workers would have guaranteed incomes and temporary accommodation if they need to spread housing costs over a period of years until they save enough for downpayments.

The amount of finance provided by HDFC represents an important policy area and probably requires additional study before a definitive statement can be made. It is unclear whether lower income households would have sufficient savings to enable them to finance up to 46% of housing costs as is presently occurring in HDFC's individual loan portfolio. Reducing the proportion of financing of a house's costs is an important means for housing finance institutions to regulate the amount of finance going into housing and to ensure that scarce financial resources are equitably distributed. However, such a policy can act as a barrier to lower income households seeking to enter the housing market if they lack adequate savings to afford the downpayments. More experience with financing housing aimed directly at lower income groups is probably necessary to whether HDFC's present financing ceiling of 70% of value is indeed a constraint to lower income groups. However, to ensure HDFC's financial stability, if a policy is enacted to permit a larger share of financing of housing costs, interest rates should be tied to the percent of financing as is currently done in HDFC's corporate loan program. When a loan applicant requires more than a certain percentage of financing (say above 70 percent), some predetermined charge in the form of somewhat higher interest rates could be levied to act as both a rationing device and to protect HDFC's interests.

B. Mechanisms for Implementing HDFC Low Income Housing Policy

There are several mechanisms which HDFC could use to implement low income housing policy, some of which would require structural changes in HDFC while others would require expansion of already existing departments with HDFC. Broadly, these policy options are:

- o Continue operations as is and use the corporate lending program as the major means of reaching lower income households,
- o Continue operations as is, but provide technical advisory services to corporate borrowers to assist them in developing projects which serve broader groups of workers,
- o Seek innovative ways of providing low income housing finance either through the corporate or individual lending program,
- o Get directly involved in the design and development of low income housing projects.

To a greater or lesser extent all of these proposals except for the first would require some increases in technical staff capabilities. Each of the proposals is discussed in the following sections.

1. Continue Operations As Is

This option would require the least changes in HDFC structure other than expansion of Technical and other "Operations" Departments as loan demand grows. Under such a policy, the trend of the individual loan program increasingly serving upper middle and upper income groups is likely to continue unless there are dramatic drops in both interest rates and the rate of increase of construction costs -- both unlikely trends in the near future. However, as is the case now, the corporate lending program could be used to achieve a broadening of HDFC beneficiary groups, especially if HDFC more actively encourages corporate borrowers to include lower income workers in their housing programs.

However, unless corporate borrowers have their own programs to assist workers in acquiring housing, it is likely that larger shares of housing financed under the program will be some form of rental housing. That is unless a greater effort is made to seek out corporate borrowers such as the AIWHO, trade unions and other similar groups which act as corporate intermediaries for individuals purchasing housing.

Under such a scenario, HDFC would continue to play a more traditional role of a housing finance institution regarding affordability. The decisions

about the standards of housing and ultimately beneficiary groups being served by it would continue to be made by groups other than HDFC. As a finance institution, HDFC would get involved in such questions indirectly by determining the size of a loan which an individual can afford in order to buy a particular unit; not necessarily which groups are to be served by housing programs.

2. Provide Technical Advisory Services

The analysis of several HDFC corporate projects presented in the annexes suggest that these projects could benefit from an advisory service which would attempt to link affordability more closely with standards of housing being provided to (i) ensure that broader beneficiary groups are served, (ii) more effectively use housing finance resources, and (iii) reduce housing costs through modified standards and thus probably be attractive to a larger corporate market. Regarding the latter, it is unknown the extent to which high housing costs restrict corporate entry into worker housing programs. Housing costs may appear to the management of many corporations as the largest constraint to developing housing programs.

