Evaluation of Sites and Services Projects

The Evidence from El Salvador

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ABSTRACT

This report presents the findings of a five-year evaluation of the First El Salvador Sites and Services Project. The evaluation formed part of a four-country cooperative research project supported jointly by The World Bank and the International Development Research Centre (IDRC) of Canada. The evaluation was conducted by a specially created Evaluation Unit within the Project Implementing Agency. Three main types of study were conducted: short-term studies on topics such as project demand and reasons for participant turnover; medium-range studies to evaluate the efficiency and impact of individual project components; and long-range policy studies to estimate project impact on participants and housing policies. A quasi-experimental design was used for the impact evaluation in which a sample of participants and a control group were interviewed at three points in time over a five-year period. The Report contains four parts and an Executive Summary. Part I discusses the project and the context in which it was developed, Parts II and III report findings on project effectiveness and efficiency and Part IV presents conclusions and policy recommendations.

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A number of other researchers have taken advantage of the rich data sets generated by the evaluation to conduct more specialized studies on particular topics. Four of these researchers whose work is cited and who all proved most helpful to the production of parts of this document are John Quigley, David Lindauer, Emmanuel Jimenez and Dani Kaufmann.

Finally the authors would like to ackowledge the support and guidance received from the International Development Research Centre throughout the research.

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EXECUTIVE SUMMARY

This Executive Summary presents the main findings and recommendations of the evaluation of the First El Salvador Sites and Services Project. The Project, which began in 1974, was intended to provide 7,000 serviced plots to low income households in the major Salvadorean cities. The Project, the details of which are presented in Chapter 2, was unique among World Bank financed shelter projects in that the Executing Agency, the Salvadorean Foundation for Low Cost Housing (FSDVM), was a private, non-profit organization.

The terms of reference for the 5 year (1975-80) evaluation 1/ stated that the evaluation should:

> "... seek to determine whether the objectives (of the project) are being met over time, and whether project components (both physical and institutional) yield the intended social and economic impacts on project participants and on associated institutions ..."

In accordance with these terms of reference, the evaluation focussed on long-term impacts and the extent to which project objectives were achieved. An analysis was also conducted of some aspects of project efficiency but the terms of reference did not include an evaluation of the financial and institutional context within which the project was implemented. The overview begins with a presentation of the main indicators of project efficiency and impact. This is followed by a more detailed summary of each chapter of the report.

1/ The terms of reference for the evaluation are given in Annex 2.

Most of the evaluation was completed by mid 1979, before the October 1979 coup which led to the overthrow of the Romero Government and to the period of violence and political instability which followed. No attempt has been made to evaluate the impact of these events although they obviously have had extremely negative effects in the area of housing. At the time of writing (March 1982) the FSDVM continues to operate despite the fact that many of its staff have been forced to leave the country. The use of mutual help construction and other community development techniques which form a central part of the FSDVM methodology, have been seriously constrained. The general climate of violence and uncertainty has slowed the completion of projects, and this, together with rapid cost increases, has created serious financial problems for the institution.

Summary Indicators of Project Efficiency and Impact

Table 1 presents six sets of indicators which can be used to summarise the evaluation findings on the efficiency and impacts of the FSDVM project. When taken in combination these indicators show that the FSDVM project has been very successful in producing good quality housing at a price which is both affordable to the target population and substantially cheaper than any other public housing program. At the same time the FSDVM has had one of the best cost recovery records of any Bank financed shelter program. The main operational problem faced by the

Table 1: SUMMARY INDICATORS OF PROJECT EFFICIENCY AND IMPACTS

	Indicators	Chapter
Physical Implementation	* All housing units completed, but with considerable delays due to land acquisition problems.	3
	* Water and drainage systems completed but with delays.	3
	* Shortfall by other agencies in the provision of schools, clinics and community centers.	3
Accessibility	* Despite high rates of inflation, at least 85 percent of project families fell within the target income range.	6
	* Very low drop-out rates once houses occupied.	6
	* No evidence of higher drop-out rates among lower income households.	6
	* Selection system fair and unbiased.	9
Project Impacts on Participants	* No clear evidence of impact on overall household income.	7
	* Possible increase in labor force participation of secondary workers	7
	* Self-help construction phase generated approximately $500 labor income per unit.	7
	* Project construction generated 3700 person/years of employment	7
	* Specific employment generating components had very limited impact on income/employment	12
	* No evidence of reduced expenditure on food as result of increased housing investment	7
	* Increase of 48 square meters of living space per participant	7
	* Slightly higher satisfaction with living conditions in project than in control areas	7
Community Participation	* Significant progress in developing community organization.	7
Cost Recovery	* Only 2.3 percent arrearage (July 1980) with most less than 90 days.	11
Comparison of Quality and Costs with other Housing Options	* FSDVM project accessible to families as low as second income decile whereas most public housing programs not accessible below 6th percentile.	13
	* FSDVM houses of higher quality than informal housing of comparable cost.	13
	* FSDVM project has a higher economic rate of return than any other formal or informal housing options.	13
	* FSDVM projects include design innovations which produce significant cost reductions	8 and 10

FSDVM was that of land acquisition, particularly in the Metropolitan Area. The delays of more than two years caused substantial cost increases.

Although the project produced significant improvements in the physical quality of the environment, it was not possible to demonstrate any long-term impact on income or employment. This is not surprising when the economic and political climate is taken into account; also it is possible that some economic impacts, such as increased income from rent, may only become apparent over a longer time horizon.

In the following sections of this chapter these findings are presented in more detail.

The Urban Housing Deficit in El Salvador (Chapter 2)

During the decade of the Sixties, it was estimated that 10,000 new urban households were forming every year in El Salvador and that during the same period public and private housing programs were only producing an average of 2,600 new units per year. By 1972 it was estimated 147,000 units or 55 percent of the urban housing stock needed improvement or replacement. The housing production, in addition to being numerically inadequate, was mainly directed to families in the upper forty percent of the income distribution, and virtually no formal housing was being provided for the poorer sectors of the urban population. As a consequence virtually all of the poorest 50 percent of the population were living in dwelling units provided through the informal market. Almost by definition the informal market was largely outside

the bounds of government regulation and many of the dwellings had extremely inadequate provision of public services, and equally insecure tenure arrangements.

The causes and possible solutions to the housing deficit cannot be understood without considering them within the socio-economic context of El Salvador. 1/ The country is very poor, with a per capita income of $660 in 1978, and with the effects of poverty worsened by a very skewed income distribution which resulted in the poorest 10 percent of households receiving only 2.1 percent of income whilst the top 5 percent received an estimated 21.4 percent. One consequence of the widespread poverty was the estimate in 1976 that three quarters of children under 5 were suffering from malnutrition. Low incomes also excluded at least 50 percent of the urban population from access to the formal housing market, whilst at the same time limiting their financial ability to produce satisfactory informal shelter alternatives.

The long-term perspective was further worsened by the increasingly high rates of unemployment in the rural areas and the continued drift towards the cities which further increased the pressure on existing and new housing stock.

The Achievement of the Physical Objectives of the Project (Chapter 3)

Table 2 shows the progress which had been made towards achieving the physical objectives of the project by June 1980 (the time

1/ As stated earlier, it was not possible to evaluate the impacts of the current political situation as the study was completed before the recent political events had taken place.

Table 2: COMPARISON OF PHYSICAL OBJECTIVES AND ACHIEVEMENTS OF THE FIRST EL SALVADOR URBAN PROJECT. JUNE 1980.

	Responsibility of the FSDVM			Responsibility of Other Agency		
Component	Target	Completed	In Progress	Target	Completed	In Progress
Dwelling Units	6594 1/	4348 built 3640 occupied	2246			
Infrastructure						
Trunk water supply				6	5	
Sewage collection				2	1	
Contigency wells	1		1			
Sewage outfall				5	4	
Storm drain for direct discharge into river	5	4				
Schools				7	3	
Clinics				2	1	
Community centers				10	2	2
Market	1					
Foot pathways	8	5				

1/ Original objective was 7000 units but due to switching of subprojects between the first and second loans the estimates were revised downwards.

Source: URBD1 Back to Office Report. March 21, 1979.
FSDVM 22nd report on progress of the First world Bank Loan. July 1980.

when field research for this report was completed). All of the 6594 dwelling units had either been completed or were in process of construction, although often with delays of more than 2 years due mainly to difficulties in acquiring land in the major cities.

With respect to the FSDVM's responsibility for infrastructure: the contingency well was in process of construction, and 4 out of the 5 storm drains and 5 out of the 8 footpathways had been completed. It was decided not to complete the market.

With respect to the responsibility of government agencies, most of the water supply and drainage related components were almost complete but there had been a shortfall in the provision of schools, clinics and community centers.

Project Impact on the Quality and Value of Housing (Chapter 4)

Changes in housing were evaluated in terms of physical characteristics (materials and types of services), family satisfaction and the estimated monetary value. Table 3 presents the estimated changes in the quality of housing based on its physical characteristics. FSDVM participants experienced significant improvements in most aspects of housing quality except for floors. Using a weighted average it can be seen that quality increased more in FSDVM projects than in any of the three types of low income housing in which participants had previously lived.

A move to the FSDVM project produced quality improvements for families previously living in all types of informal low-income housing,

Table 3: CHANGES IN HOUSING QUALITY OF PROJECT PARTICIPANTS IN SONSONATE 1977-1980 AND THEIR COMPARISON WITH CHANGES IN CONTROL GROUP

(In Percent)

	Roof	Walls	Floor	Water	Sanitation	Light	Weighted Average Change	Weighted Average 1980 Change
Weights	3.875	.753	1.365	2.759	3.465	2.904		
PARTICIPANTS								
1977 Score	92.8	58.5	78.9	67.4	52.5	40.7		166.2
1980 Score	98.3	96.9	98.9	98.0	100.0	100.0		249.4
Change	+5.5	+38.4	+20.0	+30.6	+47.5	+59.3	+83.1	
CONTROL GROUP CHANGE								
Mesones	+3.7	+2.6	+6.1	-8.4	+13.1	+60.6	+37.1	
Colonias	+10.2	+10.8	+26.2	+40.2	+3.0	+87.1	+76.3	

but the improvements were greatest for families moving from a squatter settlement (tugurio). 1/ A study of satisfaction with housing conducted in 1980 showed that project participants had higher levels of satisfaction with lot size, living area, materials and quality of construction than families in any of the main types of informal housing. 2/

Estimates were also made of changes in housing value. As FSDVM participants were not permitted to sublet or seelduring the first 5 years it was not possible to obtain direct information on rents and sales prices. Consequently estimates had to be based on comparisons of cost with imputed rents and sales prices. Table 4 presents these indicators. Care must be taken in comparing the FSDVM with the colonias (illegal subdivisions) as the latter has a very wide range of costs and values. Although mean imputed value and rent is much higher in the colonias, the imputed sale/cost ratio is higher for the FSDVM suggesting a higher return on investment to FSDVM families. The final column compares the sale/rent ratio. The lowest value is for the tugurio (squatter settlement) which is consistent with the fact that they can command rent because of their good loction but that the sale price is very low due to the very insecure tenure. The sale/rent ratio is considerably higher for the colonias than for the FSDVM. If these estimates are accurate they suggest that FSDVM units can command a relatively high rent due to their higher service level but that the expected future value of the colonia (with its larger plot size) is

1/ See Chapter 4, Table 4.5 for more details.
2/ See chapter 4, Table 4.6 for more details.

Table 4: COMPARISON OF COST, OWNER'S ESTIMATED SALE PRICE AND RENT FOR PROJECT AND INFORMAL HOUSING
SANTA ANA, 1980

	Cost (C$)			Estimated Sale Price (C$) 1/			Rent (C$) 2/	Sale-Cost Ratio	Sale-Rent Ratio
		Interquartile Range			Interquartile Range				
	$\bar{X}$	25%	75%	$\bar{X}$	25%	75%	$\bar{X}$	$\bar{X}$	$\bar{X}$
OWNERS									
FSDVM	7639	5972	9136	9390	6500	10000	83.3	1.22	113
Colonia	20702	5946	21413	21318	12000	25000	136.8	1.08	156
Tugurio	645	288	836	616	350	800	17.8	.96	35
RENTERS									
Meson				3317			33.2		
Colonia				5122			51.2		

Note: 1/ For owners, sale price was estimated by owners; for renters, it is actual rent times 100.
2/ For owners, this is their estimate of rental value.

comparatively higher. Chapter 4 (Section 4) presents a number of possibly ways to estimate changes in the value of housing between 1976 and 1980. None of these are entirely adequate as information was not obtained on imputed rents and sales prices in 1976. If changes in rental values are used as a proxy, the rental value of the FSDVM unit in 1980 is 3.59 times higher than the rental value of the tenement in which the project family was living in 1976. This compares with much lower increases for rented housing in illegal subdivisions and tenements, suggesting that the move to the project produces greater increases in housing value than would have occurred if participants had remained in their previous rented accomodation.

An alternative approach to estimating the effect of the FSDVM project was developed by Quigley. 1/ On the basis of hedonic price coefficients estimates for mesones in 1976 2/ a utility function was calculated to estimate the additional utility the participants derived from their move to the project. The form chosen was the Generalized Constant Elasticity of Substitution (GCES) function. It was estimated that in 1979 the average amount which could be subtracted from participants to leave them as well off as they were in 1976 was 5.3 colones which is about 2.5 percent of total income or about 20 percent

1/ John Quigley, "The Distributional Consequences of Stylized Housing Programs," Urban and Regional Report No. 80-18. Urban and Regional Economics Division, The World Bank, August 1980.

2/ This technique permits the estimation of a coefficient indicating the amount families are prepared to pay for each attribute of a dwelling (type of water supply, number of rooms, quality of materials, etc.). These coefficients can then be applied to the new FSDVM project to estimate how much people would have been prepared to pay for this package of housing services.

of what they would have been paying for rent. The amount of additional utility was not found to be systematically related to income or family size. 1/

Conclusion

The figures appear to show that the FSDVM project produces a higher increase in value per colon invested than any other type of owner occupied housing and that the value of the housing benefits has increased for participants about twice as much as if they had continued to live in a meson. Although the precise magnitude of estimated benefits varies with the method of estimation, the general pattern and the more favorable evaluation of the FSDVM is consistent across all estimates.

Project Impact on Access to Urban Services (Chapter 5)

Table 5 compares the project in Santa Ana with the main types of informal housing in terms of their distances (in meters) from different types of services. On average the project is further from these services than are the tenements, but nearer than the illegal subdivisions. Given the smallness of most Salvadorean cities, not too much importance should be given to the differences in distances.

When participants in Santa Ana were asked about their satisfaction with access to services, 90 percent or more were completely satisfied with access to schools, water and public lighting, but less

1/ Quigley, Table 22.

Table 5: MEAN DISTANCE IN METERS FROM SERVICES AND EMPLOYMENT. FSDVM PROJECT IN SANTA ANA. MESONES, COLONIAS AND TUGURIOS 1980.

	Participants	Mesones	Colonias	Tugurios	Mean
Medical Aid	909	502	1369	810	800
School	250	380	490	477	351
Public Transport	1016	172	343	328	555
Public Lighting	18	46	228	214	109
Public Telephone	222	317	860	502	434
Market	2128	675	1610	976	1475
Playground or Park	182	602	1272	795	626
Heads Work Place	1583	1079	1164	1052	1279
Average Distance	780	471	917	775	

than 20 percent were satisfied with access to medical services and public transport. 1/ Families in mesones were more satisfied with both medical services and transport and had comparable levels of satisfaction to participants on the other services. 2/ Families in colonias were more satisfied than participants with access to health and transport but were less satisfied with access to schools, water and public lighting. Interestingly the tugurio residents had almost the same level of satisfaction as participants on most services.

The project has a more favorable evaluation than other types of low-income housing with respect to access to water. In all other cases water supply was severely restricted in terms of hours of service, quality or distance, whereas the project provided a constant service in the house.

A final factor is sanitary facilities. One of the major complaints of residents in mesones is having to share a toilet, often with up to 10 other families. The possession of a private toilet is another of the reasons given for wishing to participate in the FSDVM project.

Project Affordability to the Target Population (Chapter 6)

Estimates of project affordability have traditionally been based on two assumptions: that project costs can be equated with fixed payments to the implementing agency and that families can only afford to

1/ Chapter 5, Table 5.4.
2/ Chapter 5, Table 5.5.

invest a relatively low proportion of their monthly income (often about 20 percent) in housing. The evaluation showed that neither of these assumptions was valid in the case of El Salvador. It was found that on average fixed payments to the FSDVM only represented about 40 percent of the total housing investment made by families (so that on average families were paying more than twice the amount assumed in the original affordability estimates). 1/ However, this did not cause major affordability problems as families were willing to invest significantly more than 20 percent of their income and because many of the poorest households received financial support from relatives in the form of regular income transfers. The decision to participate in the project appeared to increase the flow of income transfers.

Table 6 shows that in the three main projects, at least 85 percent of participants fell within the target income range (below the 65th income percentile). Moreover, projects in interior cities were able to absorb between 14 and 18 percent of the total city population in the third to fifth income deciles. 2/

Concern has often been expressed that poorer families might be forced to drop out of the project due to their inability to meet house consolidation costs. It was found, however, that annual project turnover rates once the house was occupied ranged between 3 and 13

1/ Chapter 6, Table 6.2.
2/ Chapter 6, Table 6.8.

Table 6: FSDVM PARTICIPANTS BY URBAN INCOME DECILE
SANTA ANA, SONSONATE AND SAN SALVADOR, 1976

Income Deciles	Urban Population Upper Limit	FSDVM Projects - Cumulative Percentage Participants in Each Decile		
		Santa Ana	Sonsonate	San Salvador
0 - 10	114	1	3.8	7.7
11 - 20	170	11	13.1	15.5
21 - 30	227	38	32.0	29.8
31 - 40	286	43	63.5	41.3
41 - 50	376	69	92.7	65.1
51 - 60	475	81	100.0	99.1
61 - 70	574	90		100.0
71 - 80	786	98		
81 - 90	1153			
91 - 100	4000			

percent as compared to rates of 15 to 26 percent in other types of low-income housing. There was also no evidence of higher drop-out rates for poorer project families. 1/

Project Impacts on Participants (Chapter 7)

It was not possible to detect any clear pattern of project impact on the overall income and employment situation of participants. There were, however, a number of indications of ways in which the project might have affected the economic situation of certain sub-groups. It was found that between 1976 and 1980 total family income of poor participants was increasing more, relative to control group families, than the income of higher income project families. This is due in part to transfer income received from non-household members. It was also found that during the very difficult economic climate, labor force participation rates for secondary workers in participant families declined less than for control group families. This was particularly true for spouses where there was a significant reduction in the number of working spouses in the control group but almost no change among participants.

Although it was not possible to identify any significant long term project impact on the income or employment situation of participants, Table 7 shows that the process of house contruction did produce significant short term impacts. It was estimated that the construction of each house generated on average $497 of income to hired labor and 6.4

1/ Chapter 6, Table 6.10.

Table 7: ESTIMATION OF INCOME AND PERSON/MONTHS OF EMPLOYMENT GENERATED BY HOUSE CONSTRUCTION IN THREE FSDVM PROJECTS

	La Periquera Santa Ana	Sensunapan Sonsonate	El Naranjo Usulutan	Mean Income/ Months Per Family
Number of Units	1190	563	435	
Contractor Construction				
Person/months of employment	1908	1330	420	1.7
Income (Colones)	478.368	307.508	112.263	410
Construction Cooperative				
Person/months	130			0.1
Income (Colones)	20.000			9.1
Mutual Help				
Person/months	2471	1673	1342	2.5
Income	392.267	217.580	174.550	343
Labor Hired by the Family				
Person/months	2600	1200	950	2.2
Income (Colones)	571.200	270.240	208.800	480
TOTAL				
Person/months	7109	4203	2712	6.4
Income (Colones)	1.428.835	795.318	495.613	1243
Project Cost	3.921.818	1.817.087	1.504.136	3310
Investment Required to Generate C 100 of Income	364	228	303	316
Investment Required to Generate One Month of Employment (Colones)	551	432	554	516

months of employment. The total project generated approximately $4,160,000 of wage income and 3700 person/years of employment.

Efforts to develop specific employment generating components within the project have not produced any significant quantitative impact although a number of potentially interesting employment models have been tested on a small scale.

There does not seem to be any overall negative effects of participants' housing investment on consumption of basic necessities such as food and medicine.

Most project participants previously lived in tenement houses (mesones). In comparison with their former dwelling the move to the project has meant an increase of 4.8 M^2 in the living space per person and a reduction of 2.2 in the number of people per room. 1/ From the health point of view these improvements are very significant.

When compared with the control groups, there is a slightly higher proportion of participants who feel that their conditions have improved over the past two years. The differences are greatest with respect to income (63 percent consider they are better off compared with 52 percent of the control group), and health (37 percent consider their conditions have improved as compared with 28 percent from the control group).

1/ The changes are very substantial due to the fact that prior to moving to the project participants had larger households than the control group and lived in smaller than average dwellings.

Evaluating the Efficiency of Project Design (Chapter 9)

In an effort to reduce costs the FSDVM is continually experimenting with new designs. The following are some of the ways in which cost reductions are achieved:

a. More efficient land use:

The proportion of land used for vehicular traffic is substantially reduced. Houses are grouped around parks or communal areas. Two storey units are constructed in areas of high land cost.

b. House design and level of construction:

The FSDVM reduces the level of construction to a minimum so that families can complete the construction according to their own needs and resources. Project layout is designed to minimize the amount of pipe needed for water and sewage and to reduce drainage construction work by taking advantage of natural gradients.

c. Use of progressive development and self-help:

Families are able to buy materials more cheaply than they could be obtained in the formal market and in many cases they reduce labor costs either by using underutilized family labor or by hiring labor at below market rates.

d. Experimentation with new materials:

Research is conducted on the use of local materials for making blocks and families can usually hire a block making machine and receive training in its use.

e. Design innovations:

A number of new shelter designs have been tested in an effort to reduce costs. One is the construction of 2 storey units so as to reduce plot size in high cost areas. This has now achieved densities of 140 units per hectare compared with less than 100 for traditional four storey government apartments. Another innovation is to experiment with the renovation of existing tenement houses or the construction of tenements in the projects. There is not yet sufficient experience to know how this will affect costs but it is potentially a very interesting way to provide accessible shelter in high cost central city areas.

Studies showed that participants were more satisfied with all aspects of house design than were families in mesones. 1/ However, meson families were more satisfied with access to services such as medical services, public lighting and transport, etc. The project also compares favorably with subdivisions in terms of satisfaction with water and sanitation, but is rated lower in terms of lot area.

Selection of Participants (Chapter 9)

The selection procedures seem to have been unbiased and to have selected families within the target income range. Considerable time is devoted to initial interviews and orientation, and although this

1/ Chapter 8, Table 8.1.

slows the selection process, the policy seems to pay off as evidenced by very low drop-out rates, rapid house consolidation and excellent repayment rates.

A number of issues are discussed in this chapter:

a. A large number of applicants are lost during the selection process as the address they have given cannot be located.

b. Until now income criteria for eligibility are only based on earned income. It is necessary to consider whether gifts and other types of income transfer should also be taken into consideration.

c. At present willingness to participate in mutual help construction is an essential requirement for selection. This appears to eliminate a certain number of otherwise eligible families. Consideration should be given to whether greater flexibility is required in the application of this criterion.

d. The mechanics of the selection process may need to be speeded up through computerization.

Mutual Help and Self-Help (Chapter 10)

The construction process consists of four stages: project preparation, construction by contractor of infrastructure and in some cases a basic sanitary core, mutual help group construction, and self-help construction by the family.

Mutual-help construction, which is obligatory, normally lasts between 25 and 35 weekends. Groups of about 25 families work together to complete the basic unit. Mutual help construction eliminates the requirement of a 10 percent down-payment and hence permits access to poor families who have no savings. In the San Miguel project 75 percent of families stated they would not have been able to participate were it not for the mutual help system (and the elimination of the down-payment).