Such a policy of providing technical advisory services would more aggressively try to serve lower income groups than that outlined above, but would not require major changes in HDFC's structure. It would, however, require initially two more positions in the head office technical department and later once the program was underway at least one more technical officer in each one of the branches. It is not envisioned that these technical officers would be engaged in actual project design. Their primary responsibilities would be to review project proposals, indicate the size of subsidies being contemplated by the proposals, determine if corporate beneficiaries are actually being served by the design proposals (this would be particularly important in projects such as the AWHO where design modifications could make the housing more affordable to lower income groups), and make suggestions to corporate borrowers as to where cost savings could be made and thus corporate financial resources more effectively mobilized. Regarding the AWHO project, as is shown in Annex VI, Figure VI.B a reduction in the size of the IA units from roughly 28 square meters to 18 and lower standards of finish could make the NOIDA, New Delhi project affordable to non-commissioned officers earning Rs.400 per month. As the project is under construction, these modifications could only be made in future projects.

As the service would be advisory in nature, cost ceilings, fixed standards -- unit sizes, plot sizes, etc. -- would probably not be established. These vary widely from place to place and project to project. Thus, establishing such standards does not ensure that objectives of low income housing policy will be met; further, it is not envisioned that utilization of the HDFC technical advisory services should be linked to preferential lending terms.

However, it should be a good marketing tool for HDFC management, as with training, the technical advisory service could outline the broad parameters of housing proposals for corporate management not yet committed to housing programs. These broad parameters could include such things as overall project costs, size of units, amount of land required, number of workers which could benefit, financing costs to the corporation, etc.

It is unlikely that such a technical advisory service could be established without some specialized training. Architectural and engineering schools generally do not provide such training in project appraisal, while schools of economics and such do not provide sufficient physical technical skills. One possible source of training is the AID Housing Seminar given in Washington, D.C.; another is short-term technical assistance.

3. Provide Innovating Financing Mechanism for Low Income Borrowers

The impact of both domestic and international inflation combined with differing monetary policies has generally had a negative impact on housing finance institutions' ability to serve low income borrowers. High interest rates combined with rapid inflation have acted as a double edged sword in cutting a household's ability to finance housing and deflating the value of previous low interest loans of lending institutions. Seeking solutions to these problems, housing institutions have developed a series of alternative financing mechanisms such as floating rate mortgages, variable payment mortgages, graduated payment mortgages and simply subsidizing interest rates when a source of subsidy is available. However, all of these mechanisms require sophisticated management techniques and some of them require alternative financing sources as negative amortization may be involved during the loan period.

Due to its corporate lending program HDFC has the capacity to service a portion of its individual loan portfolio using such techniques, especially if such loans were earmarked for relatively small sized loans to low income households. The following example show show Rs.50 crores (Rs.500 million) could be lent over a five year period in Rs.10 crore amounts to corporate borrowers to generate a "Low Income Housing Fund" which could be used to finance the difference between beneficiary payments and HDFC costs during the early period of a graduated payment mortgage.

Such a program would require the development of variable methods of charging for HDFC services so that these charges are loaded more heavily on corporate rather than on low income individual borrowers. To illustrate the workings of such a program, it is assumed that HDFC will borrow funds from the Bank of India at the rate discussed in August 1982 for passing Housing Guarantee funds onto HDFC, i.e., 12.5 percent over an assumed 15 year period. Corporate lending would then be at HDFC's effective rate for such loans as of

August, 18.34 percent over seven years.² Using such a spread, a Low Income Housing Fund reserve could be established as shown below in Table 8. At the same time, funds could be lent to low income borrowers at a reduced spread also shown in Table 8 on a graduated payment basis in which the difference between beneficiary payments and the cost of that money to HDFC (including the costs of operations and corporate responsibilities as well as interest) would be financed by the Low Income Housing Fund.

There is some flexibility in the proposals shown in Table 8. As noted in the footnotes to the table, corporate default provisions may not be necessary, provisions for stockholder dividends may be increased or decreased, and establishment costs may reduce through greater efficiency. However, the effective spread between borrowing and lending rates does make establishment of a low income housing fund a distinct possibility for a portion of HDFC's individual loan portfolio.

After the first year of operation, using the parameters shown in Table 8, the corporate program would have generated a low income housing fund reserve (after providing for HDFC's other responsibilities) of approximately Rs.450,000 with which the interest rate differential of 1,071 low income housing loans could be financed. The number of loans was estimated using a graduated payment mortgage formula to determine what a household earning Rs.400 per month can afford at 15 percent over a 15 year period if payments increase at 4 percent annually. This results in a loan amount of Rs.9,500. At the end of the second year of the program, the Low Income Housing Fund shown in Column C of Table 9 would be large enough to finance an additional 1,218 of such loans.

It is important to note, that after a period of time which depends on the rate of increase of the payments and the loan payment period, these low income housing loans would begin generating sufficient funds to repay the interest rate differential between initial lending rates and HDFC's actual cost of the money. In the example shown above, this occurs at the end of the eighth year.

As a comparison, Table 9 shows a loan program in which interest on low income housing loans is simply written-down to a more affordable level and the difference between lending and borrowing rates subsidized by the Low Income Housing Fund. The example shown assumes that the same Rs.9,500 loan is granted to the same households. However, the households result in paying an interest rate on only 9.36 percent. As is indicated in Table 9, there is

² The spread shown here resulted from a review of lending to at least three corporations. This spread may not be marketable to future corporate clients. If so, then the proportion of the spread devoted to special uses would have to be reduced or the volume of lending increased to achieve the same size fund.

TABLE 8

VARIABLE SPREADS ON CORPORATE AND LOW INCOME LOANS FOR LOW INCOME HOUSING FUND

	CORPORATE LOANS ¹		LOW INCOME INDIVIDUAL LOANS ²
	<u>(%)</u>	<u>(%)</u>	<u>(%)</u>
TOTAL SPREAD	5.84	4.50	2.50
ESTABLISHMENT COSTS ³	0.75	0.75	--
DEFAULT CHARGE	<u>0.10</u>	<u>--</u>	<u>0.25</u>
NET OPERATING SPREAD	4.99	3.75	<u>2.25</u>
PROVISION FOR CORPORATE TAXES (32%)	<u>1.60</u>	<u>1.20</u>	<u>0.72</u>
NET PROFIT	3.39	2.55	1.53
SPECIAL RESERVE ⁵	2.00	1.50	0.90
SHAREHOLDERS DIVIDEND ⁶	1.02	0.77	0.46
LOW INCOME HOUSING FUND ⁷	<u>0.25</u>	<u>0.16</u>	<u>--</u>
BALANCE	0.12	0.12	0.17

- 1 The total spread shown is the difference between the August effective interest rate on corporate loans (18.34 percent) and the rate at which HDFC would borrow from the Bank of India (12.5 percent). For illustrative purposes if this spread is not feasible a second example is given in which a 4.5 percent spread is used to calculate the proposed fund.
- 2 Minimum spread required by HDFC as discussed with the Chief of Operations of HDFC. See note 3 below.
- 3 0.75 percent is the current HDFC requirement for establishment costs. However, at present, legal, credit and technical fees charged during loan processing cover these costs. Therefore, with careful management they could be eliminated for selected low income housing loans. However, due to likely pay increases and other unforeseen costs, provisions for such costs need to be included in at least the corporate lending program.
- 4 As recommended above a 0.25 percent default charge should be added onto individual loans where the security of salaried income cannot be assured. As a measure of protection for HDFC, a 0.10 percent charge has also been included in the corporate lending program. Experience with the program may demonstrate that this charge is unnecessary and it could possibly be included elsewhere.
- 5 In accordance with the Income Tax Act of 1960, 40% of the profits of both types of loans must be kept in a special reserve fund so that special tax treatment can be received.
- 6 This provision has been arbitrarily selected. Management may decide that it needs to be increased or decreased according to market conditions.
- 7 Arbitrarily selected at a quarter of one percent to provide a reserve for a low income housing fund. At this level, roughly 4 percent of gross income would be devoted to the fund. Management may decide that such a provision is either too much or too little depending on other requirements.

Source: PADCO Projections.