In some of the earlier projects mutual help took longer than expected due to: drop outs which reduced the size of the work group, scheduling problems, and difficulties in providing sufficient community promotors. These delays raised the cost and produced a certain amount of dissatisfaction. In later projects the system has been streamlined and work has been completed according to schedule. Estimates suggest that except for skilled laborers with a high shadow wage, mutual help is slightly cheaper for participants than contractor built housing. In general the quality of the mutual help construction is comparable to that of contractor built houses.

Mutual help construction appears to be an effective way of training families in basic planning and organizational skills, and most groups continue to work together on the physical consolidation of their neighborhood after the house construction is completed. The FSDVM also believes the mutual help system is a contributing factor to the extremely good cost recovery performance.

Self-help construction is an essential complement to the mutual help. The family normally receives a constructed area of about 30 M^2 which after about 2 years will have been increased by the fmaily to between 35 and 40 M^2.

As shown in Chapter 4 the quality of the construction is generally superior to informal housing.

Self help construction is claimed by the FSDVM to be cheaper than the use of contractors. A study found savings of between 19 percent and 46 percent when self-help construction was used. 1/ However, if the opportunity cost of labor is included the savings are smaller although still estimated to be in the range of 25 percent in most cases. Families are able to obtain materials at below market prices and make further savings by the use of family labor or by the exchange of favors with neighbors or friends.

Cost Recovery (Chapter 11)

The FSDVM has one of the best loan repayment records of any World Bank shelter program. As of July 1980 total payments in arrears represented only 2.3 percent of the total loan portfolio. Most of the overdue families are only 2 or 3 payments in arrears and only 22.4 percent of overdue families are more than 90 days in arrears. 2/

The FSDVM combines strict collection procedures with the development of a high sense of social responsibility. Although many

1/ See Chapter 10, Table 10.3.
2/ See Chapter 11, Table 11.2.

families fall into arrears for short periods due to economic difficulties, they rarely get so far behind that they cannot catch up. Up to 1980 the collection rate had been steadily improving, but since then the default rate has begun to rise due to the political situation.

The question should be asked as to why the FSDVM repayments position is so much better than most projects of this kind. The following reasons can be given:

i. The FSDVM is a private organization and is thus freed from some of the bureaucratic constraints and political pressures which make collection more difficult in many other organizations.

ii. The FSDVM is non-profit and does not have a large reserve so a high repayment rate is absolutely essential if the program is to continue operating. There is more motivation to collect than in many organizations.

iii. Relatively tough and highly visible measures are used to pressure families to pay. Although eviction is rarely used, a lawyer will visit the family when they fall too far behind.

iv. Efficient collection procedures are used with computer ization to provide immediate information on outstanding debts, and with collectors who visit all families.

v. In some projects the community organizations play a major role in collections.

vi. The use of mutual help construction and the substantial investment of resources in developing community institutions is probably a major factor in debt repayment. The communities have a very high degree of social responsibility.

vii. Until now the FSDVM has remained relatively small so it has been easier to maintain a close supervision of debt collection.

viii. Careful selection of participants to ensure they have the capacity to pay.

The Efficiency and Effectiveness of Income Generating Components (Chapter 12)

From 1972, when the cooperative began, to 1978 the FSDVM had created 7 cooperatives, a marketing and sales center and an artesan school. Together the cooperatives had 629 members. After a rapid start the cooperatives encountered a number of organizational and administrative problems and the rate of growth slowed very considerably. By 1977 the rate of progress was increasing again and in addition to the six cooperatives operating at the time (see Table 8) work was in progress on an additional 8 organizations.

Three and a half percent of the economically active population in the first 6 projects obtained work through the cooperatives, (94 out of a total labor force of approximately 2700). The main employment generating cooperatives included: a bakery, production of building materials, and dressmaking and rugmaking. To date the cooperative have

Table 8: DETAILS OF FSDVM ASSOCIATED COOPERATIVES WHICH WERE OPERATING IN SEPTEMBER 1978

Name	Activity	Founded	Members	People Employed	Daily Income (Colones)	Social Capital	Total Capital
Plan Piloto	Dressmaking	1974	60	59	6.00	22,000	66,650
La Semilla de Dios 1/	Artesan products of wood, leather, etc.	1977	58	116	7.00	1,892	1,892
El Conacastal	Bakery	1975	56	10	5.00	2,079	51,079
La Victoria	Savings and loan and consumer cooperative	1975	383	3	7.00	14,922	16,147
Liberacion	Savings and loan and consumer	1977	70	-	-	6,714	6,714
5 de Noviembre	Savings and loan and consumer	In the process of being formed	90	-	-	6,618	3,618
TOTAL			717	188		C$51,225 ($20,490)	C$145,650 ($58,260)

1/ This cooperative is not associated with an FSDVM housing project.

Source: Departamento de Empresas Comunitarias. FSDVM. Information prepared at the request of IBRD, September 20, 1978..

proved a useful source of employment for their members but none have the growth potential to have a major impact on the economic conditions of the project in which they operate.

The cooperative has proved an effective way to teach organizational skills to is members. Although the more active cooperatives have increased the social consciousness and political awareness of their members, most cooperatives only cater to a sector of the community and in some cases they have tended to be a divisive force, creating what other members of the community felt to be an economic elite. Other types of cooperative such as savings and loan or consumer cooperatives can have a wider appeal and can in principle involve all sectors of the community.

The FSDVM has examined alternative employment strategies such as accepting sub-contracts from large international corporations to produce articles such as jeans or dolls. Whilst the employment potential is much greater the FSDVM is reluctant to enter into this type of arrangement, partly because of the heavy financial responsibility the FSDVM would have to assume, and partly because a project of this kind would go against many of the social objectives the FSDVM is trying to develop.

A Comparison of the FSDVM Projects with Alternative Shelter Options in the Formal and Informal Housing Market

Table 9 compares the affordability of nine types of formal and informal housing in San Salvador. It can be seen that none of the operating formal housing programs are affordable below the 48th income

Table 9: ACCESSIBILITY OF FORMAL AND INFORMAL HOUSING PROGRAMS TO THE URBAN POOR. SAN SALVADOR. 1977

Institution	Type of Housing	Lowest percentile who can afford this option
Tenement housing (mesones)	Poorest quality	6
Estra-legal subdivisions (colonia ilegal)	Poorest quality	10
FSDVM	Basic core unit	24
Tenement Housing	Adequate quality	24
IVU (Instituto de Vivienda Urbana)	Marginal housing in squatter areas (discontinued)	27
Extra-legal subdivisions	Adequate standard	42
FSV (Fondo Social para la Vivienda)	Normal program (1975-1978)	48
IVU	2 bedroomed houses	52
IVU	4 bedroomed houses	Beyond 60th percentile
IVU	Apartments	Beyond 60th percentile
FSV	Normal program (1978-1982)	Beyond 60th percentile

Source: Jim Richard and Michael Bamberger, "Economic Evaluation of Sites and Services Programs and Their Accessibility to Low-Income Groups in El Salvador", Table 2.15, FSDVM Report Series on the Evaluation Program. No. 16. July 1977.

percentile, and most cater to groups above the 60th percentile. The table also shows that the cheapest public housing costs more than twice as much as the FSDVM units. The FSDVM projects are clearly more affordable to the urban poor than any other public housing. The situation is more complicated with respect to informal housing as several types are cheaper than the FSDVM. The cheapest mesones and colonias ilegales are affordable to families in the lowest income decile and even good quality mesones compete with the FSDVM.

An obvious explanation of why some types of housing cost less is because there are differences in the quality of the package of services received. Various methods are used to compare the amount of benefits being offered for a given price:

(a) In Chapter 4 it was shown that the quality of the FSDVM project was superior to that of most of the types of housing from which participants came.

(b) Chapter 5 showed the FSDVM projects offer no such clear advantage in terms of access to services. The mesones, with their central location, have better access to many public services although the FSDVM has better access to water and sanitation.

c) A more systematic analysis was conducted through the use of cost-benefit analysis. The Internal Rate of Return provides a comparison of the benefits received for a given investment in different types of housing. Table 10 shows that the two FSDVM options studied have higher rates of return than any other

Table 10: COMPARISON OF HOUSING OPTIONS IN TERMS OF ECONOMIC RATE OF RETURN NET PRESENT VALUE AND NET PRESENT VALUE/TOTAL COST. SAN SALVADOR. 1978.

Housing Option	Rate of Return	Net Present Value (Colones)	NPV/Cost	Ranking on 3 Indicators (1 = highest)
Upgrading and Sites and Services				
FSDVM Basic Unit	33	4065	1.2016	1
FSDVM Serviced Lot	28	2329	0.7269	2
IVU Rehabilitation	18	1078	0.2640	4
Traditional Housing				
IVU Multi-family units	9	-1828	-0.1304	9
IVU Single family 2 bedroom unit	11	- 606	-0.0720	8
FSV Single family unit	13	452	0.0641	5
Informal market				
Colonia ilegal	22	1788	0.3509	3
Meson	12	1674	0.0141	7
Tugurio	20	373	0.2972	6

Source: Marisa Fernandez-Palacios and Michael Bamberger, "An Economic Analysis of Low-Cost Housing Options in El Salvador." DEDRB (draft). August 1979.

type of formal or informal housing accessible to low and middle income groups in San Salvador. The projects also have the most favorable rating on the other indicators and the highest overall ranking. This is the closest we can approximate to a comparison of "benefits received per unit cost". This analysis suggests that for a family living in a meson (where most participants previously lived) the move to the project would almost treble the rate of return.

In conclusion we can say that the FSDVM projects offer a very attractive option to low-income families. The projects are cheap enough to be affordable down to the 20th percentile, whereas most government programs do not reach below the 50th percentile. The FSDVM projects also compare favorably in terms of cost benefit indicators with all other formal and informal housing options. All of these indicators suggest that a family can buy more housing services (benefits) for a given amount of money from the FSDVM than from any the other shelter options available in the market.

Recommendations (Chapter 14)

The first part of this chapter makes recommendations related to FSDVM programs whilst the second part presents a more general discussion of strategies to make housing accessible to the urban poor. The main recommendations relating to FSDVM programs are the following:

Project Design

i. The FSDVM should continue its policy of only working in urban areas.

ii. The FSDVM should continue its policy of spreading programs over a large number of cities.

iii. The policy of selecting large sites on the periphery of the major cities seems logical and inevitable given the scarcity of land. At the same time advantage should be taken of any smaller centrally located sites which become available.

iv. Within projects the FSDVM should experiment with a number of different options among which:

   a. Variations in plot size.

   b. Inclusion of rental units.

   c. Serviced plots should mainly be sold to slightly higher income families.

   d. Experimentation should continue with units with shared services (washing facilities, water or toilets).

v. The FSDVM should experiment with the following types of new projects:

   a. Tenement rehabilitation.

   b. Two storey units.

   c. Lower service levels. In particular attempts should be made to gain authorization to experiment with communal water supply as a way to reduce costs.

Project Finance

i. The possibility of larger loans for purchasing materials should be explored.

ii. Loans should not necessarily have to be used in the project store.

iii. Loans should also be usable for hiring labor as well as buying materials.

iv. Experimentation should continue with cross-subsidies as a way to reduce project costs.

v. If financing is available the FSDVM might wish to consider the possibility of providing financing to families who wish to build their own homes in colonias ilegales.

Project Implementation

i. A number of changes are recommended in selection procedures:

   a. Sources of unearned income should be taken into account when estimating a family's capacity to pay.

   b. The requirement of participation in mutual help cons truction should be relaxed.

   c. More complete information should be provided to families on all housing costs.

   d. In large projects a more active attempt should be made to select low-income families, particularly from squatter settlements.

ii. Certain changes are proposed for mutual help:

a. Not all families should be required to participate in mutual help.

b. Large project should be broken down into phases so that all mutual help groups can begin with their full complement of families.

c. More efficient use should be made of skilled labor in the groups, with these members possibly making their skills available to a number of different groups.

d. The possibility should be investigated of permitting groups to work during the week as well as at weekends.

iii. With respect to self-help:

a. The use of cheaper materials should be encouraged by the provision of transport to help people bring materials from their former dwellings, by having model houses built of cheaper materials, and by setting aside sectors of the project for poorer families.

b. Research should continue on local materials.

c. Loans should cover hiring labor as well as material purchase.

d. Families should be permitted to use their loans to purchase materials outside the project.

iv. Employment generation:

a. The cooperative program should continue with emphasis on: reactivation of the building materials cooperative;

production cooperatives which generate more employment, possibly through subcontracts from international companies; and consumer cooperatives.

b. Small business loans should be provided to support existing businesses and encourage the growth of new ones.

The second part of the recommendations refer to policies for making housing more accessible to the urban poor. Six general guidelines were proposed:

i. Emphasis on upgrading existing housing stock.

ii. The need to provide a wide range of different shelter options as families have different requirements in terms of location, cost, tenure, level of services, etc.

iii. Private initiative should be stimulated as a complement to government programs. Both entrepreneurs who build for profit and the house owners who wish to sublet should be encouraged.

iv. Previously unused financial and human resources should be tapped.

v. Lower standards of construction and services much be accepted if they are to be affordable.

vi. The development of a national land use policy is essential.

Within these general guidelines 3 main systems for the provision of shelter should be utilized:

Upgrading Existing Housing Stock

This is usually thought of only in terms of upgrading squatter settlements but the program should also cover upgrading of colonias ilegales and tenements.

Sites and Services

In addition to the FSDVM approach, sites and services should also be extended to include the colonias ilegales.

Traditional House Construction

Present programs of IVU, FSV, and FND should continue.

The main components of an integrated urban shelter program are presented in Table 11. This emphasizes that at least 7 types of shelter should be provided, each directed at a different target population.

Table 11: MAIN COMPONENTS OF AN INTEGRATED LOW-INCOME URBAN SHELTER STRATEGY

System	Type of Housing	Location	Target Population Income Deciles	Characteristics	Institutional and Financial Arrangements
Upgrading	Squatter settlements	Inner City	Lowest 20%	Irregular employment	IVU with strong public works component
	Extra-legal subdivision	Periphery	30 - 60	Wide variation	Regulatory. Some infrastructure and major financial component for self-help.
	Tenement	Inner City	15 - 60	Small families, commerce, some migrant workers	Regulatory. Some public works. Condominimum development with financial assistance.
Sites and Services	FSDVM Model	Periphery	20 - 60	Stable families and relatively stable income	FSDVM or IVU. International financing. Possible linkage to FSV.
	Extra-legal subdivision	Periphery	35 - 60	Wide variation	Regulatory. Infrastructure and finance for construction loans or land purchase
Traditional Housing	Single family or multiple family	Various	40 - 60	Stable families and stable employment	IVU, FSV, FNV

CHAPTER 1

THE SOCIO-ECONOMIC CONTEXT AND THE OBJECTIVES OF THE WORLD BANK SHELTER PROJECT

1. The Socio-Economic Context 1/

El Salvador is the smallest and most densely populated country on the American continent. With a land area of 20,935 square kilometers and an estimated population of 4,300,000 it has a population density of over 200 per square kilometer, roughly equal to India. Given the mountainous nature of the country, the effective population density is even higher.

Improvements in health, combined with a continued high birth rate have produced a natural population growth rate of 3 percent per annum. The effect has been to increase the dependency ratio of total population to labor force, and to contribute to high rates of unemployment and pressure on basic services.

El Salvador is basically an agricultural country. In 1980, only 41 percent of the population are classified as urban. Although the smallness of the country permits some people to work in the city but live in rural areas, the low urbanization figure emphasizes the fact that the majority of the working population is still dependent upon agriculture for at least part of the year.

Agriculture which contributes one quarter of the Gross National Product and provides employment for over half of the labor force, is divided into two distinct sectors: the production of export crops

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1/ At the time of completing this report (March 1982) El Salvador was undergoing a violent revolution, the outcome of which is almost certainly to produce dramatic changes in the social, political and economic conditions of the country. It is too early to evaluate the effects of these changes and no attempt to analyze them is made in the report.

(coffee and cotton) on about 2000 large farms of over 100 hectares, and the production of basic grains on some 250,000 small holdings of under 10 hectares. The main export crops only provide large scale employment during the 5 months of the harvest and only about three quarters of the 600,000 people employed in agriculture have permanent employment. During the remaining seven months of the year it is estimated that up to 50 percent of the rural labor force is unemployed. The employment situation is further complicated by the fact that over 60 percent of small farmers are renters or share-croppers, many of them with very large insecure land tenure. In recent years the demand for land for export crops has further increased the proportion of landless peasants.

Unstable employment, insecure land tenure and lack of basic services all contribute to the migration from rural to urban areas. Although much of this migration is seasonal, with families returning to the rural areas during the harvest season, increasing numbers are now remaining in the cities or migrating to other Central American countries. It has been found that a very high proportion of urban migrants are women as they have even more problems than men in finding employment in the rural areas. This has a very disruptive effect on the family structure. In several of the FSDVM projects up to 40 percent of household heads are female.

Despite these structural problems in the rural areas, GDP has grown at an average annual rate of 5.3 percent between 1960 and 1977 and about 2.1 percent on a per capita basis. The economic growth has not been distributed evenly throughout the economy and is mainly

attributed to exports (coffee and cotton principally) which increased from 22 percent to 36 percent of GDP between 1960 and 1977, and to a relatively small but dynamic manufacturing and industrial sector whose growth rates were significantly higher than those of the service sector and agriculture.

2. Indicators of Poverty

As the Bank project is directed to the low-income population it is worthwhile to briefly review some of the principal indicators of poverty which are available for El Salvador. 1/ El Salvador is a poor country with a GNP per capita of $660 in 1978. The effects of poverty are worsened by the highly skewed income distribution. In 1976-77 it was estimated that whilst the top 5 percent of households received 21.4 percent of the total income, the poorest 10 percent of families received only 2.1 percent. (See Table 1.1).

Although poor families in the urban areas spend about 50-70 percent of their income on food, malnutration is widespread, particularly among children. In 1976 it was estimated that three quarters of the children aged 6 months to 5 years suffered from malnutrition and that over half suffered from first degree malnutrition. 2/ According to recent national household budget surveys (1976-1977) about 40 percent of the population with a monthly household income of less than 200

1/ The issue of poverty in El Salvador is examined in detail in the recent World Bank publication, "El Salvador: An Enquiry into Urban Poverty."

2/ Ibid., p. 39.

Table 1.1: EL SALVADOR: CUMULATIVE HOUSEHOLD INCOME DISTRIBUTION, 1976-1977

(Percentages)

Deciles	El Salvador Total	Rural	Urban
1	2.1	2.7	2.1
2	5.8	7.3	5.5
3	10.4	12.9	10.7
4	15.8	19.6	16.4
5	22.5	27.5	23.7
6	30.5	36.4	32.8
7	39.6	46.7	43.4
8	42.3	58.4	56.1
9	68.7	72.8	69.9
10	100.0	100.0	100.0
Top 5%	21.4	17.5	19.9
Top 1%	7.4	7.1	7.4
Gini Coefficient	.413	.356	.384

Source: MINPLAN, DIGESTIC, and Central Bank, Distribucion del Ingreso por Deciles de Familias, August 1976-July 1977.

colones was experiencing deficient diet while the bottom 12 percent of the population with a monthly household income of 100 colones or less was suffering from severely inadequate diet. The calorie deficiency of the latter group was higher than their protein deficiency, which implies that an increase in the quantity rather than the quality of food intake was required.

Although there has been a steady fall in the overall death rate (from 33 per 1000 in 1920 to 10.5 per 1000 today), the infant mortality rate is still very high, particularly in rural areas (120 o/oo compared to 85 o/oo in urban areas). Diarrheal diseases, nutritional deficiencies, pneumonia and perinatal diseases are the leading causes of early deaths. An analysis of mortality and morbidity statistics clearly indicate that lack of environmental sanitation (inadequate water supply, waste disposal, letrinization, health education and health services) are the most serious health problems facing the country.

3. Housing: Public Housing Programs and the Informal Housing Market

Investment in residential housing construction in 1977 represented 6.2 percent of GDP as compared with only 2.5 percent in 1972. 1/ The increase was due mainly to a rapid growth in public housing which increased from 4.9 percent of residential construction in 1972 to 29.5 percent in 1977 (see Table 1.2).

1/ Ibid., p. 39.

Table 1.2: RESIDENTIAL CONSTRUCTION IN EL SALVADOR

	1972	1973	1974	1975	1976	1977
Total Housing/ GDP	2.5	2.7	3.5	3.6	4.5	6.2
Public Housing/ Total Housing	4.9	12.7	14.9	25.4	29.5	29.5

Although residential construction as a proportion of GDP has been rising over the years, in 1977 El Salvador still spent less than the average of Latin American countries (see Table 1.3).

Table 1.3: RESIDENTIAL CONSTRUCTION AS PERCENTAGE OF GDP

	1970	1975	1977
El Salvador	1.2	1.1	1.3
Average for Latin America	1.8	1.5	1.6

Note: The figures are considerably lower than the Bank's estimates because of definitional differences. While the Bank's estimates included the value added of all residential buildings with or without permits regardless of whether or not the construction was completed in each year, the U.N.'s estimates only counted authorized constructions that were completed in each year.

Source: U.N. Yearbook of Construction Statistics, 1978-1979. This includes Dominican Republic, Guatemala, Honduras, Nicaragua, Panama, Brazil, Chile, Colombia, Ecuador, Venezuela, Costa Rica. Other Latin American countries have been left out for lack of comparable data.

The housing market reflects a dualism in which relatively high standard housing, usually subsidized, is provided for middle class families, but with public housing programs almost ignoring the needs of the poorest 50 percent of the population.

In 1976 over 40 percent of the population of El Salvador lived in urban areas, and the San Salvador Metropolitan Area (SSMA) had more than 720,000 inhabitants or about 18 percent of the country's total population. Another 12 percent lived in the four largest secondary cities: Santa Ana (166,000); San Miguel (128,000), Sonsonate (102,000) and Usulutan (95,000).

Public and private housing production in towns and cities averaged only 2,600 units per year during 1960-1970, while 10,000 new households were formed annually in urban areas. This means a deficit of approximately 7,400 units per year. In 1972, census figures registered the urban housing stock at about 270,000 units, nearly two thirds of which were in the five largest cities. Homes needing improvement or replacement were estimated at 147,000 or about 55 percent of the existing stock. About two thirds of these units were occupied by households earning less than the equivalent of US$100 per month. Although most urban homes (84 percent in 1975) had electricity, 69 percent lacked individual water supply and 62 percent lacked sewerage connections. In addition, low quality materials and poor construction methods contributed to the rapid physical deterioration of the housing stock.

Public Policies with Regard to Urban Land, Services and Housing 1/

Since 1950, four major housing programs including the FSDVM's program, have been launched in El Salvador, plus a series of infrastructure programs. Like most Latin American countries, El Salvador began to devise national development plans around 1965.

Although it has taken 25 years to define a coherent housing policy, government agencies, acting fairly autonomously, were able to promote, finance and produce more than 55,000 housing units, of which almost 20,000 were built between 1971 and 1975.

The first of these agencies was the Urban Housing Institute (IVU), established in 1950. It was most active in the 1960s, when, like other similar Latin American institutions, financed primarily by housing loans from the Inter-American Development Bank, it launched a large-scale program for the construction of conventional mass-produced one-family units and four-floor, multi-family apartment buildings, which were accessible to middle-income groups. By 1978 IVU had built more than 23,000 units in its 28 years of existence, with direct financing from the central government. IVU is an autonomous agency, with a director appointed by the President of the Republic. Its organizational growth has been disproportionate to its output, and it has become too bureaucratic. Although it has carried out several interesting pilot projects, they have not been made part of its regular operations, and the bulk of its conventional housing construction has been for middle income groups.

1/ This section is based on material prepared by Mauricio Silva, which is a summary of the article "Housing built by mutual help and progressive development: to what end?" by Maurico Silva and Alberto Harth-Deneke in "Self-Help: A Critique" Alexander Press, London 1979.

The second government agency was the National Housing Finance Agency (FNV), established in 1965 under the auspices of the Alliance for Progress as a means of channeling private savings toward housing construction through the establishment of savings and loan associations. In 13 years this organization had financed 26,600 units at an average unit cost in 1978 of US$20,000. Most of these were completed one-family dwellings in fully-serviced housing developments in the metropolitan area of San Salvador. Since FNV was set up to mobilize private savings through profit-making associations and the housing industry, the beneficiaries of their program were in practice families from the top 30 percent of the population. By 1978 it was financing condominium apartments costing up to US$48,000 per unit.