TABLE 9

LOW INCOME HOUSING FUND AND NUMBER OF LOANS SERVICED

YEAR	CORPORATE PROGRAM INVESTMENT (RS MILLIONS)	TOTAL INCOME FROM CORPORATE PROGRAM- (RS MILLIONS)		LOW INCOME HOUSING FUND ² (RS MILLIONS)		POTENTIAL NUMBER OF LOANS SERVICED ANNUALLY ³		
		A	B	C	D	E	F	G
0	100.0	0	0	0	0	0	0	0
1	100.0	11.4	10.4	0.45	0.37	1,071	1,046	1,071
2	100.0	22.8	20.8	0.91	0.75	1,218	1,156	1,095
3	100.0	34.2	31.3	1.37	1.13	1,364	1,277	1,095
4	100.0	45.7	41.7	1.83	1.50	1,529	1,407	1,071
5	105.0	57.1	52.6	2.28	1.39	1,698	1,559	1,071
6	110.3	68.5	64.1	2.74	2.31	1,942	1,741	1,095
7	115.8	79.9	76.2	3.20	2.74	2,198	1,949	1,096
8	121.6	91.3	38.8	3.65	3.20	2,465	2,199	1,071
9	127.6	102.7	98.3	4.11	3.54	2,833	2,404	1,095

Note: Totals may not add due to rounding.

¹ Column A shows the total income from a Rs.50 crores corporate loan program if corporate loans have an effective spread of 5.84 percent as did a few loans granted in August 1982. Column B shows the total income from a corporate loan program if the effective spread is 4.5 percent.

² Column C shows the estimated size of a low income housing fund after provisions for establishment costs, corporate default charges, taxes, etc., have been deducted. For the purposes of this projection, roughly 4.3 percent of the total income is available for a low income housing fund.

Column D is similar to Column C, except that only 3.6 percent of the total income from the program shown in Column B is available for the Low Income Housing Fund.

³ Column E shows the number of loans which could be subsidized with the Low Income Housing Fund shown in Column C if graduated payment mortgages of a maximum of Rs.9,500 were lent over a 15 year period at 15 percent and payments increase annually at 4 percent per year.

Column F is similar to Column E except that the projection is based in the Low Income Housing Fund shown in Column D.

Column G shows the number of loans which could be subsidized if interest on loans of Rs.9,500 were reduced from 15 percent to 9.36 percent on 15 year loans.

Source: PADCO Projections.

little flexibility for growth in the size of the loan portfolio in such a program unless there is very dramatic growth in corporate lending (the example projects only a 5 percent growth rate after the fifth year). This results because there is no decrease in the size of the interest rate differential over the loan period. As such it is not a very desirable mechanism for serving low income groups. It also is not a very sound financial program as it does not account for the impact of inflation on either loan repayment capacity or the loan portfolio. It was presented because it would probably be easier to manage than a graduated payment mortgage program. It is also a solution which is frequently resorted to by government sponsored agencies.

A total capital requirement of almost Rs.55 crores (Rs.550 million) would be required to finance the program over its first five years. Under the terms presented in Table 9 this investment would be sufficient to finance the interest rate differential of 5,182 low income loans by the end of the fifth year. This ability to finance these loans is very much dependent on the rate of inflation and HDFC borrowing and lending terms as well as assumptions about use of income from the corporate lending program. For example, a 10 percent annual inflation over the first five year period would reduce the size of the low income housing fund reserve by almost 23 percent by the end of the fifth year. That combined with much stiffer borrowing terms (the example shown in Table 10 uses terms of 12.5% over 7 years) would reduce the size of the fund by as much as 72 percent. Thus, before embarking on such a program, very careful management procedures must be initiated.

At the very least, bi-weekly or monthly management reports should include such factors as the size of the low income housing fund from the previous month, income from the previous month, the amount available for investment in the fund, the status of previous loans granted under the program and projections about the number of loans which can be granted during the upcoming month. From that information, management can determine the operational strategy for the upcoming month and over longer periods. As such, due to the complexities of managing such a program, it should not be initiated prior to establishment of computerized management systems capable of providing bi-weekly information.

The example shown in Table 9 assumes that all loans benefiting from the low income housing program are the same size and carry the same terms. However, a variety of terms can be worked out with individual beneficiaries regarding repayment terms. The program can also be linked directly with the corporate lending program. Thus, corporations could be encouraged to pay the differential themselves during the period of negative amortization, and thus, qualify for lower interest rates on corporate loans.

However, under the terms of even the optimistic scenario presented in the example, the funds available for such a program will be limited. Thus, beneficiary groups should be limited to low income groups, say having incomes less than Rs.650 per month, although that figure is open to review. One result of placing a qualifying income ceiling on the low income housing fund

TABLE 10

IMPACT OF INFLATION AND VARYING INTEREST RATES ON
LOW INCOME HOUSING FUND SIZE
(RS MILLIONS)

YEAR	<u>10% ANNUAL INFLATION¹</u>		<u>10% ANNUAL INFLATION AND CHANGE IN BORROWING TERMS²</u>	
	TOTAL INCOME FROM CORPORATE PROGRAM	LOW INCOME HOUSING FUND	TOTAL INCOME FROM CORPORATE PROGRAM	LOW INCOME HOUSING FUNDING
0	0	0	0	0
1	10.3	0.41	3.8	0.15
2	19.5	0.78	7.2	0.29
3	27.8	1.11	10.3	0.41
4	35.3	1.41	13.1	0.52
5	42.6	1.70	15.8	0.63
6	49.6	1.98	18.4	0.74
7	56.6	2.26	20.97	0.84
8	63.4	2.54	23.5	0.94
9	70.2	2.81	26.01	1.04

1 Shows impact of 10 percent annual inflation on income from corporate lending program where HDFC onlends funds borrowed at 12.5 percent over an assumed 15 year period to borrowers at 18.34 percent over 7 years.

2 Shows impact of 10 percent annual inflation and stiffer HDFC borrowing terms on income from corporate lending program. Borrowing terms are 12.5 percent over an assumed 7 year period and onlent at 18.34 percent over a 7 year period.

Source: PADCO Projections.

will be an implicit ceiling on loan sizes, not necessarily, however, on total housing costs as that is dependent on the capacity for self-financing.

4. Design and Develop Low Income Housing Projects

Direct involvement in the design and development of low income housing projects is the most radical departure from the traditional role of housing finance institutions. It also represents the greatest risk to the institution as investment funds can be tied up for long periods of time and unless a project is fully presubscribed -- difficult to achieve in low income housing projects because households are frequently unwilling or unable to invest savings until visible progress is apparent -- a greater portion of cost must be borne by the development agency directly. The program described above for example would represent a total investment in housing of Rs.120 crores at current HDFC loan to cost ratios.

Nevertheless, direct involvement in project development gives the development agency the greatest opportunity to control costs and ensure that selected target groups are served by the project. Although it is not now providing low income housing, the HDFC Developers, Ltd., could provide HDFC with a corporate vehicle for implementing such a low income housing policy.

An illustrative low income housing program is shown in Table 11. It was assumed that 5,012 plots having selling prices of Rs.12,749 would be developed for low income households over a five year period so that the program could be compared with other proposals. Under current HDFC lending terms these households could afford 70 percent financing of these costs with loans of Rs.9,000. The program assumes that a balanced community will be developed which would ultimately provide for 10,022 households having incomes ranging from Rs.440 to 3,300 per month. The total investment required for the five year program (excluding interest during construction and professional fees) is roughly Rs.23.4 crores (Rs.234 million). All together the project would require 44 hectares and would have an average density of 231 dwelling units per hectare. For the purposes of this example, it was assumed that land costs would be approximately Rs.100 per gross square meter and that infrastructure costs would be similar to those of HDFC Developers' site at Chinchwad, Pune (Rs.26 per gross square meter). A detailed affordability analysis and site plan of a component of the total program are shown in Table 12 and Figure 1.