The third important government housing agency, the Social Housing Fund (FSV) was established in 1973, modelled after the examples of Mexico and Brazil in the form of a payroll tax earmarked for housing. The FSV was set up as an extension of El Salvador's Social Security program, with a view to promoting housing for heads of household covered by the system, who were for the most part earning less than US$280 per month. During the first four years of its existence, the FSV financed 5,000 dwellings, mainly conventional one-family units. Its source of funds makes it financially the most stable and solid housing institution in the country. Most of its early units, which cost between US$4,000 and US$6,000 were accessible to only the wealthiest 30 percent in the social security system. In early 1978 FSV announced that it was going to double its ceiling prices and introduce a new long-term financing system, which

included variable interest rates and terms and a scheme for variable monthly payments which, capitalizing on inflation, started out low and increased every two years.

Although urban infrastructure and services have become available with increasing efficiency to the upper and upper-middle income sectors, many urban households still do not have basic urban services. According to the 1971 Housing Census, for example, one-fourth of urban households did not have access to either electricity or piped water in their dwellings, regardless of whether it was private or shared, and only half of urban dwellings had a toilet. Most of the public service institutions face serious financial and administrative problems, which together with the tendency to gear their services toward the privileged few, result in a serious shortage of such services among lower income groups.

Nevertheless, the aspect most overlooked by the government has perhaps been urban land policy. Although it is obvious that formal housing programs cannot be implemented without converting land from rural to urban, and that formal infrastructure programs require dramatic changes in the potential future use of non-urban land, to date the government has had no specific and effective policy for urban land per se. If there were an abundance of potential urban land the absence of such a policy would perhaps be understandable. However, in the context of El Salvador, this omission has created major problems in the implementation of national housing plans and for the future growth and costs in the so-called informal sectors.

The scarcity of land in Salvadorean cities is aggravated by several natural and man-made constraints. For example, the cities are for the most part located in highly productive agricultural valleys (coffee, cotton, sugar-cane, etc.) where there is little unused land. In addition, the rugged terrain, which is a legacy of El Salvador's recent geological origin, also makes land development very costly. Land tenure has been highly concentrated and despite land scarcity large amounts of potential urban land have not been developed although they lie near urban infrastructure. This policy of large landowners holding land for speculation, together with the total lack of coordination and planning by various agencies involved in the urban land market, has hampered formal housing programs and thwarted urban and regional planning. Furthermore, because appropriate legislation is lacking, the State has not been able to recover its investments in urban infrastructure; rather, these have often boosted speculation and the concentration of wealth.

The Informal Housing Market 1/ It is estimated that between 50 and 75 percent of the population in most Salvadorean cities live in houses which have been built in contravention of one or more planning laws. In the case of San Salvador in 1977 a little over half of the population lived in what has been defined as informal or popular housing. The three main types of informal housing in the capital as in other cities are: squatter settlements (tugurios), extralegal subdivisions (colonias ilegales) and tenements (mesones) which together house close to

1/ Much of this section is taken from Daniel Ernst, "The Informal Housing Market in San Salvador," DEDRB, Draft, 1979.

three quarters of the total population. Population growth in these areas exceeds those of the city as a whole reaching 15-20 percent per year in certain locations.

"Tugurios" are shantytowns which have been built in areas not usable for other construction including ravines, steep hill sides and railroad right-of-ways. These areas are usually located near centers of high employment.

In 1977, it was estimated that 388,000 people or 4.8 percent of San Salvador's total population lived in approximately 8,060 units in squatter settlements. No shantytown in San Salvador has more than 1,000 families and most have less than 100. According to EDURES, the number of families living in tugurios will increase by 98 percent between 1976 and 1987. In the provisional tugurios there is usually no water supply or sanitary services. In the well-established communities, conditions are generally better. Water is usually available from public taps or private individuals who sell water. In many of these tugurios, the Government has constructed communal latrines.

"Mesones" generally consist of 5-50 rooms clustered around one or more central patios. In most cases a family rents a single room and has to share water and sanitary services with other families. They are usually located in the center of the city near major areas of industry. In 1977, it was estimated that 184,910 people, or 23.4 percent of the San Salvador's total population lived in mesones numbering about 48,660 units. In most mesones residents receive water and electricity for no payment beyond their monthly rent. Access to water is usually

controlled by the manager and can be as little as two hours a day. The number of inhabitants per toilet and shower averages 15 to 16 persons, respectively. Electricity is more readily available in most tenements. Mesones provide homes to many of the city's poor. Eighty percent of the tenants had incomes between the 17th and 39th percentiles of the city's income distribution in 1975.

"Colonias Ilegales" consist of land subdivided for sale as housing without the installation of basic services. These subdivisions may be considered extralegal for either of two reasons. First, because they lack basic services, colonias ilegales cannot be approved by the Department of Urbanism and Architecture (DUA), a prerequisite to legal recognition of urban housing developments. Second, colonias ilegales frequently resort to the use of rental with promise of sale that is prohibited by the Commerce Act. Under this system families pay monthly installments for five to fifteen years before getting title. In 1977, colonias ilegales housed 20.5 percent of San Salvador's total population, numbering about 27,670 units. EDURES estimated that the number of households residing in colonias will increase by 160 percent between 1976 and 1987. The lot size of colonias ilegales ranges from 80 to 200 square meters and the size of the dwellings constructed on these lots ranges between 25 to 60 square meters. The construction varies from the traditional "baharaque" method at one extreme, to concrete and brick homes with asbestos and cement roofs at the other. Eighty five percent of the homes in colonias were built by their present owners. Settlement-wide averages of total construction costs ranged from $100 to $2,470 in 1975. Lack of adequate utilities is the main drawback to residents in

colonias ilegales. The majority of colonia inhabitants buy their water from water trucks while some sink their own well or draw water from public taps located outside their subdivision. Electricity is more readily available as the city's private power company is allowed to supply electricity to colonias. Transportation within subdivisions is usually a problem.

4. The Objectives of the First World Bank Loan for the El Salvador Sites and Services Project

The El Salvador sites and services project was one of the first shelter projects to be appraised by the World Bank. The Appraisal Report, published in 1974 stressed the existence of a large and increasing housing deficit (see Section 3 of this chapter) which the small and fairly costly government housing programs were not able to resolve either numerically or in terms of providing units which were economically accessible to the urban poor. Given this increasing deficit and the inability of existing programs to generate sufficient new units or to produce them at a price affordable to the low-income population, the project objectives were defined as follows:

"The objectives of the project are to: (i) demonstrate that a site and service program with partially built units is a practical alternative to conventional fully built Government housing programs, the costs of which have been beyond the means of nearly 60 percent of urban households; (ii) ease the severe shortage of low-cost urban shelter by providing units affordable to families earning US$40-120 per

month, reaching down to the 17th percentile of the urban income distribution scale; (iii) demonstrate the potential role of the private sector in providing self-financing, low-income housing, thereby easing the burden on Government resources; (iv) encourage provision of adequate community facilities and effective community development programs as an integral part of low-cost housing; and (v) generate employment through labor intensive construction methods and organization of small commercial ventures.

These objectives were to be achieved by a project, implemented through the Fundacion Salvadorena de Desarrollo y Vivienda Minima (FSDVM), which would consist of the following components:

(a) Serviced lots: Approximately 7000 lots serviced with water, sewerage, storm water drainage, unpaved streets, footpaths and optional electricity;

(b) Core units: Approximately 7000 sanitary units and 3500 basic dwellings;

(c) Off-site infrastructure: Water distribution and sewer mains, upgrading of access roads;

(d) Construction materials: Financing for a materials fund designed to induce self-help extension of core units;

(e) Community facilities: Construction and equipping of 5 health clinics, 10 multipurpose community centers, 26 sportfields, and 12 markets. The Bank's second education project will finance 6 basic schools on project sites;

(f) Small industries loans: Provisions of a pilot loan fund for small industries developed by FSDVM; and

(g) Training and technical assistance: Short-term technical assistance and training for FSDVM staff, and studies on Urban Land Use/Squatter Upgrading, the structure of mortgage interest rates in El Salvador and an evaluation of the socio-economic effects of the project. The studies will be undertaken by CONAPLAN, and will include project preparation for future serviced site and squatter upgrading schemes.

It was emphasized that the project was not intended to completely cover the housing deficit but to serve as a demonstration project showing that the site and services approach is effective and replicable. It was estimated that the project would meet the demand of about one third of new household formation within the target group income limits.

Project Benefits

In the economic justification it was expected that the project would produce the following benefits:

(a) Improved living conditions and community services for 7000 households;

(b) Increased output in the construction industries and employment for project households through mutual-help and self-help construction techniques, including increased earnings from various commercial cooperatives organized through the project;

(c) The demonstration of an approach to housing problems which could enable Government to keep pace with housing needs throughout the country;

(d) A significant expansion in the construction capacity of the private sector for very low-cost housing; and

(e) Improvements in government planning for low-income illegal settlements.

A number of positive externalities were also anticipated, particularly:

(f) It was estimated that the project would have a substantial redistributive effect in providing low-cost, serviced shelter units to low-income households who are currently paying excessive prices for unserviced subdivisions of land;

(g) Net external economies were also projected in that planned housing/community development projects will enable the authorities to reduce uncontrolled urban growth and the study component in particular will help the Government's urban planning functions;

(h) People other than project participants will benefit from the off-site infrastructure;

(i) The self-help/mutual-help training will improve the chances of the urban poor in finding stable employment; and

(j) In general there will be an increase in the quality of life of project households.

When all of the estimated project costs and benefits were discounted over a 30 year period an internal rate of return of 20 percent was estimated for the total project.

CHAPTER 2

THE FUNDACION SALVADORENA DE DESARROLLO Y VIVIENDA MINIMA (FSDVM) 1/

The purpose of this chapter is to explain the philosophy and work methods of the FSDVM, the executing agency for the project. The FSDVM is unique in that it is the only private organization to date which has been directly responsible for the implementation of a World Bank financed urban shelter program, and for this reason a brief description of the FSDVM seems useful.

The FSDVM began work on a small scale in 1968 to rehouse 30 families who lost their houses in a flood in San Salvador. On the basis of the successful results of this first experience, the FSDVM was formally registered as a private non-profit organization in 1970. Work was then begun on a number of small projects and later a larger project involving approximately 500 families. The success of these intitial projects attracted the interest and support of a number of international organizations including the Inter-American Foundation which provided the first substantial external funding. By the time discussions began between the World Bank, the Government of El Salvador and the FSDVM in 1972, the organization had already built up a solid base of experience with small projects.

From its inception the FSDVM had placed high priority on the use of housing as a medium for producing more general social and economic changes in the condition of the urban poor, and had developed a methodology

1/ This chapter is based upon a report prepared by Mauricio Silva, the former General Manager of the FSDVM.

which required an intensive contact with the participating communities. One of the questions which was asked during the development of the Bank project was whether the FSDVM's labor-intensive methodology would be feasible on a larger scale. At the same time many people in the FSDVM questioned whether the rapid increase in scale of the project might not divert the FSDVM from its primary objective of producing qualitative change in project participants, into simply a producer of housing units.

In the view of the FSDVM, the analysis of urban land, services and housing policies, presented in Chapter 1, and the broader economic context in which the FSDVM works, have made it clear that for El Salvador the "solution" to the housing problem requires that the current economic and political structure be modified. 1/ Any program not based on this premise is merely a short-term stop-gap.

The FSDVM placed great emphasis on learning by doing and has sought to constantly modify the design of its programs on the basis of the experience acquired. As an institution it has the advantage of having started with small projects of less than 100 units so that the mistakes could be experienced and corrected on a small scale before embarking on the larger projects with which it is now engaged.

The Foundation bases its work on faith in the abilities, values and hard work of the participating communities. It does not seek conventional solutions, but rather to stimulate participation on the part of those requiring its help.

1/ This chapter was written before the political events of 1980.

1. Main Approaches and Housing Production

FSDVM's housing programs are governed by four basic concepts which are designed to promote beneficiary participation in community development and to facilitate working with the neediest: progressive development, mutual help, grass-root participation and scaling down of conventional standards. Progressive development is the building of houses by stages. Top priority is given to security of tenure and services and less importance to walls and roofs, thus giving each family the opportunity to complete their own houses at their own pace.

The primary reasons why FSDVM uses progressive development in community construction are as follows:

(a) Scarce national resources;

(b) Instability of household income in the lowest strata, meaning that few households will be able to regularly allocate a substantial amount of income for housing payments;

(c) Fixed payments can be reduced to a minimum to cover only the cost of urbanization and services. This enables the household to take advantage of short-lived "peaks" of financial prosperity to consolidate and expand their dwellings;

(d) Using underemployed labor, cheaper materials and lower administrative costs represents a saving to the national economy and to the family;

(e) The high value placed by the family on a dwelling that it built itself. This is also important in ensuring project maintenance and cost recovery.

Mutual help is defined as families working together as a team in house construction. This sytem is used because:

(a) It forms the social and organizational basis of future community development programs;

(b) It replaces a narrow self-interest of the family with a broader sense of community;

(c) It is more efficient to work in groups of 20 than individually;

(d) It enables the families to get to know each other and interact even before they move into their houses;

(e) It replaces the customary downpayment (10 to 20% of total cost in most programs) which is a barrier to ownership by the lowest income groups.

Grass-roots participation is the active and organized participation of the beneficiary in the solving of his own problems. It should be noted here that community participation still has relevance for a program whose sole goal is to provide housing, since:

(a) It creates an organizational structure and momentum which continues after the dwellings are occupied. This can later on facilitate the completion of community works such as the paving of streets, construction of community buildings, and obtaining or providing through the community's own resources of services such as garbage collection, telephone hookups and public lighting;

(b) It provides the basis for broad-based community education in responsibility, coordination, social participation and the like, which will do much to remove social apathy while improving the local environment in the process;

(c) It promotes and develops the community's capacity for self-management;

(d) It permits the implementation of projects which would otherwise be impossible, such as the rehabilitation or relocation of settlements.

Using these concepts, since its founding a decade ago FSDVM has helped to provide a total of 4500 housing units in 8 settlements, while 12,500 more are under construction or planned for a total of 17,000 units since 1970. Current production averages 2,000 units per year.

The average unit price of all core units is approximately US$1,500 including land and administrative costs. 1/ Very different types of housing units have been designed for those prices, including serviced lots with no construction, complete sanitary core, sanitary core and 18 m2 of living area, and serviced lots with 36 m2 of living area. Each lot has its own sewerage, potable water, drainage and electricity hookups, and measures 60 to 90 m2.

Initially the communities are provided with a main street for vehicle traffic and an internal network of pedestrian footpaths, mini-parks and areas for future community services. Schools and health clinics are built by the appropriate national ministries, while sanitation equipment, maintenance of the road system and areas for parks and public lighting are theoretically the responsibily of the municipalities. Transportation and electricity are provided by private enterprises.

To date the main sources of finance for the housing program have been the World Bank, local loans for the purchase of land, and contributions by participants through their work in mutual help and their labor and materials for progressive development. Credits are extended to

1/ This does not include money invested by the family in progressive development.

families at 6 percent annual interest for 20 years. The repayments made by participants cover all project costs including administration, collection, insurance, etc. Cost recovery is important because the goal is to make these projects replicable on a national scale.

In order to arrive at the monthly payments, pre-costing sheets are prepared, the last of which is drawn up just before they are shown to the beneficiaries, i.e. shortly before the mutual help begins. This includes all direct project costs such as land, infrastructure, housing construction, design and supervision (calculated on the basis of fixed costs per unit), financial costs during construction, taxes, and a percentage for contingencies. All indirect costs are also included: namely interest, maintenance for the first 10 years of civil responsibility (charged on the basis of 1 percent of the value of the superstructure), collection fees, costs incurred by delays in payment of monthly installments or arrears (calculated on the basis of one-fourth of 1 percent per annum over 20 years); and insurance against damage to the superstructure by natural causes (not against death of the beneficiary, since this is considered an unaffordable luxury) which costs about 3 percent of the value of the superstructure for 20 years.

In order to arrive at unit costs, the cost per improved m2 for each type of unit is calculated. The cost of labor contributed during mutual help is considered the down payment on the dwelling. Monthly installments are reviewed periodicallly for purposes of new plot allocations.

Various programs of cross-subsidies have been tried, whereby higher income families would subsidize those with lower incomes through a higher monthly payment: better located lots would cost more, and so

would more completed dwellings, thereby generating profits. The first schemes were not successful since even the wealthier families in the projects were too poor to be able to afford substantially higher prices.

The only subsidy program that has been effective is the direct subsidizing, through a grant obtained by the Foundation, of the monthly payment for the poorest families in the project. This subsidy, given to the family and not to the housing unit, is renewed yearly depending on the family's economic situation. However, this was only ever done on a very limited scale and in only a few projects.

The legal instrument through which FSDVM gives tenure is an individual lease/purchase agreement. The property is transferred upon the payment of the last installment, which cannot be made before five years, so as to ensure community stability and prevent speculation. After that period, the property may be transferred, with prior approval of the community organization.

Although this limits the freedom of the participants, the Foundation uses this type of tenure because it gives greater control over the property and greater flexibility of action in the event of withdrawals and new awards.

2. Methodology and Execution Timetable

The construction of a new community by the FSDVM begins with the selection of land. Once its purchase is assured, a land survey is made. The design of a site and service project cannot be considered in the same light as a conventional housing development. Close attention is given to grading and the attempt is made to minimize cut and fill operations and adapt the slope of piping to that of the original land.

The design scale tries to give greater priority to man than to vehicles. Details require close scrutiny, since in a dwelling costing US$2,000, US$20 is already 1 percent of the total value.

The standards and norms used in the project must be designed to a lower level and cost, since existing standards are generally too high, having been prepared for another type of housing project. The width of streets and pedestrian footpaths, the percentage of area given to parking, the separation between dwellings, lot dimensions, percentages for vehicular access, and the standards and details for the laying of pipes, all need to be reviewed with regard to their financial feasibility and suitability for prevailing conditions. 1/ The necessary soil and hydrogeological studies go hand in hand with the design.

Frequently a study is conducted to determine the potential demand for the project and to ascertain the preference of beneficiaries for certain types of housing, and the willingness to participate in mutual help construction. Such a study is indicated particularly in the case of large-scale projects in which for the first time certain concepts are being introduced, such as progressive development, mutual help, unsubsidized projects, and projects located in the urban periphery. 2/

After the design is completed, the next step is to prepare specifications, bidder prequalifications and invitations to tender. Because of the context in which FSDVM works, the nature of the institution,

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1/ For greater detail on standards and details used by FSDVM, see Chapter 8 of this publication and FSDVM-OAS, "Evaluacion de Proyectos Habitacionales en El Salvador" (Evaluation of Housing Projects in El Salvador), Vols. I and II, San Salvador, 1978/1979.

2/ FSDVM has carried out several such demand studies, some of which have been published, e.g., see FSDVM, "Caracteristicas del Acceso de los Pobres a Vivienda Popular", (Access to Low-Cost Housing by the Needy) (Demand study in Apopa), San Salvador, 1979.

and the specialized character of certain tasks, the FSDVM directly designs and supervises project construction. Earthworks, infrastructure works and some house construction are executed by contractors. One of the most difficult decisions is to determine how much and which works to carry out by each of the three possible construction methods (contractor, mutual help or self-help).

Mutual help construction of the basic core unit is followed by a self-help phase. This is the completion of the unit over time by the beneficiary with his own resources. This can be done using his own labor, paid labor or a combination of the two. Materials loans are provided since these are much easier to control than cash loans and because they ensure the investment will be used in the construction of the unit. To avoid administrative complications, materials loans are limited to basic items for the construction of the dwelling, such as brick, gravel, sand, sheet metal for roofing and cement.

FSDVM has used two methods for materials supply. The first involves giving families purchase orders to suppliers with which it has credit, while the second uses direct supply to warehouses at the worksite. The first method has the advantage of being simpler for the FSDVM to administer, but is more complicated for the beneficiary, who has to assume responsibility for transportation and agreements with the supplier. Loans in materials are arranged separately, with terms ranging from 3 to 10 years and interest rates ranging from 8 to 12 percent.

After the construction contracts have been awarded and there is a fairly clear idea of costs, the first estimates of monthly payments

are made. Project publicity is directed to the poor low-income neighborhoods, through the means of communication most often used and understood by them, i.e. radio, pamphlets, or direct talks.

The general criteria used by FSDVM in selection are:

- Interest in the project. Real willingness to participate, which is vital in developing a positive attitude toward the project, especially for working in groups.
- The applicant must be part of a stable family group, regardless of its legal or religious status.
- One of the members of the household must be willing to participate in mutual help.
- Monthly household income, defined as the earned income of the spouses, must not exceed US$260 or be less than US$140. These limits depend on the type of unit, project and year.
- Residence of more than two years in the city.
- No ownership of any real estate.

After selection has been made participants are divided into groups of 20-30 families for mutual help construction. Participants are divided as equitably as possible in terms of sex of head of family, occupation, household size, etc.

To carry out the publicity campaign about the project, selection and mutual help, a team of social workers (promotores sociales) composed of a coordinator and a social worker for every 150-175 families, is formed for each project. The necessary technical and organizational

assistance for mutual help is provided by a team consisting of a part-time engineer or architect, a construction technician for every 500 families and a foreman for every 150-175 families. Liaison and coordination between these two teams is achieved through weekly meetings coordinated by the heads of the respective departments.

After the mutual help groups (made up of families who will live in a given block or section and will be future neighboors) have been set up, the participants attend a series of meetings designed to inform and prepare them for the mutual help tasks. The first and last sessions are handled by the social workers who speak about FSDVM and the project, the participants' rights and obligations, and the need for responsible community work. They explain the details of group organization, requesting the groups to appoint a president, a warehouse watchman, and a treasurer, and to sign the mutual help agreement. The second session is given by the technical department and goes into details on the physical aspects of the project and the general organization of mutual help. The third meeting is sponsored by the Finance Division and deals with the costs and monthly payments. This series of meetings, which is held before any formal commitment is made, is extremely important, since correct information will be the cornerstone for future good relations between the participants and FSDVM and among the participants themselves.

The end of this series of meetings coincides with the completion of the contracted works, so as to avoid problems of coordination and interference and to permit free circulation at the site.

The mutual-help works are carried out only on weekends, in order to minimize interference with the participants' regular jobs. Work

is generally done on Saturdays from 2 to 5 p.m. and Sundays from 8 a.m. to 2 p.m. During evenings or after the mutual-help activities, groups meet to discuss construction and future community problems, thus beginning to generate a community dynamic. The works carried out by mutual help should be relatively simple and not require a great deal of machinery. Nor should they be overly time-consuming, which could frustrate the participants. In FSDVM's experience, six to eight months of weekend labor is the ideal period for mutual help. Grading and the laying of pipes and foundations are not recommended for this process, which is more suited to works such as installing roofs, sanitary installations and floors and raising walls.

Each group has the right to withdraw a list of materials, previously established by the Mutual Help Department, from the central warehouse, which is owned and administered by FSDVM. Once the group has taken these materials to its own warehouse (which is built in advance), they are the exclusive responsibility of the group. The group is therefore responsible for administering its warehouse, maintaining discipline among its members, ruling on absences from work days, drop-outs and expulsions, and construction problems. The members thus begin to participate actively in decision-making, to become more aware of the need to work collectively and in an organized manner vis-a-vis a society that has largely ignored them, and to renew faith in themselves. Although this is only the beginning, they begin to replace vertical authority structures with horizontal cooperative relations.

The community organization, which goes hand in hand with group organization, is composed of the presidents and representatives of each

section, and handles the problems at that level. The first problems that the community generally faces are related to the executing agency. These may be caused by misunderstandings on the part of the participants or errors or oversights by the agency or by other institutions or contractors, for which the agency is answerable to the participants. In these first contacts with the community group, FSDVM should be open to dialogue without becoming paternalistic, in order to foster the self-confidence so vital to future community development.