The area designated to low income units is developed at costs which assume one-plus-one construction. However, due to the very high land costs, the smallest units benefit from internal project cross-subsidies whereby land prices are reduced to a more affordable level by increasing the prices of land for the larger units. This permits selling the smallest Type 5 units targeted for LIG households at about 90 percent of its actual costs. (This

TABLE 11

LOW INCOME HOUSING PROGRAM

<u>PLOT TYPE</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>TOTAL</u>
Income Group Rs	3,265	2,075	1,072	644	440	
Unit Cost Rs	75,781	37,875	29,605	18,654	14,017	
Total Number of Units	611	917	1,649	1,833	5,012	
Total Costs (Rs Millions)	46.3	34.7	48.8	34.2	70.3	234.3
Unit Selling Prices	87,561	57,104	31,055	18,654	12,749	
Total Revenues	53.5	52.4	51.2	34.2	63.9	255.2
Surplus						20.9

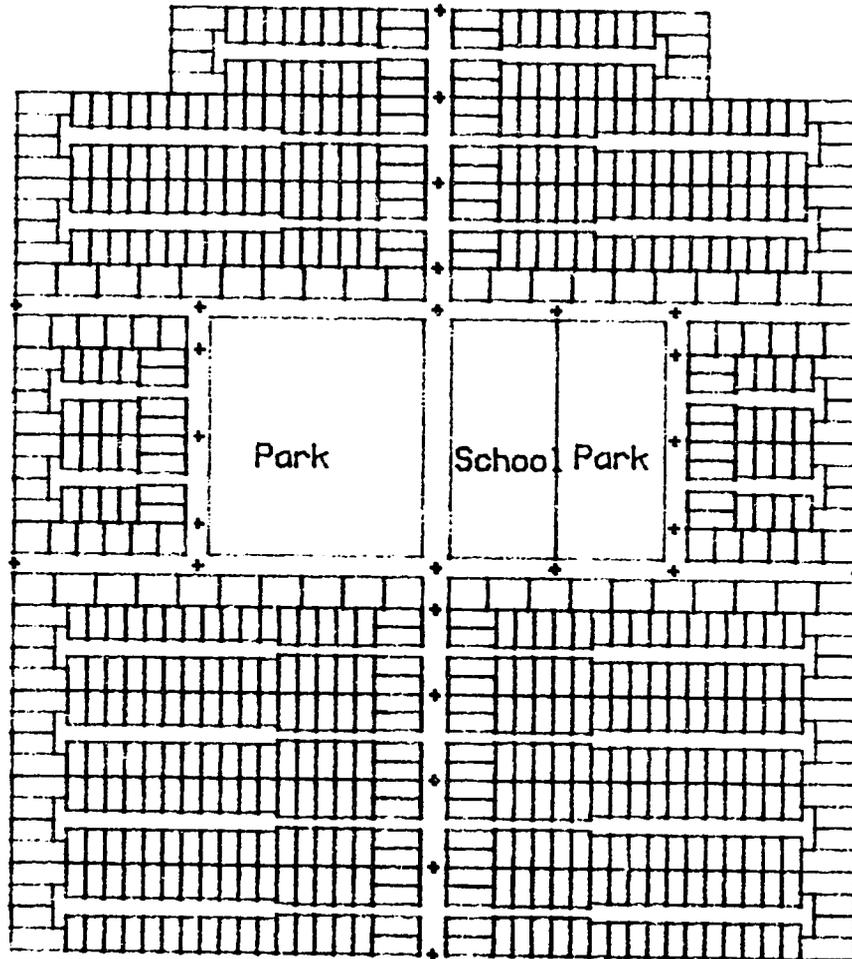
Source: Table 12 and Figure 1.

TABLE 12

AFFORDABILITY ANALYSIS OF HOUSING ESTATE NEAR BOMBAY

Plot	type	#1	#2	#3	#4	#5
Plots	type %	6.1	9.15	16.46	18.29	50
Monthly	income	3265.04	2075.88	1071.72	643.76	440.00
HOU.EX	.%INCOM	25.00	25.00	25.00	25.00	25.00
Month.	payment	816.26	518.97	267.93	160.94	110.00
Down pay	yment %	30	30	30	30	30
Down py	mnt l.s	0	0	0		
Interes	t rate	14	13.5	12.5	12.5	12.5
Recover	.period	15	15	15	15	15
*TOTAL	CAPIT/H	87561	57104	31055	18654	12750
*LOAN		61293	39972	21738	13058	8925
Land	cost/m2	100	100	100	100	100
Ste pre	pa.c/m2	0	0	0	0	0
On ste	infr/m2	110	90	40	26	5.68
Off ste	inf/m2	0	0	0	0	0
Const.c	ost /m2	900	800	600	400	350
Core ho	use size	65	45	30	22	15
Connect	ion/plt	250	250	250	250	250
Other co	ost/plt	0	0	0	0	0
*AFF. S	FACE/HH	137	110	91	76	69
% Circu	ulation	21.28				
%Open sp	pc+Fac.	13.12	*RATIO	MkAREA	.656	
*PLOT S	IZE(m2)	90.00	72.00	60.00	50.00	45.00
Fixed p	lot size	90	72	60	50	45
*RESULT	.AFF.SP	137	110	91	76	69
*RESULT	. CAPIT	87561	57104	31055	18654	12749
*RESULT.	. LOAN	61293	39973	21738	13058	8925
*RESULT	.M.PYMT	816.26	518.97	267.93	160.94	110.00
*RESULT	.L.COST	100.00	100.00	100.00	100.00	100.00
*RESULT	.INFRAS	110.00	90.00	40.00	26.00	5.68
Total a	rea(m2)	53544				
Av.hshl	d size	2				
*PLOTS	TYPE No	38	56	102	113	310
*TOTAL	PLTS No	619	*TOT.R	ES.AREA	33166.092	
*DENSITY	Y P./HA	231	Develo	p.land	price/m	2 for
Commerc	.area 1	0	0	0	comm.1	
Commerc	.area 2	0	0	0	comm.2	
Industr	y area	0	0	0	indust.	
School	Mk.area	1793	0	0	school	
Actual	inf.cst	26.00				
*RECOV.	INF.CST	29.33				
*INFRA.	PRICE#1	75.783090	*SURFL.	.OR DEF	178079	

FIGURE 1



SITE PLAN

PLOT AREA	PLOT NUMBER	% OF PLOTS	TOTAL AREA	%
43.00	928	50.00	14780	
50.00	120	18.29	8000	
60.00	72	10.89	4920	
60.01	20	3.05	1200	
63.04	18	2.44	861	
71.54	58	8.54	4008	
78.20	4	.81	919	
83.70	4	.81	935	
87.81	4	.81	952	
90.00	32	4.89	2880	
TOTAL	658	100.00	95127	
				% 85.60
TOTAL RESIDENTIAL=			95127	% 85.60
EDUCATIONAL				
SCH1			1739	
TOTAL EDUCATIONAL			1739	
				% 3.24
PARKS AND PLAYGROUNDS				
PRK1			1780	
PRK2			9512	
TOTAL PARKS			5292	
				% 5.59
TOTAL CIRCULATION=			11932	
				% 12.54
TOTAL AREA			59544	

particular example excludes the costs of community facilities which for a project of this size would have to be included).

The standards for the other types of units progressively increase both in the size of the units and the quality of construction. The largest units, designated for upper income groups were developed on larger plots to show how planning standards can also be modified within a project.

It is, of course, possible to develop a low income housing project without also developing upper income units, but internal project cross subsidies are not possible as a pricing mechanism. In the example shown, at current HDFC financing terms, a household would have to have an income of Rs.580 per month and savings of Rs.4,200 to afford the smallest unit. If only the low income dwelling units were constructed an investment of Rs.7.0 crores would be necessary, but the basic target group could not be served. At such a point, either a new, lower priced site would have to be chosen or alternative methods of financing sought such as those discussed previously.

As the experience with the HDFC Developers sites has shown, there is a great deal of risk associated with project development: costs increase during construction, materials may not be available when needed, and other unforeseen events can occur which affect project costs. When these occur, standards or construction techniques must be adjusted where possible to accommodate such changes.