After the mutual help is finished the lots are awarded. Up to this point each of the participants knew that he was going to be awarded one of the units that this group had been working on, but not which one. The awards, except in special cases such as larger or corner lots, which are decided by the group beforehand, are made by a lottery, which is the occasion for a big celebration marking the birth of the settlement.

PART II - EVALUATION OF PROJECT EFFECTIVENESS

CHAPTER 3

COMPARISON OF PHYSICAL OBJECTIVES AND ACHIEVEMENTS

Chapter 1 (Section 2) outlined the main objectives of the First Urban Project. Part II of the report, of which this is the first chapter, will discuss the various aspects of project implementation and effectiveness. This chapter will be restricted to a general review of the progress of physical implementation.

Table 3.1 summarizes some of the major physical objectives of the project, and for each one indicates whether implementation was the responsibility of the FSDVM or a different government agency. The main responsibility of the FSDVM was the construction of 6594 dwelling units. 1/ Originally the project was scheduled for completion in 1978 but a number of delays occurred. By June 1980 4348 of the units had been built and of these 3640 were occupied. Work was in progress on the other 2246 units. The major reasons for implementation delays were related to problems of land acquisition, particularly in the Metropolitan Area. The scarcity of land, the absence of any national land use policies, and the increasing land speculation, 2/ combined to produce a delay of almost three years in land acquisition. All of the land required for the first and second projects was obtained in 1978 and implementation has since continued at a relatively smooth rate.

1/ The original number of units was 7,000 but due to the interchange of various sub-projects between the First and Second Urban Projects, the figure has been adjusted slightly downwards.

2/ See Chapter 1, Section 3.

A second problem which affected implementation of the last two project sites has been the very rapid cost escalation over the past two years. It had been estimated that inflation during the implementation phase would run at about 4 percent per annum, but in fact for the construction industry the figure has been closer to 20 percent. This has been aggravated by the previously mentioned three year delay in land acquisition which has meant that materials and labor have been paid for three years later than anticipated and hence at much higher prices. These factors have combined to produce an increase of about 35 percent in the costs of the final two projects as compared with the original estimates.

Table 3.1 also shows that the FSDVM was responsible for the construction of a contingency well, 5 storm drains for discharge into the river, a market and 8 foot pathways. The well is under construction, 4 out of 5 storm drains have been completed, and 5 out of the 8 foot pathways are completed. It was decided not to procede with the market as subsequent experience and discussions with the community questioned whether there was in fact a need.

It can be seen that although there have been delays (for reasons largely outside the control of the FSDVM), by 1981 virtually all of the physical implementation objectives will have been achieved.

Table 3.1 also indicates the main services to be provided by other government agencies. The main short-falls are in the construction of schools and community centers, as well as one clinic.

Table 3.1: COMPARISON OF OBJECTIVES AND ACHIEVEMENTS OF PHYSICAL IMPLEMENTATION OF FIRST EL SALVADOR URBAN PROJECT. JUNE 1980.

	Responsibility of the FSDVM			Responsibility of Other Agency		
Component	Target	Completed	In Progress	Target	Completed	In Progress
Dwelling Units	6594 1/	4348 built 3640 occupied	2246			
Infrastructure						
Trunk water supply				6	5	
Sewage collection				2	1	
Contigency wells	1		1			
Sewage outfall				5	4	
Storm drain for direct discharge into river	5	4				
Schools				7	3	
Clinics				2	1	
Community centers				10	2	2
Market	1					
Foot pathways	8	5				

1/ Original objective was 7000 units but due to switching of subprojects between the first and second loans the estimates were revised downwards.

Source: FSDVM 22nd report on progress of the First world Bank Loan. July 1980.

CHAPTER 4

PROJECT IMPACT ON THE QUALITY AND VALUE OF HOUSING

1. Methodology 1/

In most studies of housing, market rent is used as the principal indicator of the quality or value of housing. It is assumed that in a well functioning housing market, improvements in quality will be reflected in families' willingness to pay higher rents. When allowance is made for inflation and other outside factors, it is assumed that the changes in the average rent provide a good indicator of changes in value.

The present study, like many similar studies in developing countries, is faced with the problem that one cannot assume the existence of a well functioning housing market. In many projects the ability of the family to rent or sell is severely constrained whilst in other sectors of the housing market there may also be rent control or similar restrictions. Even when certain sectors of the market do operate relatively freely, it is often very difficult to obtain reliable information on rental or sale prices. This becomes even more problematic when we wish to compare changes over time.

In the present study the approach has been to develop three independent sets of indicators which will be used to measure changes. The indicators which are shown in Figure 4.1 are:

a. The quality of materials, services and neighborhood characteristics and the way they are maintained:

   This is based on a subjective evaluation by the researcher of the quality and maintenance of each type of material and service. Various techniques are then used to reduce the information to one or a small number of indices.

1/ See Annex 1 for explanation on the methodology.

b. Family satisfaction with different aspects of the dwelling unit:

The information is derived from the application of a simple attitude scale.

c. The value of the house:

Three estimates are used. The first, which probably gives a low estimate of value, is the calculation of the cost of construction or purchase of the house. The second, which probably provides a higher limit, is the family's estimate of the rental or sale value of their property. The third, is based upon the estimation of hedonic price indices for each component of the house and neighborhood attributes (which are assumed to affect the value of the house).

Changes in value and quality were estimated in two ways. First, information was obtained through the longitudinal studies for 1976, 1979 and 1980. For the control group changes in each indicator were measured for the same house. For participants the comparison was between the attributes of the house in which they were living before moving to the project, and the new project house in which they were living in 1980. Second, cross-sectional studies were conducted to compare the quality and value of different types of houses in 1980. If the control group was well selected (Annex 1 shows that in general it was) then the conditions of the control houses in 1980 can serve as an indicator of the type of housing in which the participants would now be living if there had not been a project.

Data was obtained from FSDVM projects in both Santa Ana and Sonsonate. To simplify the presentation, only the results from Santa Ana are presented, but the text indicates and discusses those cases in which the results from Sonsonate are significantly different.

FIGURE 4.1: INDICATORS OF HOUSING QUALITY AND VALUE

Type of Indicator	Specific Indicator	How measured
HOUSING QUALITY	Quality of roof	Classification of materials on a 3 point quality scale
	Quality of walls	"
	Quality of floor	"
	Quality of water supply	"
	Quality of sanitation	"
	Quality of electricity	"
	Interior area	Interval scale
	Number of rooms	Interval scale
	Crowding	M2 per person; persons/room
	Toilet crowding	Families/toilets
	Shower crowding	Families/showers
	Cleanliness of patio	5 point scale
	Maintenance of patio	5 point scale
	Cleanliness of streets	5 point scale
	Cleanliness of public areas	5 point scale
	Condition of streets	5 point scale
	Condition of drains	5 point scale
	Social ambience	5 point scale
	Security	5 point scale
FAMILY SATISFACTION	Lot size	3 point scale
	Living area	3 point scale
	Materials	3 point scale
	Quality of construction	3 point scale
HOUSING VALUE	Cost of construction or purchase	All costs adjusted to 1980 prices.
	Imputed rent	Family estimate of how much their house could rent for.
	Imputed sales value	Family estimate of how much their house could sell for.
	Imputed hedonic price	Application of hedonic coefficients derived from mesones, to the attributes of FSDVM unit. *
	Increase in family utility	Calculation of GCES utility function. *
	Imputed market value of each component of the housing package.	Estimation of hedonic price coefficients. *

* Only computed for FSDVM project.

2. Housing Quality

2.1 Housing quality in Santa Ana 1976 (when the project began)

Although the discussion in this chapter is based on Santa Ana, similar information is available from a longitudinal study in Sonsonate and descriptive cross-sectional studies have been reported for San Salvador (Ernst) 1/ and San Salvador, Sonsonate and San Miguel (FSDVM) 2/.

In 1976 when the FSDVM was beginning its first project in Santa Ana it was estimated that approximately 12,600 families (65,000 people) lived in informal housing in the city. Of these the majority (77%) lived in tenement houses (mesones) in central areas of the city, 20% in extra-legal subdivisions (colonias ilegales) on the periphery and 3% in squatter settlements (tugurios) on public land mainly along the railroad track. Between them these 3 types of informal housing provided shelter for about 67 percent of the total city population.

Table 4.1 summarizes the main characteristics of each of these types of settlement in terms of the quality of materials and services. The meson is normally relatively well built although the walls which are often built of mud on a bamboo frame or of mud bricks, may have deteriorated. Nearly all rooms have electric light and piped water supply although the water is always communal. The supply of water tends to be limited by the mesonera (superintendent) and in some cases the water may only be turned on for as little as 2 hours per day. 3/ The

1/ Daniel Ernst. "The Informal Housing Market in San Salvador", DEDRB, 1979.
2/ FSDVM "La Vivienda Popular en El Salvador"
3/ A detailed description of a meson is given in Aida Herrera and Martin Baro. "Law and Order in a meson in San Salvador". El Salvador, October 1980. See also Chapter 5 of this report.

other main draw-back of the meson is that the communal toilets are often not well maintained and are dirty and a major source of disease.

The colonias ilegales have varied construction quality, ranging from temporary shelters of mud and zinc, to solidly built two storey brick houses. In addition many of the houses sampled are still in the process of being built. Although almost half of the houses now have individual water connections, water is a major problem (and expense) for the other families as it will usually have to be bought and often carried a considerable distance. In most cases the family will have an individual pit latrine, which is more hygenic than the meson as it is not shared with other families. About one third of houses only have dirt floors which reflects in part the relatively low-priority many families seem to place on a solid floor.

In the tugurios the quality of housing is inferior to the meson and colonia ilegal in most respects. At least half of the houses are constructed of scrap materials and virtually all have dirt floors. Water is bought or obtained from wells and a high proportion (40%) obtain it from rivers or other contaminated sources. Almost 80% of families have no toilet and use communal pit latrines or open spaces.

Table 4.1 also gives a summary score for each settlement on each attribute. Giving scores of 2, 1 and 0 for ratings of good, average and bad respectively, it is possible to derive a score with a maximum of 100 points and a minimum of 0. The scores must be interpreted with caution as the components are measured on ordinal and not interval scales.

Table 4.1: MAIN CHARACTERISTICS OF LOW-INCOME HOUSING IN SANTA ANA 1976 AND THEIR RATING ON A SCALE OF QUALITY

Attribute	Rating	Description	Meson	Colonia Ilegal	Tugurio
ROOF	Good	Asbestos sheets or cement tiles	97.2	79.1	6.2
	Average	Metal Sheets	1.9	17.4	43.3
	Bad	Cardboard, scrap material or straw	0.9	3.5	50.5
	Summary Score *		98	88	28
EXTERIOR WALLS	Good	Bricks and concrete or concrete	5.8	59.3	0.0
	Average	Mud on bamboo frame, earth bricks, wood or metal sheets	90.4	38.1	33.7
	Bad	Scrap material, straw or palm	3.8	2.7	66.3
	Summary Score *		51	79	17
FLOOR	Good	Cement bricks	59.0	44.7	0.0
	Average	Earth bricks or wood	34.3	23.7	1.0
	Bad	Earth	6.7	31.6	99.0
	Summary Score *		76	57	1
WATER SUPPLY	Good	Individual connection to public water supply	0.0	45.2	3.9
	Average	Communal connection to public supply, well water or purchase from a truck	100 0	40.9	55.3
	Bad	River water or other contaminated source	0.0	13.9	40.8
	Summary Score *		50	66	32
SANITATION	Good	Individual connection to public sewer	1.8	15.0	0.0
	Average	Communal toilet connected to sewer, or private pit latrine	68.2	69.9	16.5
	Bad	Communal pit latrine or open air	30.0	15.0	83.5
	Summary Score *		36	50	9
LIGHT	Good	Electricity	86.1	79.3	2.0
	Average	Gas or oil	11.1	15.5	78.4
	Bad	Candles	2.8	5.2	19.6
	Summary Score *		92	87	42

* In calculating the summary score, the category "Bad" is given a score of 0, the category "average" a score of 1, and the category "good" a score of 2. The frequences in each category are multiplied by the score and the total divided by 2. This creates a scale with a maximum value of 100 and a minimum of 0.

SOURCE: FSDVM Socio-Economic Study of Santa Ana. 1976. Conducted by the Unidad de Evaluacion of the FSDVM and analyzed in cooperation with the Urban and Regional Economics Division of the World Bank.

The table shows that whilst the meson and colonia ilegal tend to be at somewhat the same quality level, the tugurio is at a significantly lower level on all variables.

Over 80 percent of project participants were living in mesones before they entered the project. Table 4.2 presents a comparison of the condition in 1976 of mesones in which participants and the control group lived. An individual component by component analysis shows there is almost no difference between the two groups. In order to permit a more rigorous overall comparison a weighted average of all components was computed. It is obviously not possible to simply add the individual scores as this would give equal weight to each component, whereas one would expect that some components are more important than others and should have a higher weight. Weights are obtained from a Hedonic Price Analysis conducted in Santa Ana by Quigley and Kaufmann. 1/ The analysis, which is explained in more detail in Annex 1, estimates a price coefficent for each component of the housing package. These coefficients can be conceived of as giving an approximate indication of the relative importance (value) which families attach to each component. These coefficients can then be used as weights by which each individual component is multiplied to provide a weighted average. 2/

1/ John Quigley, "The Distributional Consequences of Stylized Housing Programs." Urban and Regional Report No. 80-13, Urban and Regional Economics Division. World Bank, August 1980.

2/ The use of this technique to generate an index of quality is validated by the relatively high correlation coefficients which are found when the weighted averages are compared with estimates of housing value, about .60 in the case of the colonias in both Santa Ana and Sonsonate. However, given a relative lack of variation in these characteristics among project houses, the coefficient is considerably lower for participants, but statistically significant nevertheless (about .25). It should also be noted that in the original equation, the coefficients used for weighting the above components were not all statistically signficicant at 0.05 level although they all have the right sign.

Table 4.2 shows that the weighted averages of control and participant mesones are very close, thus supporting the contention that participants were drawn from typical mesones.

2.2 Estimating changes in housing quality of participants in Santa Ana

Table 4.3 presents participants quality scores in 1976 before they entered the project and again in 1980 after they had been living in the project for about two years. With the exception of the type of floor (where many families who had previously lived in mesones with cement floors had chosen not to cement the floor in the project house) there were improvements on all components. The improvements were small for roof and light, both of which are normally adequate in the meson, and very substantial with respect to water, sanitation and walls. From this table it is clear that participants have experienced a significant improvement in the quality of their dwelling.

The question must now be asked whether these improvements were unique to project participants or were similar improvements experienced by families living in the control areas? For this purpose we make use of the weighted averages derived from the hedonic coefficients. It can be seen that families living in mesones have experienced virtually no change. However, families in colonias ilegales experienced a change of +27.9 points (compared with 56.1 for participants) and families in tugurios experienced an increase of 36.9 points. 1/

1/ The experience in Sonsonate is somewhat different although, like Santa Ana, the participants experienced the greatest improvement in housing quality as shown in Table 4.4. The same table shows that in Sonsonate all the major housing groups enjoyed a varying degree of improvement over time, but that the participants experienced the greatest improvement of all, followed closely by the colonia dwellers. It should be noted that the participants, before movement started at a relatively higher level of housing quality than the Control Group and that the colonias in the same period scored less than mesones mainly for lack of such basic services as water and light. Nevertheless, the participants still came out ahead of the colonia dwellers in terms of average change.

Table 4.2: QUALITY OF HOUSING IN WHICH PROJECT PARTICIPANTS LIVED IN 1976 AND ITS COMPARISON WITH THE QUALITY OF MESONES IN THE CONTROL GROUP

	Roof	Walls	Floor	Water	Sanitation	Light	Weighted Average **
Weights *	3.875	.753	1.365	2.759	3.465	2.904	
All Participants	96	53	78	49	43	93	178.0
Participants living in mesones	99	53	80	49	45	94	182.8
Control families in mesones	98	51	76	50	36	92	175.3

* These weights are derived from the Hedonic Price Analysis conducted by John Quigley and Dani Kaufmann. See John M. Quigley, "The Distributional Consequences of Stylized Housing Programs. Theory and Empirical Analysis". Urban and Regional Report No. 80-18. World Bank, August 1980.

** Each individual score is multiplied by the Hedonic Price Weights. The result is then divided by 6 to give the average score. See Annex 1 for more detailed explanations.

Source: FSDVM Socio-Economic Study of Santa Ana. 1976. Survey conducted by the Unidad de Evaluacion of the FSDVM and analyzed in cooperation with the Urban and Regional Economics Division of the World Bank.

Table 4.3: CHANGES IN HOUSING QUALITY OF PROJECT PARTICIPANTS IN SANTA ANA 1976-1980 AND THEIR COMPARISON WITH CHANGES IN CONTROL GROUP HOUSING

(In Percent)

	Roof	Walls	Floor	Water	Sanitation	Light	Weighted Average Change	Weighted Average 1980 Score
Weights *	3.875	.753	1.365	2.759	3.465	2.904		
Participants								
1976 Score	99	53	80	49	45	94		
1980 Score	100	99	48	100	100	100		240.0
Change	+1	+46	-32	+51	+55	+6	+57.2	
Control Group Change								
Mesones	+1	+4	-23	-3	+11	+3	+ 2.3	177.6
Colonias	+5	0	-16	+22	+24	+9	+27.9	207.1
Tugurios	+20	+20	+1	+17	+25	-2	+36.9	97.6

Note: Data on participants obtained from the percentage of families who previously lived in mesones. There is no statistically significant difference between their rate of change and that for all participants.

* Weights are derived in the same way as for Table 4.2.
** Weighted Averages are derived in the same way as for Table 4.2.

Source: Control group data taken from Table 4.2.
Participants: FSDVM Socio-Economic Study of Santa Ana. 1976 and 1980.

Table 4.4: CHANGES IN HOUSING QUALITY OF PROJECT PARTICIPANTS IN SONSONATE 1977-1980 AND THEIR COMPARISON WITH CHANGES IN CONTROL GROUP

(In Percent)

	Roof	Walls	Floor	Water	Sanitation	Light	Weighted Average Change	Weighted Average 1980 Change
Weights	3.875	.753	1.365	2.759	3.465	2.904		
PARTICIPANTS								
1977 Score	92.8	58.5	78.9	67.4	52.5	40.7		166.2
1980 Score	98.3	96.9	98.9	98.0	100.0	100.0		249.4
Change	+5.5	+38.4	+20.0	+30.6	+47.5	+59.3	+83.1	
CONTROL GROUP CHANGE								
Mesones	+3.7	+2.6	+6.1	-8.4	+13.1	+60.6	+37.1	
Colonias	+10.2	+10.8	+26.2	+40.2	+3.0	+87.1	+76.3	

Table 4.5 shows what would be the effect on housing quality for families living in mesones, colonias, and tugurios in 1976 of the decision to stay in the same house or to move to one of the other types of settlement or to the FSDVM project. In all cases a move to the FSDVM would have produced considerable improvement in housing quality. The move to the colonia ilegal would also have produced improvements for all families but of a lesser magnitude. 1/

3. Satisfaction with Housing

In the 1980 survey in Santa Ana, respondents were asked to indicate their degree of satisfaction (satisfied, more or less satisfied, dissatisfied) with lot size, living area, materials and quality of construction. Table 4.6 summarizes the results of the study. Project participants have the highest level of satisfaction on each of the four items and in no case do less than 80 percent indicate they are completely satisfied. In general it appears that families in colonias ilegales are also satisfied with the mean of satisfaction being only slightly lower than for the FSDVM. Families in mesones are clearly the least satisfied with less than 30 percent completely satisfied with any of the three items on which they were questioned. 2/

1/ An analysis of the project in Sonsonate also shows that in all cases a move to the FSDVM would have produced considerable improvement in housing quality as shown in the same table.

2/ Meson families were not asked about lot size as this has no meaning in their case.

Table 4.5: EFFECT ON CHANGES IN HOUSING QUALITY OF MOVING TO ALTERNATIVE TYPE OF SETTLEMENT OR STAYING IN SAME PLACE. FAMILIES LIVING IN MESONES, TUGURIOS AND COLONIAS ILEGALES

SANTA ANA

Settlement in Which Living in 1976	Quality Change in 1980 by Moving to Each of the Settlement Types			
	Meson	Colonia Ilegal	Tugurio	FSDVM
Meson	+ 2.3	+ 31.8	-114.6	+ 57.2
Colonia	- 1.6	+ 27.9	- 81.6	+ 60.8
Tugurio	+116.9	+146.4	+ 36.9	+179.3

SONSONATE

1977				
Meson	+ 37.1	+ 49.3		+101.9
Colonia	+ 64.2	+ 76.3		+128.9

Table 4.6: SATISFACTION WITH LOT SIZE, LIVING AREA, MATERIALS AND QUALITY OF CONSTRUCTION. COMPARISION OF PROJECT PARTICIPANTS AND FAMILIES IN MESONES, COLONIAS ILEGALES AND TUGURIOS. SANTA ANA. 1980

(In Percent)

		Project	Mesones	Colonias Ilegales	Tugurios
LOT SIZE	Good	89.9	N/A	87.7	49.5
	Average	9.2	N/A	9.6	35.9
	Bad	1.0	N/A	2.6	14.6
	Summary Score*	95.0		92.0	68.0
LIVING AREA	Good	87.8	27.1	81.7	33.7
	Average	10.2	40.2	8.7	49.0
	Bad	2.0	32.7	9.6	17.3
	Summary Score*	93.0	47.0	86.0	58.0
MATERIALS	Good	91.8	12.1	65.2	10.6
	Average	7.7	54.2	23.5	59.6
	Bad	0.5	33.6	11.3	29.8
	Summary Score*	96.0	39.0	77.0	41.0
QUALITY OF CONSTRUCTION	Good	80.1	11.2	66.1	8.7
	Average	15.8	56.1	21.7	60.6
	Bad	4.1	32.7	12.2	30.8
	Summary Score*	88.0	40.0	77.0	39.0
Average Satisfaction Score (100 = satisfied with everything. 0 = dissastisfied with everything)		93	42	83	52

Source: FSDVM Socio-Economic Survey of Santa Ana. 1980..

* Maximum = 100 Minimum = 0.

The figures on satisfaction again seem to indicate that families in the project are receiving better quality housing than are families in other areas. On all three comparisons the level of satisfaction is twice as high as for the mesones, the dwelling in which most had previously lived. 1/

4. Estimating changes in the value of shelter of FSDVM project participants

In the previous section we evaluated the impact of the FSDVM project by estimating changes in housing quality. One problem of this approach is that it is difficult to know how valid the quality index is or the relative value which families place on different components of the housing package. An alternative approach is to estimate changes in the value of housing. In a well functioning housing market this estimation would be relatively simple as one would only have to compare rental and/or sale values of houses at different points in time. Unfortunately, in the case of the projects we are evaluating a number of factors make the process of estimating more difficult. Firstly, FSDVM participants were normally not permitted to sublet or sell their house for at least 5 years, and as that period had not lapsed by the time the study was completed, we have no direct information on rental or sale prices in the project areas. Secondly, information on imputed rents and imputed sales values was only obtained in 1980 so it is not possible to compare these values with the earlier surveys. Thirdly, project participants changed

1/ The results are similar to what is found in the Sonsonate study in which the project participants expressed the highest level of overall satisfaction. The level of satisfaction among the project participants was considerably higher than meson and colonia dwellers with respect to materials and quality of construction, although in terms of lot size and living area the colonia dwellers were slightly more satisfied than the participants.

the type of house in which they were living so that the value of two different types of house must be compared. Although these factors make it difficult to conduct any rigorous evaluation of changes in housing values, it is possible to obtain some tentative estimates from both cross-sectional and longitudinal data. Both types of estimates should, however, be treated with considerable caution. The following 4 cross-sectional indicators of value have been used:

a) Cost of construction or purchase of the house adjusted to 1980 prices.

b) Owners estimate of the monthly rent which could be obtained for the house.

c) Owners estimate of the sale price.

d) For the rental market (mesones and colonia renters) we have direct information on level of rents.

Table 4.7 uses these indicators to estimate housing values in 1980. For many indicators we give both the mean and interquartile range as the former can be influenced by extreme values. The mean cost of the FSDVM house is C 7639 ($3055) with an inter-quartile range of C 5972 to C 9136. The owners estimate of the sale price is about 22 percent higher than this with a mean value of $3756. As a consistency check we give the estimated sale price divided by (100 x the estimated rent) and we find that the mean ratio is 1.13. As a rule of thumb it is often assumed that the sale price is 100 times the rent so these estimates appear to be relatively consistent. 1/

1/ The consistency is further borne out by the fact that the ratio rises with the estimated sale price. This is because the rent tends to rise more slowly than the value of the house. This is quite consistent with findings from other countries.

Table 4.7: COMPARISON OF COST, OWNER'S ESTIMATED SALE PRICE AND RENT FOR PROJECT AND INFORMAL HOUSING SANTA ANA, 1980

	Cost (C$)			Estimated Sale Price (C$) 1/			Rent (C$) 2/	Sale-Cost Ratio	Sale-Rent Ratio 3/
		Interquartile Range			Interquartile Range				
	$\bar{X}$	25%	75%	$\bar{X}$	25%	75%	$\bar{X}$	$\bar{X}$	$\bar{X}$
OWNERS									
FSDVM	7983	5972	9136	9390	6500	10000	83.3	1.18	1.13
Colonia	20702	5946	21413	20732	12000	25000	136.8	1.00	1.52
Tugurio	645	288	836	616	350	800	17.8	.96	.35
RENTERS									
Meson				3317			33.2		
Colonia				5122			51.2		

Note: 1/ For owners, sale price was estimated by owners; for renters, it is actual rent times 100.
2/ For owners, this is their estimate of rental value.
3/ Rent = imputed rent x 100.

For the colonias ilegales the mean cost is C$19661 ($7864) which is about 2.6 times as high as the FSDVM cost. When we compare the inter-quartile ranges, however, we find that the lower quartile cost is almost the same as the lower FSDVM figure which shows that the colonia houses cover a much wider income spectrum than the FSDVM. Although estimated cost is about 2.6 times as high, the estimated sale price is only 2.3 times as high, and the estimated rent is only 1.64 times as high. If these comparisons are valid they suggest the FSDVM project produces a greater increase in value per colon invested than does the colonia ilegal. This is shown by the fact that the FSDVM has a sale/cost ratio of 1.22 compared with a ratio of only 1.08 for the colonia.

The tugurio house has a cost of only about one tenth that of the FSDVM house and a sale price almost equal to cost. In this case the sale/rent ratio is only 35 suggesting that due to insecure tenure few people would wish to buy but that there is a relatively high rental value due to the favorable locations close to places of work and the center of the city.

Table 4.7 also gives information on rents in mesones and colonias ilegales (in the latter case this may refer to a rented room or to a complete house which has been rented). These figures refer to actual rents, rather than to owners' estimates, thus reflecting a true market price. The mean rent in mesones is about 40 percent of the imputed FSDVM rent, and the mean rent in colonias is about

30 percent of the imputed rent given by owners of colonia houses. The colonia figures are consistent as in most cases only a part of the house is rented out.

Unfortunately only very limited information is available for estimating changes in values between 1976 and 1980. One of the most interesting comparisons, between colonia owners and FSDVM participants, cannot be made as information was not collected on imputed rents in the colonias in 1976. Table 4.8 compares actual rents in 1976 with actual or imputed rents in 1980. In the case of FSDVM participants the comparison is between actual rent paid in a meson in 1976 with the imputed rental value of the FSDVM house in 1980. The table estimates that the rental value has increased 3.59 times. This increase is much greater than rental changes in either mesones or rented rooms in colonias over the same period. The comparison suggestes that FSDVM participants are receiving more housing benefits than they would have if they had continued to live in a meson.

The same conclusion was reached in a more sophistical way by Quigley. 1/ On the basis of hedonic price coefficients estimated for mesones in 1976 2/ a utility function was calculated to estimate the additional utility the participants derived from their move to the

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1/ John Quigley, "The Distributional Consequences of Stylized Housing Programs", Urban and Regional Report No. 80-18. Urban and Regional Economics Division, The World Bank, August 1980.

2/ This technique permits the estimation of a coefficient indicating the amount families are prepared to pay for each attribute of a dwelling (type of water supply, number of rooms, quality of materials, etc.). These coefficients can then be applied to the new FSDVM project to estimate how much people would have been prepared to pay for this package of housing services.

Table 4.8: CHANGES IN VALUE OF HOUSING. 1976-1980. COMPARISON OF FSDVM PARTICIPANTS WITH INFORMAL HOUSING. SANTA ANA.

(In 1980 Colones)

	1976 Rent (1)		1980 Rent		Rent 1980/ Rent 1976 (2)		Value- 1976 Rent x 100 (3)		Value Increase (4)	
	$\bar{X}$	Md.	$\bar{X}$	Md.	$\bar{X}$	Md.	$\bar{X}$	Md.	$\bar{X}$	Md.
OWNERS										
FSDVM	21.2	19.7	83.3	76.2	3.59	2.87	6595	6042	2.95	2.32
Colonia	18.5	12.5	136.8	126.0	3.37	2.99	20238	15991	4.53	2.94
RENTERS										
Meson	21.8	17.9	33.2	29.0	1.22	1.29				
Colonia	28.1	25.0	51.2	35.0	1.45	1.12				

Notes: (1) In 1976 prices.
(2) 1976 prices adjusted for inflation.
(3) 1976 prices adjusted for inflation.
(4) For FSDVM 1980 sales price is compared with 100 x 1976 (adjusted) rent

project. The form chosen was the Generalized Constant Elasticity of Substitution (GCES) function. It was estimated that in 1979 the average amount which could be subtracted from participants to leave them as well off as they were in 1976 was 5.3 colones which is about 2.5% of total income or about about 20% of the average rent paid in mesones in 1979. This could be interpreted as meaning that project participants received a consumer surplus equivalent to about 20% of what they would have been paying for rent. The amount of additional utility was not found to be systematically related to income or family size. 1/

Conclusion

The figures appear to show that the FSDVM project produces a higher increase in value per colon invested than any other type of owner occupied housing and that the value of the housing benefits has increased for participants about twice as much as if they had continued to live in a meson. Although the precise magnitude of estimated benefits varies with the method of estimation, the general pattern and the more favorable evaluation of the FSDVM is consistent across all estimates.

1/ Quigley, Table 22.

CHAPTER 5

ACCESS TO URBAN SERVICES AND PLACE OF WORK

The purpose of this chapter is to evaluate the impact of the project on access to urban services and to place of employment. The study from which many of these figures was taken was conducted in Santa Ana which has a population of less than 100,000. Consequently the difference in distances to services are not very great between different types of shelter programs. However, it can be seen there are trade-offs between. For example, closeness to work and level of services. Table 5.1 shows the distance of project households in Santa Ana from basic services and from the place of employment. The figures given in meters 1/ show that all families in the project are within 600 meters of a school, public telephone, and park or playground and that virtually all are within 200 meters of public street lighting. Medical assistance and public transport are on average only 1000 meters distant, and for most people the place of work and the local market are within 2000 meters. This means that for most people all of the basic services and the place of employment are within half an hour's walk of their home.

Santa Ana, like most of the Salvadorean cities, is quite small so the absolute differences for each type of project are not very great. However, there are some differences which illustrate the types of trade-offs which become important in larger cities. Table 5.2 shows that residents in mesones are on average 60 percent closer to these services than are project participants. Families in colonias ilegales on the other hand are on average 20 percent further away than participants.

1/ In most cases the information was given in "Cuadras" (blocks) which is about 100 Meters.

Table 5.3 shows the effect which a move to the project would have on access to services for families presently living in mesones and colonias ilegales. The meson family would on average have to travel an extra 309 meters to reach the services. The greatest increases would be to visit the market (+1453 meters), a health center (+407 meters), public transport (+844 meters) and place of work (+ 504 meters). The only substantial improvement would be that the project is 420 meters closer to a park or children's playground.

From the point of view of families living in colonias ilegales the move to the project is more attractive in terms of nearness to services. The greatest improvements are in access to: children's playground (-1090 meters), public telephone (-638 meters) and medical assistance (-460). On the other hand the project is further away from public transport (+ 673 meters), market (+518 meters) and place of work (+419).

Care should be taken not to place too great an importance on these differences as in most cases the distances are very short. Perhaps the most important considerations are access to a children's playground, and distance from work for people who are self-employed small traders. One of the advantages of the meson is that a family can operate the business from the house so that the mother can operate a small store whilst being able to look after the children. The move to the project, even though it does not represent a very substantial increase in distance, may mean a loss of the customers who frequent the stores in the busy town center where the mesones are located.

Access to services is determined by other factors as well as distance. In the case of water supply many families only have water available for a certain number of hours a day or have to spend time queuing. Neither of these are problems in the project so this is an area where a move to the project produces an important increase in access. Table 5.7 presents indicators of the importance of these factors. In the case of colonias ilegales it can be seen that only 62.2 percent of families with individual water connections have a water supply for 24 hours per day and 16 percent have water for 10 hours or less per day. In the case of mesones only 84.5 percent of families have water for 24 hours per day and 6.8 have it for less than 10 hours. For those families who have to purchase water in tugurios or colonias ilegales virtually all have to spend at least one hour per day engaged in queuing and carrying and almost half have to spend two hours or more.

Satisfaction with access to services

Table 5.4 indicates the degree of satisfaction of project participants with their access to different services. In general there is a high degree of satisfaction with access to schools, water and public lighting, but most families are dissatisfied or only moderately satisfied with access to medical services and public transport. Table 5.5 presents a comparison of the level of satisfaction on these variables of project participants and families in informal housing. Project participants' satisfaction is substantially below average with respect to medical services and public transport,

and close to the average for schools and water. The only area in which the project is substantially above average is public street lighting.

Table 5.6 shows, as we might expect, that there is a close correlation between nearness to services and degree of satisfaction with access. Each of the 4 types of settlement was ranked from 1 (highest) to 4 (lowest) on nearness to each of four services (medical, school, transport and public lighting) and on level of satisfaction with each service. It can be seen that there is very close correspondence between nearness and satisfaction.

Summary

In 1976 most future project participants were living in mesones. If the family were to decide whether they would have improved access to services by moving to the project, to a colonia ilegal or by staying in a meson, the following are the factors they should take into account:

i) The meson is on average nearer than the project to most basic services, whereas the colonia is further away than the project. However, given the smallness of the city the differences in distance are not very great. Perhaps the most important differences are firstly that the meson is nearer to the center of town and hence to the potential clients for small businesses. Secondly, the project provides easier access to children's playgrounds, an important consideration when compared with the meson where children have almost nowhere to play.

ii) The project provides considerably better access to water supply as many families in both mesones and colonias have water only part of the time or must spend considerable amounts of time queuing.

iii) The project also offers substantially better access to sanitary services by providing every family with individual water born sewerage. Mesones and colonias tend to have substantial defects in this respect.

In summary there can be seen to be some trade-offs. The project provides a higher standard of water and sanitation, but innevitably is further removed from employment and the other facilities one finds in the central city areas where the meson is located. For a self-employed small trader this nearness to place of employment is important, but for most other groups the smallness of the city means that the higher level of services provided in the project more than offsets the relatively small increase of distance to some of the public services.

Table 5.1: DISTANCE OF PARTICIPANTS HOUSE FROM PUBLIC SERVICES AND HEADS PLACE OF WORK. SANTA ANA 1980.

	DISTANCE IN METERS												
	0-100	101-200	201-400	401-600	601-800	801-1000	1001-1500	1501 2000	2001-2500	2501-3000	3001-5000	Total	Mean Distance
Service	(Percentage of Participants)												
Medical Aid					26.0	.35.2	34.6	2.0	2.0			100	905
School		35.8	62.3	2.0								100	250
Public Transport	0.0	0.0	0.5	0.0	15.8	11.8	68.4	3.5				100	1016
Public Telephone	5.1	25.0	57.1	11.7	0.5							100	222
Public Street Lighting	82.7	16.8	0.5									100	18
Market	0.0	0.0	0.0	0.5				6.6	90.3	2.6		100	2129
Playgrond or Park	9.7	30.1	55.1	3.6	1.5							100	181
Heads Work Place	17.0	1.0	4.0	8.0	1.0	2.0	6.0	15.0	20.0	12.0	14.0	100	1584

Table 5.2: MEAN DISTANCE IN METERS FROM SERVICES AND EMPLOYMENT. FSDVM PROJECT IN SANTA ANA. MESONES, COLONIAS AND TUGURIOS 1980.

	Participants	Mesones	Colonias	Tugurios	Mean
Medical Aid	909	502	1369	810	800
School	250	380	490	477	351
Public Transport	1016	172	343	328	555
Public Lighting	18	46	228	214	109
Public Telephone	222	317	860	502	434
Market	2128	675	1610	976	1475
Playground or Park	182	602	1272	795	626
Heads Work Place	1583	1079	1164	1052	1279
Average Distance	780	471	917	775	

Table 5.3: DISTANCE TO PUBLIC SERVICES AND WORK IN PROJECT COMPARED TO MESONES AND COLONIAS

	Difference of Mean Distances *	
	Mesones	Colonias
Medical Aid	+ 407	- 460
School	- 130	- 240
Transport	+ 844	+ 673
Public Lighting	- 28	- 210
Public Telephone	- 95	- 638
Market	+1453	+ 518
Playground	- 420	-1090
Work	+ 504	+ 419
Average	+ 309	- 137

* + indicates the Project is further away.
  - indicates the Project is nearer.

Table 5.4: SATISFACTION OF PROJECT PARTICIPANTS WITH ACCESS TO SERVICES. SANTA ANA 1980.

(In Percent)

	Satisfied	Fairly Satisfied	Disastified	Percent Satisfaction *
Medical Services	16.8	46.4	36.7	40.2
Schools	97.4	1.5	1.0	98.1
Water	88.8	9.2	2.0	93.4
Public Lighting	96.9	2.0	1.0	97.8
Public Transport	2.0	25.0	73.0	14.9

* 100 = completely satisfied
0 = completely dissatisfied.

Table 5.5: MEAN SATISFACTION WITH ACCESS TO SERVICES. COMPARISON OF PROJECT, COLONIAS, MESONES AND TUGURIOS. SANTA ANA 1980.

(In Percent)

	Participants	Mesones	Colonias	Tugurios	Mean *
Medical Services	40.2	77.6	64.8	68.0	59.0
Schools	98.1	95.0	86.0	88.0	92.4
Water	93.4	95.0	87.0	87.0	90.9
Public Lighting	97.8	92.0	35.0	40.6	71.2
Public Transport	14.9	97.0	78.0	86.9	60.0
Mean *	68.9	91.3	70.1	74.1	74.7

* 100 = complete satisfaction
  0 = comlete dissatisfaction

Table 5.6: DISTANCE FROM SERVICES AND SATISFACTION WITH ACCESS. COMPARISON OF RANK ORDERS. SANTA ANA 1980

(Rank Order: [1 = Highest 4 = Lowest]

	Project		Meson		Colonia		Tugurio	
	Dist.	Sat.	Dist.	Sat.	Dist.	Sat.	Dist.	Sat.
Medical Services	3	4	1	1	4	3	2	2
School	1	1	3	2	4	4	2	3
Transport	4	4	1	1	3	3	2	2
Public Lighting	1	1	2	2	4	4	3	3

Note: Dist. = Distance
Sat. = Satisfaction

Table 5.7: INDICATORS OF ACCESS TO WATER SUPPLY: HOURS WATER AVAILABLE IN COLONIAS AND MESONES AND TIME SPEND QUEUING TO BUY WATER. SANTA ANA 1980.

(In Percent)

	HOURS WATER AVAILABLE										
	Less Than 1 Hour	1	2	3	4	5	6-10	11-15	16-20	24 Hours	Sample Size
Colonias Ilegales- Individual Faucetts		4.4		5.6	1.1	1.1	4.4	11.1	10.0	62.2	90
Mesones - Collective Supply					4.9		1.9	7.8	1.0	84.5	103
Time Spent Queuing to Buy and Carrying Water: Tugurios and Colonias	0.9	52.3	36.4	8.4		1.9					107

CHAPTER 6

AFFORDABILITY AND ACCESS OF THE PROJECT TO THE TARGET POPULATION

This chapter reviews the evidence on the extent to which the project has achieved its goal of providing housing which is affordable and accessible to the target population. Two main issues will be discussed:

(a) Are the costs of entering the project sufficiently low to be affordable to the target population?

(b) Is there any evidence that poorer families are being forced to drop out of the project due to their inability to cover the costs of consolidation of the house?

A. Is the Target Population Able to Meet the Costs of of Entering the Project

Defining the Target Population

In the Appraisal Report it was stated that the projects were intended for low income urban families who did not already possess a house. It was realized that Sites and Services projects are not intended to reach the very poorest sectors of the urban population, but it was intended that the project should be accessible down to the 17th income percentile of the urban income distribution. As will be pointed out in the discussion there was no very clear definition of how income was to be defined. In addition to these requirements the FSDVM has generally required that families should have been living for at least two years in the city (in an attempt to discourage rural families from

coming to the city simply to obtain a house) and that families be prepared to participate in the mutal help construction process.

The requirement of participation in mutual help construction derives partly from the FSDVM's objective of using house construction to develop an organizational base to initiate a wider program of social and economic change, and partly from the belief that mutual help is the most cost effective way to provide affordable housing to the urban poor. Participation in mutual help construction replaces the 10 percent down-payment which is required in many housing programs, and which the FSDVM believes would have been a barrier to participation by many of the poorer families.

In practice the FSDVM has been pragmatic with respect to the mutual help requirement. In projects where there has been excess demand (for example, the first Santa Ana project) the requirement has been enforced strictly, whereas in projects where there has been a scarcity of applicants (for example Usulutan) the requirement has been relaxed.

Are Projects Affordable to the Target Population? 1/

Initially the Bank assumed that a family could spend up to about 20 percent of its monthly income on housing and that the project would therefore be affordable to families whose monthly income was five times greater than the monthly payment to the FSDVM. To test these assumptions and to investigate their applicability the following equation has proved useful. A project is affordable to a family if:

$$C < aY$$

1/ For a more complete discussion of Affordability, see Douglas H. Keare and Emmanuel Jimenez, "Affordability, Income and Housing Consumption" Urban and Regional Economics Division, World Bank, November 1980,(Draft).

where C = the monthly cost of the project to the family

Y = family monthly income

a = proportion of income a family is willing to spend on housing.

To evaluate affordability we will begin by presenting estimates of C, Y and a and will then combine them in the equation.

Estimating C (monthly housing cost)

Given the fact that the project is based on the concept of progressive development, where families complete the unit at their own expense and according to their own plans and timetable, the monthly cost will be different for each family. Families make both fixed payments on mortgage payments and the FSDVM material loan, and variable payments for additional purchase of materials and payment for labor. The variable payments differ in amount, with some families buying expensive materials and hiring skilled labor, and others using cheaper materials and doing the work themselves. There are also differences in the ways in which these payments are financed with some families paying out of their monthly wages, others using savings and others borrowing money. About one third of materials are bought on credit and one third paid for out of savings. Table 6.1 summarizes the amount of each type of payment and the typical ways of paying. It is estimated that the average cost of a complete project house in 1979 was colones 7561 (US$3024). With the assumptions indicated in the footnotes we arrive at approximate estimates of the monthly expenditures the families have to make to complete the houses. The average monthly cost is colones 78 (US$31).

Table 6.1: STRUCTURE OF HOUSING COSTS IN FSDVM

Project Santa Ana - 1979 Prices (Colones)

Type of Payment	Total Cost to Family		Monthly Payment (1)		Typical Form of Payment		
	Mean	Interquartile Range	Mean	Range	Cash (%)	Credit (%)	Savings (%)
Mortgage Payment to FSDVM	4237	3454 - 5110	28	23 - 33		20 yrs at 6%	
Material Loan to FSDVM	323	200 - 1000	6	2 - 8		5 yrs at 8%	
Other Material Purchase	2069	380 - 2400	24 (2)	0 - 28	37	33	30
Payment for Labor	480	80 - 825	20 (3)	3 - 34	100		
Value of Mutual Help Labor	452	452 452	0 (4)	0 - 0	Compulsary participation in Construction		
T O T A L	7561	4566 9787	78	28 -103			
TOTAL US$	3024	1826 3915	31	11 41			

Notes: (1) The average amount families pay each month is obtained by combining average total payment with information on form of payment.
(2) Assumes credit is for 5 years at 12 percent.
(3) Assumes payment for labor made over 2 year perid.
(4) Mutual help not included as additional monthly payment because it is part of the payment to FSDVM. Shadow value of labor is not included as cost.

From the point of view of estimating affordability it is important to note that the monthly mortgage payment to the FSDVM only represents about 36% of the total monthly payment made by most families (Table 6.2). Purchases by the family of additional materials represents a further 31% and payment for labor 25%. This fact is important because many estimates of affordability are based simply on the mortgage payment. The justification usually given for only considering fixed payments is that families are not obliged to make additional payments and that these should not therefore enter into estimates of basic affordability. This is a difficult issue because many families have a relatively high expectation of minimum acceptable level of housing and this level requires the additional expenditures. In this chapter we make alternative estimates of affordability which both include and exclude the additional payments so as to test the sensitivity of affordability estimates to the assumptions about cost.

A basic characteristic of the progressive development model is that families have flexibility in terms of the amount and timing of their investment in housing. Table 6.3 presents a frequency distribution of monthly expenditures on housing by the project participants. It can be seen there is considerable variation with some families paying as little as $16 per month and others paying as much as $60. Almost 75% of the families pay between $20 and $36 per month and this can be taken as the range for estimating affordability as only 7% were paying less than this.

For some of the estimates it is necessary to use 1976 prices as this was the year in which families entered the project. To estimate 1976 prices the figures for 1979 are multiplied by 0.8.

Table 6.2: PROPORTIONAL BREAKDOWN OF MONTHLY HOUSING COSTS
FSDVM - SANTA ANA

Component	Mean (Colones)	Monthly Cost ($)	Percent of Total Monthly Payment
Mortgage Payment to FSDVM	28	11.2	35.9
Material Loan to FSDVM	6	2.4	7.7
Other Material Purchase	24	9.6	30.8
Payment for Labor	20	8.0	25.6
Total Monthly Payment	78	31.2	100.0

Table 6.3: FREQUENCY DISTRIBUTION OF MONTHLY HOUSING PAYMENT IN 1979 COLONES
FSDVM PROJECT - SANTA ANA

$	Colones	Number of Families	
		Percent	Cumulative
Less Than 16	Less Than 40	1.1	1.1
16 - 20	41 - 50	5.8	6.9
20 - 24	51 - 60	24.2	31.1
25 - 28	61 - 70	21.6	52.7
29 - 32	71 - 80	14.2	66.9
33 - 36	81 - 90	12.1	79.0
37 - 40	91 - 100	6.3	85.3
41 - 50	101 - 125	7.9	93.2
51 - 60	126 - 150	5.2	98.6
Over 60	Over 150	1.6	100.0
TOTAL		100.0	

Estimating Income (Y)

To estimate income it is necessary to decide which of the following definitions will be used: (a) Earned income of head, (b) Earned income of all household members, (c) Earned income plus rent and pensions, (d) All sources of income including transfers from non-family members. Projects in different countries have varied in terms of which of these definitions they have used.

Table 6.4 gives mean income of project participants in Santa Ana in 1976, 1979 and 1980, based on three different definitions. The broadest definition includes all sources of income, earned as well as gifts, of all persons living in the household. If only earned income is taken into account, estimated income drops by about 8%, whilst if only earned income of the head is considered, the estimate is only about 56% of all income. To date Bank appraisal reports tend not to discuss this issue of which definition of income should be used. Although it was not explicit, the FSDVM seems to have used the intermediate definition in which only earned income of family members is counted. The implicit assumption is that gift income from relatives not living in the household will be unstable and should not be taken into consideration. There is in fact no evidence that these sources of income are any more unstable than earned income. Lindauer and Kaufmann 1/ have shown that the exclusion of income transfers produces a systematic bias against the selection of low-income families. For many low-income

1/ David Lindauer and Dani Kaufmann, "Basic Needs, Interhousehold Transfers and the Extended Family", Urban and Regional Report No. 80-15, DEDRB, DED, World Bank.