If such a policy were embarked upon, careful scrutiny of the operations of HDFC Developers, Ltd., is necessary to determine if it can serve as an implementing agency for low income housing policy. In particular, methods need to be developed to ensure that its overheads and profit objectives can be met while still producing housing which is affordable to low income groups. Part of the solution will lie in providing it with a source of financing that ensures the stability of its operations. Further, as is indicated above, more careful design briefs will have to be prepared in which the links between project standards and thus costs are tied to the ability of beneficiary households to afford those standards and costs.

The questions as to whether it will be more effective for the subsidiary to expand its staff to the point where it can prepare and design projects itself or whether it should hire consultants will also have to be determined. Further, the cost effectiveness of developing a construction capacity over open tendering of projects also needs to be explored. The experience in most countries has been that it is not necessarily more cost effective for a housing development agency to have its own construction arm because of the extra overheads that are added to the agency during down times and difficulties which such construction branches have had in competing with other established contractors.

5. Recommended Low Income Housing Policy

Based on the discussion above, it is recommended that HDFC make a concerted effort to serve lower income groups both through its individual and corporate lending programs. In particular, the focus of HDFC lending activities should be on extending its services to the lower income groups not now being reached, i.e., those having incomes between Rs.350 and say 600. Further, as a target, it is suggested that by the end of the first full year of operation of such a policy that up to 10 percent of HDFC's individual loans be to beneficiaries in that group. It is also recommended that a greater emphasis be placed on serving lower income groups benefiting from HDFC's corporate lending program. Thus, overall, roughly 65 percent of all units financed by HDFC will have been targeted for groups having below median incomes.

With regard to the methods for implementing that policy, it is recommended that HDFC establish a technical advisory service to review project costs of corporate proposals in terms of the groups being served by the housing and to assist corporations in developing housing programs. This service should be viewed as a marketing tool for HDFC to illustrate to prospective corporate borrowers the types of programs which could be developed and to assist corporate borrowers in controlling program costs. This service should be established first in HDFC's head office. However, its role would not be limited to head office clients, it would provide advisory services to branch office clients as well. To most economically provide these services it is recommended that the technical service be staffed by personnel trained in analysis using microcomputers. (Investment in microcomputer hardware and software can be as little as US \$ 8,500.)

Secondly, HDFC should explore further the possibilities of establishing a Low Income Housing Fund earmarked to financing the interest rate differential of graduated payment loans or other types of financing schemes designated for low income groups. Such loans would have a qualifying income ceiling of say Rs.600 per month. Where necessary, to cover HDFC's additional risk in serving lower income groups, especially those who are unable to demonstrate a secure monthly income, and/or require a higher than average proportion of financing, such loans should include provisions for default coverage on mortgage insurance if it is available.

It may be possible to link HDFC's regular corporate lending program with this proposed low income housing program whereby a portion of the interest rate differential would be paid by companies as an additional worker benefit. Thus, HDFC could pass on the costs of the program to its corporate borrowers. The corporate borrowers would also benefit two ways as the period of time over which they would be paying the interest rate differential would be reduced, thus reducing their housing subsidy costs, and they could be offered lower interest rates on corporate loans.

Since the HDFC Developers exists as a corporate entity, methods should be sought as a medium to longer term option, to enable it to provide a portion of its housing to lower income owner-occupant groups. However, to do so, projects should be selected where low income markets can be found to reduce the time between project development and occupancy. Furthermore, very careful project briefs should be prepared which directly link household affordability with project costs and detailed project cost requirements should be provided to project designers. Initially, it may be feasible to continue to use design consultants, however in doing so, project briefs prepared by either the subsidiary or in conjunction with the proposed HDFC advisory service should be supplied to the consultants which indicate physical parameters such as project density, planning standards, unit costs and the number of households to be benefited. It is not recommended that a construction branch be developed, at least in the near future, due to the increased risk to HDFC represented by under-utilized construction capacity during program lulls.