Table 6.4: COMPARISON OF EARNED INCOME OF HEAD, EARNED INCOME OF ALL FAMILY MEMBERS AND FAMILY INCOME FROM ALL SOURCES PROJECT PARTICIPANTS - SANTA ANA 1976, 1979 AND 1980

	1976		1979		1980		
	Mean Colones	Median Colones	Mean Colones	Median Colones	Mean Colones	Median Colones	Average Mean (Percent)
Earned Income of Head	185	164	276	260	336	300	56
Earned Income of All Family Members	338	310	451	400	526	482	92
All Sources of Family Income	358	321	493	433	580	510	100

families, particularly female headed households, income transfers can represent up to 20% of total household income. Excluding these sources implicitly reduces the estimated income by 20 percent and results in many of these households not meeting the minimum affordability and thus being potentially excluded from the project. 1/

Table 6.5 presents two estimates of the income distribution in Santa Ana. The first is taken from a national study of income distribution in urban areas in 1976 2/ and the figures have been interpolated by the authors to estimate maximum incomes for each decile. A second estimate is obtained from the FSDVM study of popular housing conducted in Santa Ana in 1976. The study only covered the low-income population but it was assumed that this represented the poorest 65% of the urban population. The estimates were then weighted and interpolated 3/ to provide an approximate estimate of income distribution of the lowest 65% of the population. The estimates compare closely with the national study for the first five income deciles but there is a considerable discrepancy for the sixth decile. It is assumed that the reason for this is that whilst popular housing includes virtually all poor families in Santa Ana, some of the communities, particularly colonias ilegales, also house wealthier families. This would suggest that figures provide

1/ On the basis of the 1979 data, using the average fixed payment of the FSDVM project and 20 percent as a proportion of income spent on housing, we estimated that the exclusion of transfer income in project selection criteria could discriminate against 6-7 percent of the potential applicants who would have otherwise qualified.

2/ El Salvador. Banco Central. "Caracteristicas de los Hogares y de las Viviendas", 1979. Quoted in "An Enquiry into Urban Poverty", World Bank, 1980.

3/ Lindauer (1979)

Table 6.5: ESTIMATION OF THE INCOME DISTRIBUTION FOR SANTA ANA AND DISTRIBUTION OF PROJECT PARTICIPANTS BETWEEN DECILES.
SANTA ANA. 1976.

Income Decile	National Urban (1)	Santa Ana (2)	Percent FSDVM In Each Santa Ana Income Decile (3)	
	Upper Limit for Decile (Colones)		Percent	Cumulative Percent
0 - 10	114	100	1	1
11 - 20	170	169	10	11
21 - 30	227	258	25	38
31 - 40	286	288	7	43
41 - 51	376	371	23	69
51 - 60	475	475*	8	81
61 - 70	574		9	90
71 - 80	786		16	98
81 - 90	1153			
91 -100	4000			

* Taken from national figures.

Source: (1) Deciles computed from "Caracteristicas de los Hogares y de las Viviendas" Banco Central, El Salvador, May 1979.
(2) FSDVM "Socio Economic Study of Santa Ana, 1976". Estimated by Lindauer.
(3) The upper limit for income deciles for the distribution of FSDVM participants are: (1st) 165; (2nd) 195; (3rd) 240; (4th) 285; (5th) 315; (6th) 345; (7th) 385; (8th) 465; (9th) 570; (10th) 920.

an accurate estimate of the lower end of the distribution but are less reliable at the upper end. For this reason we will use the national estimate for the sixth decile and above.

Estimating the Proportion of Income Families are Willing to Spend on Housing (a).

It has usually been assumed by the World Bank and most other housing institutions that a family can or should spend a maximum of between 15 and 25 percent of their income on housing. A proportion within this range has usually been used as guideline in the estimation of project affordability. The results of several studies conducted by DEDRB suggest that in fact there is considerable variation in the proportion of income which a family is willing and able to spend on housing. 1/ The proportion varies according to household income, tenure status, type of housing and family characteristics. Table 6.6 presents the results of 3 different methods of estimating these proportions.

The upper section of the table gives the proportion of household income spent on rent by families renting rooms in a meson. It can be seen that there is a strong inverse relationship between household income and the proportion of income spent on rent. Thus whilst the poorest 10 percent of families spend 23 percent of their income on rent, the highest 40 percent all spend less than 6 percent. This relationship reflects the fact that the cheapest available accommodation is still relatively expensive so that the poorest families are forced to spend an extremely high proporition of their income on rent. As income rises the amount spent on rent increases much more slowly.

1/ The findings are discussed in detail in Keare and Jimenez, "Affordability, Income and Housing Consumption", November 1980, (Draft), Urban and Regional Economics Division, World Bank.

Table 6.6: PROPORTION OF MONTHLY INCOME SPENT ON HOUSING BY OWNERS AND RENTERS, SANTA ANA, 1980.

	INCOME DECILES FOR POPULAR HOUSING											
	1	2	3	4	5	6	7	8	9	10	Mean	Sample Size
RENTERS												
Meson	.23	.12	.09	.12	.06	.09	.06	.06	.06	.04	.09	105
OWNERS												
Total Housing Cost 1/												
Colonia	-	-	.04	-	-	.03	.07	.10	.04	.07	.05	72
Tugurio	-	.04	.03	-	.04	.07	.05	-	-	-	-	104
FSDVM	.18	.14	.10	.09	.10	.10	.12	.09	.11	.14	.12	196
Total Monthly Rent 2/												
Colonia	-	.25	-	.31	.41	.54	.26	.28	.17	.17	.22	69
Tugurio	.13	.09	.08	.06	.05	.05	.03	.03	.02	.04	.07	103
FSDVM	.57	.27	.34	.23	.23	.23	.18	.16	.13	.09	.18	191

1/ Including fixed payments, construction, light and water.
2/ Owner's estimate of what the monthly rent would be.

The middle section of the table refers to the amount spent by owners on housing during the month of the survey. The amount includes both fixed payments on loan repayments and services and the expenditure on materials and labor for house improvements. In this case the figures for the FSDVM show no clear relationship between income and the proportion of income spent on housing. This suggests that the amount spent on housing investments increases in proportion to income since the fixed payments to FSDVM vary little across income groups. As can be seen the proportion only varies between a high of 18 percent and a low of 9 percent over the whole table. In colonias ilegales the average expenditure on housing is only about a third of that of the FSDVM (4 percent compared with 12 percent) and there is no clear relationship to income. It is not surprising that the proportions are lower as most colonia families have been living in their houses for longer periods of time and have completed their main investments. In the tugurio the average proportion is even lower (2 percent) and again there is no clear relationship to income. The conclusion from the FSDVM figures would seem to be that families are able and willing to spend between 9 and 20 percent of their income on housing.

The bottom section of the table is based upon the proportion which imputed rent represents of total family income. Families were asked to indicate how much they think they could rent their house for. In a perfect market one would expect that families who would be willing to rent the house would have approximately the same incomes as the family presently living there. By this line of arguing the imputed rent could be used as an indication of how much the owner would have been

prepared to pay in rent for the house. However, in the present case this assumption is probably not valid because owners receive a number of hidden subsidies as they are acquiring the house at below market value. As a result it is likely they could rent the house to families of higher income levels than themselves as the house is in fact worth more on the free market than they had to pay. This means that the proportions given in this section of the table for the FSDVM may not reflect the amount of rent the owners would be willing to pay. With this reservation it is interesting to note that for all three types of housing, the ratio of rent to total income declines as income increases, implying an income elasticity of less than one which is consistent with the finding in the top section of the table relating to mesones.

Estimating Affordability and Accessibility

As stated earlier it was the objective of the Bank project to be affordable down to the 17th income percentile. Considerable information is available on the extent to which this objective has been achieved. The final column of Table 6.5 gives the cumulative proportions of project participants in Santa Ana on the city income distribution. It can be seen that 11 percent are estimated to come within the lowest 20 percent of the income distribution, whilst a total of 38 percent and 43 percent come within the lowest 30 and 40 percent respectively. A total of approximately 85 percent come within the lowest 65 percent of the distribution and hence fall within the original target population limits.

Table 6.7 presents similar estimates for the Sonsonate project and the first two projects in San Salvador. In both cases it is found that virtually all participants come below the 60th percentile. In general it can be seen that the project has been successful in achieving its goal of reaching families below the 65th percentile, but that there has been a tendency for participants to cluster towards the upper end of the target limits. The majority of participants come from the thirtieth to the sixtieth percentiles. These people are poor having per capita incomes below $30 per month but they have slightly better economic conditions than the families at the lower end of the target population. The projects have had more difficulty in reaching the families in the second and third income deciles and these represent thirty percent or less of the project participants.

The effect of this clustering towards the upper end can be seen clearly in Table 6.8 which shows the proportion of families in each income decile who have participated in FSDVM projects in three cities. The proportion of families who benefit from the project increases steadily for each income decile. Thus although only 1.39% of families from the first decile participate, the proportion rises to 13.58 for the third decile and to 18.69 for the sixth decile. The project only reaches about one in ten families in the second and third deciles but almost one in five of families in the fifth and sixth deciles.

B. Is There Any Evidence that Poorer Families are Dropping Out of the Project Through Inability to Pay?

The earlier sections of this chapter show that the fixed monthly payments to the FSDVM represent only about one third of the total amount of money which the average family pays to purchase and complete the

Table 6.7: FSDVM PARTICIPANTS BY URBAN INCOME DECILE
SANTA ANA, SONSONATE AND SAN SALVADOR, 1976

Income Deciles	Urban Population Upper Limit	FSDVM Projects - Cumulative Percentage Participants in Each Decile (1)		
		Santa Ana	Sonsonate	San Salvador
0 - 10	114	1	3.8	7.7
11 - 20	170	11	13.1	15.5
21 - 30	227	38	32.0	29.8
31 - 40	286	43	63.5	41.3
41 - 50	376	69	92.7	65.1
51 - 60	475	81	100.0	99.1
61 - 70	574	90		100.0
71 - 80	786	98		
81 - 90	1153			
91 - 100	4000			

Source: (1) Gonzalez-Polio, "FSDVM Studies on Demand and Affordability".

Table 6.8: PROPORTION OF FAMILIES IN EACH INCOME DECILE PARTICIPATING IN FSDVM PROJECTS SANTA ANA, SONSONATE AND USULUTAN

	Proportion of Total City Families Participating in Project Income Deciles						Total Families in the City (1976)
	1	2	3	4	5	6	
Santa Ana	0.5	6.3	7.7	7.5	10.5	25.7	12659
Sonsonate	2.7	6.5	13.3	22.1	20.5	5.1	6400
Usulutan	1.0	12.0	19.7	19.0	23.0	25.5	4952
Average Proportion	1.4	8.3	13.6	16.2	18.0	18.7	

Source: Gonzalez-Polio, "FSDVM Studies on Accessibility of Projects to the Urban Poor".

construction of their house. As was pointed out, most of the estimates of affordability were based on the fixed payments to the FSDVM. The question therefore arises as to whether there is evidence that poorer families have been forced to drop out of the project due to these higher than expected consolidation costs. In this context it must of course be recalled that the family has considerable flexibility in terms of the total amount which it chooses to invest in the house and Table 6.3 shows that the poorest 10 percent of families are spending less than half the monthly amount invested by the richest 15 percent.

Table 6.9 summarizes available information on drop-out rates in Santa Ana and Sonsonate for participants and control groups. The figures refer in each case to different intervals of time but estimates of annual turnover rates have been made by Lindauer. 1/ Weighted averages have been computed for turnover rates in control areas and the rates vary from a low 14.9% to a high of 25.8%. We assume that these figures give an idea of the normal turnover rate in low-cost housing, and this can be used as a reference point for evaluating project turnover. For project participants in Santa Ana, figures show that the turnover rate among participants was very high before the completion of mutual help (about 30 percent of selected participants dropped out before the completion of mutual help); but once the mutual help is completed the annual drop-out rate falls to between 6% and 13% for the 1976-1979 period and to 2.6% for the 1979-1980 period. Similarly, in Sonsonate it was estimated that the drop-out rate after mutual help was about 8%.

1/ Lindauer, "Longitudinal Analysis of Project Turnover. Some Lessons from El Salvador." September 1979, DEDRB.

Table 6.9: ESTIMATES OF ANNUAL TURNOVER RATES AMONG PROJECT PARTICIPANTS AND CONTROL GROUPS. SANTA ANA AND SONSONATE. 1976-1979 AND 1979-1980

	1977 - 1979	1976 - 1979	1979 - 1980
SONSONATE			
Control Group 1/	25.8		
Mesones	29.4		
Colonias Ilegales	13.3		
Tugurios	n.a.		
Project			
Before completion of mutual help	n.a.		
After mutual help	8.0		
SANTA ANA			
Control Group 1/		14.9	24.9
Mesones		15.6	26.4
Colonias Ilegales		12.4	20.5
Tugurios		15.2	13.9
Project		16.2	2.6
Before completion of mutual help 2/		26.2-35.2	
After mutual help 2/		5.9-12.7	

1/ Weighted average
2/ Two alternative estimates were used (see Lindauer below)

Source: David Lindauer, "Longitudinal Analysis and Project Turnover. Some Lessons from El Salvador". September 1979. DEDRB.
Some additional material was prepared by Lindauer for 1980 which does not appear in the paper.

The reasons for drop-out before and during mutual help are complex, many of them being related to administrative factors in the selection process (for example not being able to locate families who had applied). There is no evidence, however, that inability to pay was a major cause of dropping out.

Once families have made the investment of time and resources to complete the mutual help, the drop-out is extremely low. As most of the additional housing investment is made after mutual help it would seem that very few families are forced to leave the project through their inability to cover the costs of material purchase and labor. This finding is further supported in Chapter 7 where it is shown that increased investment in project housing does not seem to have had any negative effect on per capita expenditure on food or medicine.

A comparison was also made of the income of drop-outs and families staying in the project. Table 6.10 shows there is no significant difference in the drop-out rates of low, medium and high income families. Table 6.11 also shows that there is no clear difference in drop-out rates of male and female headed households.

Conclusion: Is the Project Affordable to the Target Population?

Despite the fact that project costs are higher than assumed in the initial estimates of affordability and the poorer families are spending a higher than expected proportion of their income on housing, the project does seem to be affordable to the target population. At least 85% of participants fall within the specified income range and a substantial proportion of families come from the lower end of the range. One factor which may partly explain the ability of poorer families to meet the higher than expected housing costs is the

Table 6.10: COMPARISON OF ANNUAL TURNOVER RATES BY INCOME CLASS IN THE FSDVM PROJECTS IN SANTA ANA AND SONSONATE

	Income Class		
	Low	Middle	High
Sonsonate	8.1	8.8	6.8
Santa Ana	17.6	16.7	18.8

Source: David Lindauer, "Longitudinal Analysis and Project Turnover. Lessons from El Salvador." DEDRB. Table 7.

Table 6.11: COMPARISON OF PROJECT TURNOVER RATES BY SEX OF HOUSEHOLD HEAD. FSDVM PROJECTS IN SONSONATE AND SANTA ANA.

	Number of Cases	Dropouts (%)	Repeats (%)
I. SONSONATE			
A. Male Heads	104	14.4	85.6
B. Female Heads	62	9.7	90.3
II. SANTA ANA			
A. Male Heads	111	46.9	53.1
B. Female Heads	79	46.8	53.2

Source: David Lindauer, "Longitudinal Analysis and Project Turnover. Lessons from El Salvador." Table 8. DEDRB, September 1979.

important finding by Kaufmann and Lindauer 1/ that poorer families tend to receive some transfers from non-household members of the family group. For the poorest families this can represent a substantial portion of total income and there is evidence both from El Salvador and the Philippines 2/ that investment in housing will tend to attract support from the extended family group.

There is some tendency for participants to concentrate towards the upper end of the permissible income range, but given the very high inflation rate that erodes the incomes of the urban poor this tendency is probably innevitable. Rather than use this as a criticism it is probably more correct to say that it is very impressive, given the escalating costs, that the project is still affordable to families within the original income range.

The analysis also shows that the turnover rate among project participants is very low once the initial investment of time has been made in the mutual help. This provides evidence that there is no substantial proportion of families who were forced to leave the project through inability to cover costs. This finding is further reinforced by the fact that there is no difference in income between families who leave the project and those who stay.

In conclusion, one can say that the projects have clearly demonstrated their affordability and accessibility to the target population.

1/ D. Kaufmann and D. Lindauer, "Basic Needs, Interhousehold Transfers and the Extended Family", Urban and Regional Report No. 80-15, DEDRB, DED, World Bank.

2/ Income and Expenditure Report, Research and Analysis Division, National Housing Authority of the Philippines.

CHAPTER 7

SOCIO-ECONOMIC IMPACT

1. Evaluating the Overall Project Impact on Income and Employment

Although the generation of income and employment was not the primary objective of the Project, the Appraisal Report did indicate that the Project was expected to have some impact in this area. In this chapter we shall try to evaluate project impact in two different ways. In the present section we will try to evaluate overall project impact by comparing changes in income and employment of project participants with the corresponding changes experienced by a control group of families which is matched as closely as possible with participants. If differences are found between the two groups (after they have been matched statistically) this will indicate a potential project impact on income or employment. Care must be taken in the interpretation of these results as this is not a true experimental situation and other factors unrelated to the project might have produced the apparent "project impact." If differences are found, other methods should then be used to susbtantiate whether it is plausiable to assume they were due to the effect of the project (this is called "triangulation"). In fact, as will be seen, very few statistically significant differences were found between participants and control groups so the conclusion is that with a few possible exceptions, there was no evidence of the project having produced an overall impact on income or employment. However, given the interest in potential project impacts in this area, a number of different analyses were conducted to try and identify possible impacts on certain subgroups. The results of these tests, mostly negative, are presented in the following sections.

In Sections 2.1 and 2.2 an evaluation is presented of the impact of the Project components which were specifically designed to generate income and employment. In this case it is possible to make inferences about causal relationships on the micro-level (i.e. how many people in the project were employed during the construction stage), but it is usually not possible to evaluate the net employment or income generating impacts on the economy. We may demonstrate for example that X person/years of employment were generated during the construction of the houses. The research design does not permit, however, an evaluation of whether these jobs were taken by people who were previously unemployed (and hence represented a net increase in employment) or whether labor was diverted from alternative construction projects so that there may have been no net change at the national level.

1.1 Research design for evaluating overall project impact on income and employment

The analysis of overall project impact is based on the longitudinal study in which a sample of project participants and a control group were interviewed at 3 points in time (see Annex 1 for a detailed explanation of the design of this study). In analyzing overall impact on income, multiple regression analysis was used to control for initial differences between the control and experimental groups, and determine project impact by examining the coefficient of the dummy variable representing project status. (See Annex 1, Section 4 for a detailed explanation of the logic of this method of analysis). The nature of the analysis is such that one can make inferences as to whether or not the project has had an effect but that it is not possible to determine statistically what caused the effect.

Given the fact that we did not have any very precise hypothesis as to the way in which the project might affect income, it was decided to conduct independent analyses of project impact on total family income, family earned income, earned income of the household head, total earnings of secondary workers and family earnings per worker. In addition, we also look at possible effects of labor force participation. The results of each of these analyses is presented in the following sections, at the end of which the overall conclusions are discussed.

1.2 Project impact on total family income (earned income plus income from other sources)

Table 7.1 shows absolute and relative changes in total family income of participants and the control group for 1976 (before the project began), 1979 and 1980. It can be seen that the absolute change between 1976 and 1980 was greater among the participants than the non-participants but that the rate of increase was slightly higher for the Control Group. This was because the initial income of the Control Group in 1976 was lower. It would appear from this table that there is no clear evidence of an overall positive impact of the project on income and that in fact the rate of income increase appears to have been lower for Participants.

Table 7.1: TOTAL FAMILY MONTHLY INCOME FOR PARTICIPANTS AND CONTROL GROUP. SANTA ANA. 1976-1979, 1980 (Colones)

	1976	1979	1980	Change 1976-1980 Absolute	%
Participants	344	504	603	259	75.3
Non-Participants	276	433	493	217	78.6

Note: Figures have been rounded.

1.3 Project impact on family earned income

Table 7.2 shows absolute and relative changes in the family earned income of participants and control group in Santa Ana between 1976 (a few months before families moved into the project) and 1980.

Table 7.2: CHANGES IN AVERAGE MONTHLY FAMILY EARNED INCOME 1976,1979, AND 1980

(Colones)

	1976	1979	1980	Change 1976-1980 Absolute	%
Participants	335	470	569	234	70.0
Non-Participants	258	390	451	193	74.6

Note: Figures have been rounded.

Although participants on average enjoyed a larger absolute increase in income (234 colones compared with 193) the percentage increase was slightly lower for participants than for the control group. The difference between the absolute and percentage positions is due to the fact that the average income of participants was higher in 1976 than that of the control group. The more rigorous regression analysis corroborated the fact that there was no observable difference in the rate of change of income of the two groups, in other words, it was not possible to detect any overall project impact on total family earned income. 1/

1.4 Project impact on earned income of the household head

Like family earnings, it was not possible to detect any project impact on the earnings of the household head. 2/

1/ See Table 3 of Annex 1.
2/ See Table 4 of Annex 1.

1.5 Project impact on total earnings of secondary workers

According to Table 7.3, both in absolute and percentage terms the Participants seem to have done better than the non-participants with respect to earnings of secondary workers. Using the regression analysis, we estimated that on the average the secondary workers among the participating families between 1976 and 1980 experienced an increase in earned income of about 77 colones more than their counterparts in the Control Group. (See 4.11 of Annex 1.).

Table 7.3: CHANGES IN TOTAL MONTHLY EARNINGS OF SECONDARY WORKERS

(Current Colones)

	1976	1979	1980	Change 1976-1980 Absolute	Change 1976-1980 %
Participants	160	196	254	94	58.8
Non-Participants	100	161	145	45	45.0

1.6 Project impact on monthly earnings per worker

Table 7.4 presents information on monthly earnings per worker for the Participants and Control Groups in Santa Ana in 1976, 1979 and 1980. In each of the 3 periods the average earnings of Project Participants are higher but the rate of increase is lower for Participants than for the Control Group. Using the same regression analysis, we found that between 1976-1979, although on average there was no significant difference in the absolute amount of earnings between the Participants and the Control Group, there is some evidence that the project had a positive effect on the earnings of the lower income group, the effect being

less as income increased. The regression results are included in Table 7 of Annex 1 and are illustrated in Figure 4. It can be seen that for average earnings up to 219 colones, the Participants experienced a positive effect compared with the Control Group, but that above this level the effect was negative. This includes about 85 percent of the Participants. However, as this effect was only found for the 1976-1979 period, it is not clear how important it is or how it should be interpreted. A similar result was found in Sonsonate but in this case for the 1977 and 1980 period. As the effect appeared in both cities over a 3-year period it can be very tentatively hypothesized that lower income workers may achieve some positive impact from the project during the early stages but that this may not continue over a longer period.

Table 7.4: MONTHLY EARNINGS PER WORKER IN SANTA ANA. 1976, 1979, and 1980

(Colones)

	1976	1979	1980	% Change 1976-79	% Change 1976-80
Participants	159	248	309	55.5	94.3
Non-Participants	130	211	275	62.3	111.5

Note: Figures have been rounded.

1.7 Project impact on labor force participation rates

Table 7.5 presents information on the average number of employed persons per family in Santa Ana in 1976, 1979 and 1980. The average

number of employed persons falls steadily for both Participants and the Control Group but the rate of decline is very slightly faster for the Control Group. As a consequence, whilst both groups had an average of 2.4 workers per family in 1976, by 1980 the average had fallen to 1.9 for Participant families and 1.7 for Control families. The difference between the two groups is too small to attach any great importance to it.

Table 7.5: AVERAGE NUMBER OF EMPLOYED PERSONS PER FAMILY

	1976	1979	1980	No. of families
Participants	2.4(291)	2.0(241)	1.9(232)	119
Non-Participants	2.4(384)	2.0(320)	1.7(283)	162

A great difference is found when we examine labor force participation of spouses. Table 7.6 shows that whilst there was no change in the number of project spouses who were in the labor force (employed or looking for work), there was a drop of almost 30 percent in the proportion of control family spouses in the labor force (a decline from 60 to 44 in the sample). There was a corresponding increase in the number of control spouses who declared themselves to be housewives in 1980. An interesting question is why many more control spouses should drop out of the labor force. To ask the question in the other way: was there anything in the dynamics of the project which encouraged spouses to remain in the labor force?

Table 7.6: EMPLOYMENT STATUS OF SPOUSE

	Participant			Non-Participant		
	1976	1979	1980	1970	1979	1980
Employed	45	48	49	50	55	43
Unemployed	7	3	3	10	5	1
Economically Active 1/	52	51	52	60	60	44
Housewife	28	23	23	46	49	63
Others 2/	39	45	44	56	53	55
TOTAL	119	119	119	162	162	162

1/ Employed plus unemployed.
2/ Mostly non-existent. Otherwise, none of the above categories or no information.

At this point we do not have the answer but one hypothesis is that the need to cover the increased housing payments gave spouses in the Project more incentive to continue working or to enter the labor market.

Conclusions: The overall impact of the project on income and employment

The findings presented in this section are inconclusive and difficult to interpret. Although there is no evidence of an overall project impact on income or employment, there are some tentative indications of potential impact on certain sub-groups. It was found, for example, that poorer participant families seem to obtain a proportionately greater increase in total income than do the slightly wealthier families. It also appears that the earnings of the secondary workers in the project are higher than those in the Control Group. An analysis of labor force participation suggests that some of these income differences

may be due to the fact that more secondary workers in the Control Group left the labor force than did among Participants. This was a particularly strong effect with respect to spouses where there was a marked drop in labor force participation in the Control Group but almost no change among the Participants.

None of the above effects were very strong or consistent. It seems that much of the income difference (in as far as it exists) is due to higher labor force participation among secondary workers and particularly spouses. We do not yet have sufficient evidence to know whether this difference is due to selection biases (for example that Participants are more motivated to continue working) or whether the effect is produced by something which happens after families enter the project. As stated earlier, all of these possibilities require further research It should also be stated that El Salvador was undergoing an extremely difficult economic and political period during the years covered by the research, so that it is difficult to know whether the observed impacts are a product of this particular socio-political context or reflect some more general characteristics of the Project.

2. Impact of House Construction on Income and Employment

One of the ways in which the project was expected to influence income and employment was through the generation of demand for labor during the construction of project houses. It was anticipated that construction could affect income and employment in the following ways:

(i) Persons hired directly or indirectly by the contractors who build the core units.

(ii) Contracts which the FSDVM supported cooperatives receive from subcontractors or directly from the FSDVM.

(iii) The value of manpower contributed by participants during the mutual help stage.

(iv) Labor hired by families to complete the construction of the house during the self-help stage.

It is possible there will be indirect effects such as the increased demand for consumer goods as a result of the additional employment generated during the construction phase, but these indirect effects will not be considered in this section. We will now summarize the results of studies which try to estimate the magnitude of the four factors outlined above.

2.1 Hiring of Labor by Subcontractors

Table 7.8 presents information on the employment generated by subcontractors in the "La Periquera" project in Santa Ana.

According to the information provided by the contractor, there were a total of 85 persons hired full time for a period of 12 months, and a total of 111 piece-rate workers who worked for 8 months. This represents a total of 1,908 man/months.

In all, the sub-contractor paid C 478,368 in wages to his personnel. The highest daily wage was C 50.00 paid to the engineer and the lowest was C 5.60 and C 5.62 paid to watchmen, metal workers, laborers, cleaning personnel, water carriers and mechanical assistants. The average daily wage for all personnel was C 8.11, giving C 250.00 per month.

Table 7.9 provides similar information for the projects in Sonsonate and Usulutan. In these two projects 1,330 and 420 man/months of employment were generated.

Table 7.8: ESTIMATION OF SALARIES, TIME EMPLOYED AND NUMBER OF WORKERS EMPLOYED BY THE CONTRACTOR IN THE PROJECT "LA PERIQUERA" IN SANTA ANA

Personnel	No. of People	Daily Wage	Months of Work (4)	Total Income (3)
Engineer (1)	1	C 50.00	12	C 18.000
Assistant to engineer and topographer (1)	2	30.00	24	21.600
Equipment operator (1)	2	16.00	24.	11.520
Foreman (1)	3	14.00	36	15.120
Mechanic (1)	1	10.00	12	3.600
Carpenter (1)	2	9.54	24	6.868
Storekeeper, assistant to topographer, equipment operator, driver, deputy foreman (1)	11	8.00	132	31.680
Office Assistant (1)	1	7.00	12	2.520
Clerk (1)	1	6.80	12	2.448
Assistant foreman (1)	3	6.00	36	6.480
Watchmen, mechanic, unskilled workmen, water carriers (1)	57	5.62	684	115.322
Assistant mechanic (1)	1	5.60	12	2.016
Bricklayers (2)	60	10.00	480	144.000
Plumber (2)	6	10.00	48	14.399
Bricklayers assistant (2)	15	9.00	120	32.398
Unskilled workers (2)	30	7.00	240	50.397
TOTAL	196		1.908	478.368
Average Daily Salary		8.11		

Note: (1) Hired for 12 months. Monthly salary = daily salary x 30.
(2) Hired for 8 months. Monthly salary = daily salary x 30.
(3) Total income = Monthly salary x months of work
(4) Months of work = No. of people x months contracted.

Source: Department of Supervision and Construction. Income estimated by Unidad de Evaluacion Socio-Economica.

Table 7.9: ESTIMATION OF SALARIES, TIME EMPLOYED AND NUMBER OF WORKERS EMPLOYED BY THE CONTRACTOR IN THE PROJECTS "SENSUNAPAN" (SONSONATE) AND "EL NARANJO" (USULUTAN)

	SENSUNAPAN				EL NARANJO			
	No. of People	Daily Wage	Total Income	Months of Work	No. of People	Daily Wage	Total Income	Months of Work
Engineer	1	C 50.00	C 10.500	7	1	C 50.00	C 12.000	8
Topographer	1	40.00	8.400	7	1	30.00	4.500	5
Assistant to Engineer	1	30.00	7.260	7	1	30.00	8.300	8
Foreman	2	14.00	5.879	14	1	14.00	3.359	8
Bricklayer, plumber	44	10.00	65.997	220	16	10.00	24.000	80
Carpenter	2	9.54	3.472	14	1	9.54	2.289	8
Storekeeper, assistant to topographer, equipment operator, driver, deputy foreman	9	8.00	15.111	63	3	8.00	5.759	24
Bricklayers assistant	40	9.50	56.997	200	8	6.00	7.199	40
Watchman, mechanic, unskilled workmen and water carriers	110	5.62	129.816	770	27	5.62	36.518	216
Assistant storekeeper, Watchmen	4	5.60	4.076	28				
Equipment Operator					1	16.00	3.839	8
Assistant to topograher					3	10.00	4.500	15
TOTAL	214		307.508	1.330	63		112.263	420
Average		7.80						

2.2 Income Obtained Under the Contracts Received by the Cooperatives

The cooperative "El Progreso R.L." received 3 contracts for the manufacture of wash-sinks, doors, angles and butts, respectively (Table 7.10). In the case of the wash-sinks the laborer was paid C 10.00 per sink and he was responsible for paying his assistant. The contract was for 1,000 sinks and the total income paid to manpower was therefore C 10,000.

We have no direct information concerning the number of persons who were employed, but the contract specified delivery of 200 units per month, which suggests that it was not possible to employ more than 10 workers with their assistants, for 5 months. The only member of the cooperative who worked on this contract was the foreman; in other cases the cooperative acted as an intermediary for hiring non-member workers.

On the assumption that one worker and his assistant built one sink per day, the contract would produce a total of 60 to 70 man/months of work.

In contracts for wooden articles, a group of approximately 10 carpenters were employed, all members of the cooperative. We have no information concerning the total wages paid or the duration of the contracts, but given the fact that the total value of the two contracts was C 16,570, it was probable that wages would have a total value of between C 5,000 and C 10,000 and that the contract would have lasted from 4 to 6 months, thus giving a total of between 40 and 60 man/months.

To resume, it can be estimated that the 3 contracts received by the cooperatives created employment for 20 to 30 persons, giving a total of 100 to 130 man/months. Income paid to manpower had a value of between C 15,000 and C 20,000.

Table 7.10: CONTRACTS RECEIVED BY THE FSDVM COOPERATIVE DURING THE CONSTRUCTION OF THE HOUSES IN "LA PERIQUERA" (SANTA ANA)

	Number	Value of the Contract	Payment per Unit to the Worker	Total Payment to Labor	Estimated Number of People Employed	Man Months
Cement Washing Units	1.100	C 32.000	C 10.00	C 10.000	10 to 20	60 to 70
Doors	1.125	11.700		5.000 to 10.000	10	40 to 60
Doors and Doorframes	451	4.870			10	
TOTAL		48.570		15.000 to 20.000	20 to 30	100 to 132

Source: Cooperative Development Program. Estimates of payment to labor, persons employed and man months calculated by the Unidad de Evaluacion Socio-Economica.

2.3 The Value Credited to Families for Their Participation in Mutual Help Work Days

In accordance with the methodology of the FSDVM each of the 1,190 families who were to receive a housing unit had to participate in the mutual aid stage. There were 1.5 work days per week during approximately 3 months. This represents a total of approximately 64,260 work days (2,461 man/months). In the pre-cost study for the project a value of C 359,267 was assigned to the mutual aid stage, equivalent to an income of C 5.5 per day or C 302 per family during the entire stage.

2.4 The Value of Labor Hired by the Families During the Self-Help Phase

It is estimated that on average families hired C 480 of labor for the completion of the house during the self-help phase. This figure includes both hired labor and the imputed value of unpaid family labor.

2.5 Estimating the Total Value of Income and Employment Generated

Table 7.11 summarizes available information on the amount of income and employment generated during the contractor phase, cooperative subcontracts, mutual help and hiring of labor by the family to complete the house. It is estimated that on average the construction of each house generates C 1243 ($497) of income and 6.4 months of employment. For the total project of 7000 units and in 1980 prices the construction of the houses will generate approximately $4,160,000 of income and 3700 person/years of employment. The largest contribution is labor hired by the family during the self-help phase which represents 38.6 percent of income generated. This is followed by the contractor phase with 32.9 percent and the mutual help phase with 27.5 percent.

Table 7.11: ESTIMATION OF INCOME AND PERSON/MONTHS OF EMPLOYMENT GENERATED BY HOUSE CONSTRUCTION IN THREE FSDVM PROJECTS

	La Periquera Santa Ana	Sensunapan Sonsonate	El Naranjo Usulutan	Mean Income/ Months Per Family
Number of Units	1190	563	435	
Contractor Construction				
Person/months of employment	1908	1330	420	1.7
Income (Colones)	478.368	307.508	112.263	410
Construction Cooperative				
Person/months	130			0.1
Income (Colones)	20.000			9.1
Mutual Help				
Person/months	2471	1673	1342	2.5
Income	392.267	217.580	174.550	343
Labor Hired by the Family				
Person/months	2600	1200	950	2.2
Income (Colones)	571.200	270.240	208.800	480
TOTAL				
Person/months	7109	4203	2712	6.4
Income (Colones)	1.428.835	795.318	495.613	1243
Project Cost	3.921.818	1.817.087	1.504.136	3310
Investment Required to Generate C 100 of Income	364	228	303	316
Investment Required to Generate One Month of Employment (Colones)	551	432	554	516

It should be noted there is considerable variation from one project to another. This is largely due to differences in the topographic nature of the project site and the resulting capital/labor ratio of the contractor. When we compare the three projects we find that in Sonsonate contractor payment to labor represented 16.9 percent of project costs whereas the figure was only 12.2 percent in Santa Ana and 7.4 percent in Usulutan.

3. Impact of the Project on Expenditure Patterns

It had been hypothesized that one negative effect of the project might be that increased expenditures on housing would force families to spend less on food, medicines and other basic necessities. Table 7.12 compares changes in expenditure patterns of participants and the control group between 1976 and 1980. It can be seen that monthly expenditure on housing increased significantly more for participants than for the control group. The increase for participants was from C 3.95 per capita in 1976 to C 5.7 per capita in 1980. However, there was no observable difference between Participants and the Control Group in changes of expenditures on food, medicine or transport. One of the reasons why participants were able to spend more on housing without being obliged to reduce expenditures on items such as food is that participation in the project tended to increase the amount of income transfers received from relatives. Kaufmann (1981) estimated that on average a female headed household would receive an additional 40 colones ($16) a month in transfers if the household participated in the project.

These results suggest that to date there is no evidence that the project is producing negative effects by forcing families to reduce expenditures on other basic necessities.

Table 7.12: CHANGES IN PER CAPITA EXPENDITURE ON HOUSING, FOOD, MEDICINE, AND TRANSPORT BETWEEN 1976 AND 1980. COMPARISON OF PARTICIPANTS AND CONTROL GROUP, SANTA ANA

	Per Capita Monthly Expenditure of Participants (Colones)			
	1976	1980	% Increase	Statistical Comparison With Control Group
Housing	3.95	5.7	+144	Participants have greater increase.
Food	24.6	55.0	+223	No statistical difference between the two groups.
Medicine	0.83	3.03	+365	No statistical difference between the two groups.
Transport	1.14	2.50	+219	No statistical difference between the two groups.

4. Impact of the Project on Social Participation

Table 7.13 summarizes information on participation in different types of organization for Participants and Control Groups in 1980 and the changes from 1976. This information was difficult to obtain given the extremely turbulent political events of 1979 and 1980 in El Salvador. Many people did not wish to provide information on the groups to which they belonged, particularly those types of group in any way related to politics. For this reason the information must be interpreted with caution as it almost certainly underestimates participation levels.

It can be seen from the table that in general, participation in formal organizations tends to be low. Ten percent or less of both Participants and Control Groups claimed to be a member of a sports club, cooperative, trade union or political party. About one third of each group claimed a religious affiliation. The major difference in 1980 was that about three quarters of Participants were members of a community organization compared with only about 5 percent of the Control Group.

When we examine differences between the two groups in terms of changes between 1976 and 1980 no clear pattern emerges. The main effect of the project has been to involve most families in a community organization but there has been little noticeable effect on participation in other types of organizations. There is no clear explanation of why participation in religious organizations should have dropped, except the fact that the Church was actively involved in the political changes during the past two years so that many people may not have wished to admit religious affiliation.

Table 7.13: PARTICIPATION IN ORGANIZATIONS 1976-1980.
COMPARISON OF PARTICIPANTS AND CONTROL GROUP. SANTA ANA

Type of Organization	Control Group	Participants	Control Group	Participants	Percent Difference in Change Participants-Control
Sport	8.6%	10.7%	+4.3%	+7.2%	+2.9
Religious	37.7	35.2	+8.6	-7.0	-15.6
Coop	7.3	5.6	+0.2	-0.5	-0.7
Trade Union	4.6	10.2	0	-1.5	-1.5
Political Party	0.9	0.5	-3.1	-1.5	+1.6
Community Organization	5.2	73.5	+1.5	+48.2	+46.7
Average	10.7	22.6	+1.9	+7.4	+5.6

5. Project Impact on Crowding

Table 7.14 compares the project and the control areas in terms of indicators of crowding. The lot area per capita is less than one quarter of that in colonias ilegales and only slightly higher than for tugurios. The number of square meters of roof per capita is substantially higher than tugurios and slightly higher than mesones but almost 60 percent less than colonias. A similar pattern emerges when we compare persons per room. The tugurio is worse with 4 persons per room followed by the meson with 3. The project only has an average of 2.5 persons per room whilst the colonia is lowest with 2 persons.

Table 7.15 summarizes the effect of the move to the project on crowding. It can be seen that in the project families have an additional 4.6 m2 of roof area per person and the number of persons per room drops by about 2. This means that the move to the project meant a significant lessening of crowding. The changes are very substantial because Participant families had larger than average families when they lived previously in mesones. Their average household size was 6.1 compared with an average of only 3.7 for all meson families. Also, the participants in their previous dwellings seemed to have a lower than average roofed area than the control group, about 28.5 m2 against 38.2.

6. Families Opinions About Project Impact on Their Lives

Families in both the Project and Control Groups were asked to indicate whether compared with 2 years ago their present living conditions were better, the same or worse. Table 7.16 presents the results for both Participants and Control Groups. A summary

Table 7.14: INDICATORS OF CROWDING. COMPARISON OF THE PROJECT WITH INFORMAL HOUSING. SANTA ANA 1980.

	Median Values for 1980			
	Meson	Colonia	Tugurio	Project
M^2 lot/person		50.0	12.0	13.6
M^2 roof/person	9.3	14.3	6.0	9.6
Person/room	2.9	2.0	4.1	2.5

Table 7.15: CHANGES IN DENSITY INDICATORS FOR PROJECT PARTICIPANTS. COMPARISON BETWEEN PREVIOUS RESIDENCE IN 1976 AND PROJECT IN 1980. SANTA ANA.

	Changes 1976-1980 in Median Values	
	All Project Participants	Participants Who Previously Lived in Mesones
M^2 Roof Area/Person	+ 4.8	+ 4.8
Persons/Room	- 2.5	- 2.2

Table 7.16: OPINIONS ABOUT CHANGES IN CONDITIONS DURING THE PAST TWO YEARS. COMPARISON OF PARTICIPANTS AND CONTROL GROUP. SANTA ANA. 1980

		Compared with two years ago your conditions are now:			Summary	
		Better %	Same %	Worse %	Percent	100= Best Possible 0 = Worst Possible
Family Income	Control	51.8	21.8	24.6	61.9	
	Participants	62.8	20.9	16.3	73.2	
Employment	Control	26.1	43.9	30.1	48.3	
	Participants	29.1	48.5	22.4	53.5	
Health	Control	27.9	56.4	15.6	56.2	
	Participants	37.2	43.4	19.4	59.1	
Family Expenses	Control	9.8	12.9	77.3	16.5	
	Participants	7.7	7.7	84.7	11.9	
Social Ambience	Participants	79.1	9.7	11.2	8.4	
Summary of Changes	Control	28.9	33.7	36.9	45.7	
	Participants	34.2	30.1	28.7	49.4	

index was developed to permit a synthesis of the different opinions to obtain an overall view of change.

When we compare the proportion of families who consider their conditions have improved we find a slightly higher proportion of participants (34.2 percent compared with 28.9 percent) on all 4 indices. The greatest differences between participants and non-participants occur with respect to family income (11 percent more participants consider they are better off) and health (9.3 percent more participants consider they are better off). This indicates some tendency for participants to feel the project has improved their living conditions. The area in which participants are most positive refers to social ambience where 79.1 percent felt there had been an improvement since they moved to the project.

CHAPTER 8

EVALUATING THE EFFICIENCY OF PROJECT DESIGN

1. Differences between the FSDVM and traditional housing designs

The continual search by the FSDVM to find ways of making shelter accessible to the low-income population has led to continuing experimentation with alternative designs and has created a number of major differences between FSDVM housing and traditional public housing programs. The following are some of the main differences:

(a) Single family units which are not completed by the FSDVM but are sold at various stages of their development to be completed by the family. Families have the option to receive a serviced lot with sanitary core; a serviced lot with a sanitary core and additional constructed area or a "complete house" with about 33 m^2 of construction.

(b) Grouping of houses around parks or green areas which both serve as access to the interior plots, and also provide semi-private recreation areas. These mini-parks are supplemented by larger open spaces in the community which are used for a variety of community activities.

(c) High priority is given to the provision and design of public spaces, and these occupy a higher proportion of the land area than is the case in most housing projects.

(d) Significant reductions in the proportion of land assigned to vehicular traffic and parking.

(e) Priority is given to creating the projects on a human scale with studies being conducted to determine the needs and priorities of the families who will live there. This is reflected in

the lot sizes, width and quality of streets, level of infrastructure, etc. Plot areas are normally between 60 m2 and 75 m2 with a frontage of 5 meters and a depth of between 12 and 15 meters. The plots are designed to be as regular in shape as possible. Most circulation is achieved by means of footpaths with a very limited vehicular access. In some projects there is only one paved access road. Footpaths have a width of between two and three meters with an additional depth of about 2.5 meters at the front of the plot on which there is originally no construction (although most families tend to build on this later).

(f) Water and sanitary services are provided in the traditional way with individual water connections and water borne sanitation. Electricity and drainage are also provided on each plot.

2. Methods used by the FSDVM to reduce costs

As has been shown in other chapters (see Chapters 4 and 13) the costs of FSDVM shelter units are substantially lower than those of any public or private housing produced by more traditional methods. These reductions can be attributed in part to the design developed by the FSDVM and its efficient execution by participants, and in part to the economies the families themselves are able to make during the house consolidation process. The following are some of the key factors in achieving cost reductions:

a. Land Use and Services. Land is one of the scarcest resources in El Salvador, particularly in the Metropolitan Area. This is due to the absence of any land use policy and to the retention of large areas for

speculative purposes by major land owners. This has led the FSDVM to seek methods to reduce the impact of land values on the cost of the total shelter package. The following are some of the methods used:

(i) Design of projects with the highest possible densities consistent with maintenance of a satisfactory living environment. This is achieved through: increasing the sales area, two storey units, reduction of the frontage of the lot, concentration of lots around communal areas and design of larger projects. Experiments have also been conducted with provision of communal services such as clothes washing facilities. The success of these policies is shown by the fact that sales area as a proportion of total project area has increased from 50 percent in the first projects to almost 70 percent in the newest projects (Table 8.1). At the same time there has been a steady increase in the number of units per hectare.

(ii) Studies conducted by the FSDVM have shown that the number of units per hectare is less when rectangular-block designs are used with vehicular roads surrounding each block. 1/ It has also been found that 4 storey multi-family dwellings do not always increase densities (and in fact often have lower densities than the FSDVM) but do increase costs. For example IVU's major 4 storey ZACAMIL project only achieves densities about 10 percent higher than recent FSDVM projects and almost 50 percent lower than the FSDVM 2 storey project (See Table 8.2).

1/ Design is discussed in detail in FSDVM, "Analisis del proceso evolutivo y soluciones autonomas" Vol I and II, 1976/79. This study compares the FSDVM with public and private housing programs in terms of design and land use.

Table 8.1: SUMMARY OF COMPARATIVE DESIGN INDICATORS FOR FSDVM PROJECTS, IVU, FSV AND FNV

INDICATOR	Year / Institution / Project	1972 FSDVM SJP	1974 FSDVM PEP	1975 FSDVM PER	1975 FSDVM SEN	1977 FSDVM PRE	1978 FSDVM CON	1968 IVU AMA	1967 IVU ZAC*	1977 FSV OCT*	1973 FSV CRE	1977 FSV SJF	1977 FNV JSC	UNIT
Sales Area		48	50	59	66	69	62	62	15	21	60	49	38	% of Project
Public Areas		51	49	40	333	31	38	37	85	79	39	51	62	% of Project
Communal Areas		22	21	21	23	17	23	10	65	67	15	11	32	% of Project
Circulation		29	28	19	10	14	15	27	19	12	23	40	30	% of Project
Lots		77	79	81	64	78	40	92	-	-	41	56	-	Lots/Hectare
Units		77	80	83	69	82	140	92	94	55	41	85	86	Units/Hectare
Circulation Network		664	580	511	289	407	547	704	463	376	452	611	690	Meters/Hectare
Vehicular Network		68	32	65	11	47	22	96	60	66	107	99	83	Meters/Hectare
Pedestrian Network		597	547	445	289	360	525	608	403	310	344	512	607	Meters/Hectare
Solid Waste Disposal Pipe		7.9	6.0	4.2	4.1	4.0	5.4	4.9	2.9	9.2	5.5	8.2	8.8	Meters/Unit
Drinking Water Pipe		6.5	5.4	4.6	4.2	4.0	3.1	5.4	3.2	9.2	5.6	8.2	9.9	Meters/Unit
Construction as Proportion of Total Cost		69	31	45	37	40	50	58	71	60	68	60	79	% of Total Cost
Sales Price		2018	2510	3484	2900	3912	4058	4002	7000	15000	8763	9800	21950	

One of the main reasons why costs increase with vertical construction is that it is necessary to use stronger materials, leave larger spaces between buildings and increase the proportion of land devoted to public areas, thus reducing the saleable area.

(iii) Projects which group houses around small communal parks giving access to the interior houses obtain a more efficient land utilization. They also reduce infrastructure costs, particularly in terms of the number of meters of pipe required to provide services to each dwelling. This design also reduces the land devoted to vehicular traffic and again reduces cost in this respect.

(iv) Small green areas and parks are maintained more efficiently and used more intensively than large park areas. The smaller areas are designed on a more human scale and create a sense of responsibility on the part of the families for their maintenance. On the other hand large park areas tend to be less used and to require more expensive upkeep.

b. Design and construction methods used by participants. A poor family buying a house always faces a conflict between their needs and level of expectations and their purchasing capacity. The FSDVM has tried to design projects which satisfy basic shelter needs but at the same time have tried to limit the level of expectation of participants.

Families have been encouraged (in earlier projects) to bring materials from their previous dwelling, and in general to use cheaper materials.

Recently some of the studies have suggested that social pressures may exist in some projects for families to invest more in housing than they are able. It has been suggested that this might affect accessibility of poorer families although there is as yet no firm evidence on this point. 1/ Several proposals were made as to how this pressure could be controlled, among which:

(a) Actively encouraging families to bring materials from their previous dwelling (if they lived in a squatter settlement) and providing transport to help move the materials.

(b) Reserving sectors of the project for lower-income families so as to reduce the social pressures.

(c) Further research on low-cost materials (see the following section).

c. Amount of construction provided by the FSDVM. Initially it had been assumed that one way to reduce costs was to provide a serviced plot with no construction so that the families could construct in the way they chose, economizing on the types of materials used. Experience has shown, however, that poorer families prefer to receive a more completed house as they have difficulties mobilizing the resources to complete the construction. It has been the economically better off families who prefer to receive just the serviced lot.

This conclusion is also partly due to the fact that there is a much greater use of hired labor than had been supposed, so that cost saving through use of own labor is much less than had been expected.

These findings suggest the following policy options:

(i) Provide a more complete unit for poorer families.

1/ Unidad de Evaluation, "Demand Study in Apopa", FSDVM 1979.

(ii) Provide greater material and labor loans so that families can complete construction with funds provided within the project.

(iii) Find ways to encourage greater use of own labor.

d. Types of construction materials. The FSDVM uses traditional construction materials: bricks, cement, roofs of asbestos or cement, cement floors and windows of aluminum and glass. All of these are without any special finish. The FSDVM has conducted research on the development of construction materials using locally produced materials 1/ but the conclusion has been that although a certain cost reduction has sometimes been achieved, the results are very difficult to apply on a national scale as a study is required on each project site to determine which types of materials are available. The types of soil and rock vary considerbly from one region of the country to another.

e. Mutual help and self-help construction. As will be shown in Chapter 10 the use of mutual help and self-help construction makes an important contribution to cost reduction and project accessibility.

3. Design Innovations

Although the basic project design has proved very economic and accessible to participants, the FSDVM continues to experiment with new designs. Three reasons have motivated this reserch. First, rising costs of land and materials means there is a constant struggle to avoid cost escalation. Second, there still exists at least one fifth of the urban population who are too poor to be able to afford the FSDVM project options. Third, is it becoming clear that the market is

1/ The reserch project was supported by the Organization of American States.

segmented into a number of different sectors and there is no single ideal design which appeals to everyone. Two major innovations are currently being experimented with and will be discussed here.

The first of these is the provision of two-storey units. This has been tried in the "Conacaste" project in the North of San Salvador. The project is located in a densely populated low-income area and is very well located in terms of access to urban services. Because of its good location the cost of land per meter is relatively high. The plots have 4 meters of frontage and are 8 meters deep and are concentrated around a patio. The ground floor is provided through mutual-help construction and the second floor is built either by mutual-help or self-help. The lower floor area of construction is 25 m2 and it is possible to build an additional 20 m2 on the second floor. To date the reactions to this project have been very positive and the project has achieved the highest population density of any shelter design with acceptable standards in the country. The two storey design does however involve a certain increase of costs due to the more solid structural construction which must be provided. The project has been able to achieve a density of 140 units per hectare as compared with 94 for IVU's 4 storey apartment buildings and 82 which was the highest previous FSDVM density.

The second design innovation is the adaptation of a traditional and already existing meson (tenement house). The first project of this kind, "El Progreso", is located very close to "Conacaste". The meson was bought by the FSDVM, renovated and sold to the families who are presently renting. Originally, the meson had a large open area which was underutilized. There were two toilets and two showers and water taps. The physical

condition was very poor. The community was involved from the planning stage and participated actively in the construction and administration. The redesign involved the renovation of existing rooms, the construction of new rooms, a wash basin for each family and a shower-toilet for every two families. Ownership is now in the form of a condominium. It was possible to achieve all of this with an increase of only about 20 percent in the monthly payment. 1/

This project is potentially very attractive given the fact that more than 75 percent of the low-income population live in mesones, many of which are very well located. The cost of rehabilitation can potentially be less than for the provision of completely new units. The FSDVM studies 1/ have also shown the existing system of exploitation and social control which exists in the meson with the family being at the mercy of the landlord and his agent (mesonero). The transference of ownership thus also produces very positive social changes. One question which arises in the interpretation of the results of the meson experiment is the fact that this meson was relatively unique in that it had a large area of unutilized land which could easily be used to construct more rooms. This is normally not the case so the cost figures from this project may be somewhat misleading and may underrepresent the costs of applying this type of project on a large scale.

4. Evidence on Participants' Satisfaction with Design

Table 8.2 presents a comparison of participants' satisfaction with design and services as compared with families in other types of

1/ Aida Herrera and Francisco Altschul, "Proyecto Experimental de Rehabilitacion del Meson El Progreso", FSDVM 1979.

Table 8.2: SATISFACTION WITH HOUSE DESIGN AND ACCESS TO SERVICES. A COMPARISON OF THE FSDVM PROJECT, MESONES AND COLONIAS ILEGALES SONSONATE. 1979

	Proportion of families who are satisfied		
	FSDVM Project	Mesones	Colonias Ilegales
Area of Lot	79.5	N.A.	92
House Area	74.4	51.8	72
Materials	89.2	32.5	60
Toilet	66.5	48.2	22
Drinking Water	89.9	61.4	30
Access to Medical Services	55.7	79.5	42
Access to School	90.0	80.09	50
Public Lighting	5.7	94.4	34.7
Public Transport	56.3	84.3	24
Garbage Collection	15.9	17.6	2

Source: FSDVM Socioeconomic Survey of Sonsonate, 1979.

informal housing. In comparison with mesones (the type of housing where most project participants previously lived) the project is ranked as being more satisfactory except in terms of access to medical services, public transport, public lighting and garbage disposal. In terms of area of the house, materials, access to water and sanitation the project was considered to be superior.

When compared with the colonias ilegales the project is ranked more favorably except in terms of lot size and access to public lighting.

Participants also considered that the project had produced improvements in health and the social environment.

CHAPTER 9

SELECTION OF PARTICIPANTS

1. Description of the Selection Process

The selection system has changed over time, so this section presents a summary of the typical procedures, indicating what are the main changes which have been introduced.

(a) Demand studies to determine the type of project of most interest and to estimate the level of demand. Although this is not directly part of the selection process it is closely related. The reactions of the target population to the different types of option, and to participation in mutual help, have influenced the way in which the selection procedures have been implemented. In earlier projects such as Usulutan, where this study was not done before selection began, a number of major problems arose and selection criteria had to be modified half-way through the selection process. 1/ In the recent and larger projects, the demand studies have been quite substantial and have had an important influence on the design of the project, division of selection and implementation into various stages and to some extent the selection criteria. 2/

(b) Recruitment of community promotors. The promotors who will be responsible for the community development and mutual help programs are also responsible for the selection. It is

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1/ FSDVM/DEDRB, "Analysis of the Level of Demand for Low Cost Housing in Usulutan," DEDRB. Urban and Regional Report No. ME-2.

2/ For example, in Acajutla the demand studies recommended involving fishing cooperatives in the selection process. In Apopa (San Salvador) it was recommended that the selection should give special priority to squatter settlements.

believed that using this procedure will ensure more reliable information and accurate selection. One promotor will normally be employed for every 150 families in the project.

(c) Publicity campaign: The target population usually consists of all low-income families in the city who do not already own a house. To inform this group of the project, a publicity campaign is developed using radio, newspapers, cinemas, schools and community organizations. Personal visits are made by promotors to most of the major low-income areas.

(d) Orientation and pre-inscription: Interested families are invited to attend initial orientation sessions in which a brief description of the project is given. If they are interested they can complete a pre-inscription form and will be invited to a more formal orientation session. The procedures vary somewhat, and in some cases there will be no follow-up session but instead the family will be invited to complete an application form giving information on income, family size, etc. The form is very brief, normally only one page.

(e) Pre-selection: On the basis of the information provided on the application form, a pre-selection will be made. Normally the following criteria will be used: (i) income must fall within specified limits (for example between $40 and $240 per month); (ii) the family must live within the city.

(f) Socio-economic interview with pre-selected families: An individual interview will be conducted with each of the pre-selected families by one of the promotors. Ideally the

interview is conducted in the applicant's house so that a check can be made on the economic conditions of the family. Sometimes, due to time pressure, the interview is conducted in the FSDVM office (always in the city where the project is being started).

(g) Selection of participants and reserves: The final selection normally takes into account the following criteria: (i) income; (ii) stable family group (normally a couple with or without children or one parent and children), (iii) size of family group. Often it is required there are at least 3 or even 4 people in the family. In some cases a maximum size is also specified. (iv) The family does not already own a house; (v) the family lives within the limits of the city. In some cases there is a requirement that the family has lived in the city for at least two years (to avoid rural to urban migration). (vi) Willingness to participate in the mutual help construction work groups. (vii) In some projects the participants' prior experience in community development or other organizational activities may also be taken into account.

Until recently the selection was done manually with the preparation of large charts, but computer selection systems are now being developed. Participants are selected as well as reserves who will become eligible if participants drop-out. Selected families are advised by telegram and asked to come to the FSDVM office.

(h) Formal orientation sessions: Participants are invited to attend 4 orientation sessions in which detailed information is given on different aspects of the project. The meetings cover topics such as project costs and financial obligations of participants, legal aspects such as land tenure and ownership, social and community development.

The meetings are part of the selection process in that some families may decide to drop out of the project once they have become more informed as to the costs and the type of house.

(i) Division of participants into residential/work groups: The final stage of selection consists of dividing participants into residential groups of about 25 families. The families will live either in houses surrounding a small park, or will face each other along a road or pathway. All families will work together during the mutual help construction stage. Care is taken to make each group heterogeneous with families with different types of occupation, both male and female headed households, etc. Skilled workers will also be distributed as evenly as possible between groups.

2. Example of a Typical Selection Process: Santa Ana

Table 9.1 summarizes the main selection stages used in Santa Ana. One-thousand twenty-seven plots were available in the first stage of the project. After the publicity campaign 4950 applicants obtained a form inviting them to an initial meeting. Of these only 3674 actually came to the meeting and all took an application form, but only 2920 returned the

Table 9.1: PRINCIPAL STAGES IN THE SELECTION PROCESS. SANTA ANA. 1976.

No.	Activity	Description	No. of families
1	Publicity	Distributing general information on project	All low-income population
2	Invitation to meeting	Form giving date, time of meeting	4950
3	Orientation talks	Information on costs, type of house, etc.	3674
4	Application forms	Giving out application	3674
5	Return of application	Completed applications	2920
6	Pre-selection	Selection of applicants for socio-economic interview	2106
7	Socio-economic interview	Visits to houses to interview families	1804
8	Selection	Selection of participants on the basis of the interview schedule	1027
9	Formal orientation	Series of talks on different aspects of the project	898
10	Presentation of form indicating which option selected	Participants indicate which of the housing options they would like to select	808

Source: FSDVM, "Evaluation of the causes of absenteeism and resignation of families selected for the "La Periquera" project in Santa Ana". Unidad de Evaluacion. Report No. 1, May 1976.

application. Two thousand one hundred and six of the applicants were considered to satisfy the conditions required but it was only possible to conduct a socio-economic interview with 1804 of them as the others could not be located. One thousand twenty seven of these were selected for the project and asked to come to the formal orientation sessions but in fact only 898 did come and only 808 completed the form indicating which of the types of house they would prefer.

Thus out of 4950 initially interested families only 808 finally entered the project during the first selection phase. Even more families dropped out when the mutual help construction began. This shows that selection is a long and arduous process with high drop-out rates at all stages. The process must continue long after the original families were selected as there will be a continual need to replace drop-outs.

3. General Evaluation of the Selection Procedures

In general the FSDVM selection procedures seemed to have worked well in that they appear to be fair and to select families within the target income ranges. Considerable investment of resources is devoted to the initial orientation and personal contact, and although this may make the selection go somewhat more slowly, the end results seem to have been very satisfactory. A good indicator of the effective selection procedures is the fact that once families complete the construction of the house, the drop-out rate is extremely low (See Chapter 6) indicating that all families have the capacity to pay and are genuinely interested in the project. This combined with the fact that almost all families are within the target income range indicates the selection works well.

The following are some issues relating to selection:

(a) A major source of drop-out during the selection process are the families who cannot be relocated. Addresses are not very precise and as a result many eligible families are simply lost.

(b) Until now only earned income has been taken into account in estimating family income and capacity to pay. Studies by Lindauer and Kaufmann have shown that substantial income transfers take place within the extended family group and that these tend to increase by as much as 20 percent the income of many low income families, particularly female headed households. If these sources of income are taken into account, more poor families might become eligible for the project.

(c) There has been a continuing debate as to whether participation in mutual help construction should be a necessary requirement for selection. Whilst the whole logic of the FSDVM program is based on community participation, there is strong evidence that a substantial number of otherwise eligible families may be excluded from the project. This is a difficult issue but one which deserves further consideration.

(d) Despite the increasing size of projects, there has been resistence within the FSDVM to the computerization of the selection process as it was felt that the human element would be excluded and a purely mechanistic approach developed. The concern arises from the fact that the personal judgment of the promotor plays an important part in the selection. Ways

exist to permit the judgement of the promotor to be included whilst at the same time computerizing the selection. 1/ This issue will need to be solved as the size of the projects continues to grow.

1/ One simple approach is to code the promotors opinion as to whether the family should be selected or not. The selection would then be made in terms of the normal weighting of selection criteria, but individual attention would be given to all cases where the promotors opinion was inconsistent with the recommendations based on the weighting system.

CHAPTER 10

MUTUAL HELP AND SELF-HELP

Introduction

The basic principle of the FSDVM's work methodology is progressive development, which consists of building a house in stages, making use of the potential resources of the family. Various types of housing units are built; they include:

1. Sites with infrastructure.
2. Sites with services and a sanitary unit.
3. Sites with services, a sanitary unit and constructed areas which range from 18 to 36 square meters in size.

Each site has a surface area of between 60 and 90 square meters, a sewerage system, tap water, storm drains and individual electrical installations.

The construction process in FSDVM housing developments includes four stages:

1. Project preparation
2. Construction by contractors
3. Construction by means of mutual help
4. Construction by means of self-help

The present chapter only presents the results of the evaluation for stages 3 and 4.

Mutual Help

The housing units are built by groups of participants organized under the direction of a social worker and a building technician. Normally

there are between 15 and 25 families per group. The number of groups in each project and the basic criteria used to assign individuals to one group or another depend on:

1. The number of housing units to be built
2. The extent of specialized manpower available
3. The amount of work to be carried out by mutual help (square meters of construction).

At the same time as the housing units are being built, the work of promotion centers on two activities: work days and training meetings. The former take place on weekends, the main activity being the building of housing units; the latter are held once a week, their purpose being to discuss problems related to construction and to teach the techniques of working in groups and the importance of organization for the future development of the community.

The essential purpose of this stage of activity is to create the basic conditions necessary to render the housing units habitable, and from the social point of view to lay the foundations for the development of self-management by the community.

Self-Help

The fundamental aim of this stage is to consolidate the housing units. Generally this work is done individually by families; although in a few cases the mutual help organization used in the previous stage may continue.

THE RESULTS OF MUTUAL HELP

This section summarizes the most important findings of the studies of mutual help carried out in two FSDVM housing projects.

The FSDVM uses mutual help programs for two main reasons: to incorporate low-income urban sectors into housing programs and to

use the experience of working in construction groups to initiate a process of organization in the communities thus created. From the earliest days of the institution, all its housing projects, which to date include a total of 12,500 housing units, have been built by means of mutual help and self help programs. In this way, the combined efforts of participants and Foundation have made it possible to include families who would never have been able to participate in any of the public housing programs. The accepted and proven basic hypothesis is that these programs have facilitated the participation of families who, because of their scanty financial resources, have no access to public housing programs which require a down-payment as a condition of participation.

Mutual help has increased project affordability in two ways:

1. By the elimination of a cash down payment it has made it possible to include participants from the lowest 20 percent of the income scale. Of those who participate in FSDVM programs, only very few have any savings; in the El Pepeto project only 12 percent had savings, and in Santa Ana only 40 percent. These savings themselves are so modest that they can only partially cover the costs of house consolidation. It is interesting to note that 75 percent of participants in one of the projects (La Presita) consider mutual help to be the factor that made their participation possible.
2. Construction by means of progressive development is a low-cost method compared to the formal housing construction sector (see below).

2.1 The programming and execution of the work

The duration of the entire process is defined in terms of the number of man-months required for construction as carried out by a construction company. In most cases construction has been programmed to be completed in 1.5 man-months. In the earliest projects the work took longer than the schedule provided; Sensunapan, for example, involved variations of up to 35 percent depending on the work group involved. Table 10.1 shows different time periods required by work groups to complete various scheduled tasks.

The reasons detected are:

1. Bad organization and administration. Commencement of the work with incomplete groups and the existence of problems relating to the collection and distribution of materials.
2. Absenteeism of participants from work days. The highest rate of absenteeism was 15 percent.
3. Lack of trained manpower and/or tools. Inequitative distribution of specialized workers and of male and female participants.

Over this period of time a substantial improvement has been observed in the relationship between programming and execution. The San Miguel project, built later than the Sonsonate one, was completed 10 percent earlier than the programmed date. According to the technical experts, the contributing factors are:

1. A better distribution and assignment of individuals to groups with respect to trained manpower and sex.
2. Greater attention of social promotion to responsibility in work, and social awareness training.

Table 10.1: SCHEDULED AND REQUIRED TIME (WEEKENDS) FOR THE PERFORMANCE OF MUTUAL HELP CONSTRUCTION TASKS BY THREE GROUPS

SONSONATE 1977

Construction Stage	Scheduled Periods (Weekends)	Time Spent (Weekends) Group 9	Group 5	Group 24	Average
1. Layout & Staking	12	10	14	19	14
2. Excavation	13	10	14	19	14
3. Foundation (concrete)	15	10	14	19	14
4. Walls	28	26	30	33	30
5. Vertical Structures (roof)	16	33	33	35	34
6. Horizontal Structures (roof)	16	33	33	35	34
7. Sheet covering (roof)	16	33	34	36	34
8. Floor	15	20	20	47	29

3. The introduction of certain changes in technical aspects: (a) elimination from mutual help of 3 construction processes which require a certain level of expertise: marking out, excavations and the casting of foundation supports, and (b) the introduction of mechanized systems for the collection and distribution of materials.

2.2 Economic Aspects

Mutual help can be justified economically on the ground that it replaces a down payment and makes possible the participation of many poorer families who would otherwise be unable to save the C$450 which is the amount of the down payment on the house. The studies carried out show that approximately 60 percent of the participants who work on the project have a money-earning activity on weekends and that 45 percent of these families lose income when they have to participate. When the economic benefits of mutual help are estimated, 1/ one of the most interesting results is that mutual help generates a type of tax in which the better-off families lose money and the poorer families receive a net profit. 2/ In some of the projects this sacrifice led to certain open tensions both during the work days and at the training sessions. In Sonsonate, for example, many heads of families trained in construction work did not attend, and sent their wives to work instead, which directly influenced the length of time required to complete the work.

1/ "Evaluation of Mutual Help and its functions in the process of social change. The case of Sonsonate." FSDVM, July 1977.

2/ "An economic evaluation of sites and services programs and of construction by means of progressive development as housing production systems with the aim of reaching low-income groups, and their potential application as part of a national housing policy." FSDVM. July 1977.

Financing. In most projects at least half of the families have funds available for purchasing materials. Although the amount they receive as a materials loan is relatively low (varying from 150 to 900 colones), this serves as a stimulus to the families to produce the additional amount needed from other sources such as wages and savings. In one of the projects studied, El Pepeto, "A total of 50 percent of the families provide their own financing at the start of construction; of this 38 percent invest part of their wages, 12 percent use savings, and the rest a combination of the two". 1/

A cost-benefit analysis showed that the only other type of housing produced in the country which is comparable to that of the FSDVM sites and services programs, in terms of costs and quality, is the colonia ilegal. The colonia also reaches poorer families since the land can be acquired through a low monthly payment although with a shorter repayment period (averaging 7 years) and the family can build a more economical form of shelter if they wish. The major differences between the two systems are: the colonias, since they are built illegally, do not include basic urban services at the time they are built; these are incorporated later, after periods of time which vary from one settlement to another; nor are they assigned institutional financing for the acquisition and consolidation of the housing units.

1/ Analysis of the development process and of autonomous solutions. El Pepeto Project, Vol. II.

Social Aspects

From the social point of view, FSDVM hopes that in training participants in the techniques of group work mutual help will create an organizational foundation for the future development of the community.

The participants joined the program with no previous experience. Their basic aim is to obtain proper housing and to escape from the problems of the meson or squatter settlement. In the beginning, they show no evidence of collective attitude or feeling, and perceive the new community as a result of their own efforts and not as a result of the work of groups. As the first months of work go by, they begin to discover the importance of organization and of working in groups for the solution of problems, while maintaining their orientation towards immediate goals -- the construction of their housing. Studies have shown that once the mutual help process has finished a change in attitude becomes apparent; most participants then perceive it as a process which has made it possible for them to form relationships with other persons, to solve group problems, and, in general, accept it as a valuable experience and feel the need to continue working in groups. See Table 10.2.

To summarize, the conclusions concerning mutual help are:

1. It facilitates the participation of families from the lowest income sectors who have never been reached by formal housing programs. The elimination of the down payment is the major factor in enabling families from the lowest 20 percent of the income scale to join the projects.

TABLE 10.2: THE PURPOSE OF MUTUAL HELP. CHANGING ATTITUDES OF FAMILIES PARTICIPATING IN "LA PRESITA" PROJECT SAN MIGUEL

(T1 September 1978 - T2 April 1979)

	T1	T2
	%	%
To obtain housing	72	43
No down payment	8	5
To form relations with other persons	19	43
Work in groups	1	9
TOTAL	100	100

2. It mobilizes under-utilized resources, directing them towards the housing sector. Once the families have acquired a basic unit, help is usually forthcoming from relatives and others in the form of building materials or labor.

3. It facilitates, through house construction a process of education and consciousness raising which helps restore the concept of responsibilty. Some of the economic benefits which result from this include:

   (a) The default rate for FSDVM project participants is one of the lowest for any Bank housing project.

   (b) It has made it possible to use popular participation in order to obtain basic services and to maintain them. Organized pressure in the San Miguel, El Pepeto and Lamatepec projects has helped obtain urban services.

4. Two problems encountered in the mutual help process are:

   (i) Delays in completion of the houses mean many families must continue to pay rent for a longer period.

   (ii) For many families, who carry out income-producing activities on weekends, mutual help represents a constraint.

THE RESULTS OF SELF-HELP. THE PHYSICAL CONSOLIDATION OF THE HOUSING UNITS.

The FSDVM delivers to the families incomplete housing units to be completed over a period of time in accordance with the needs and financial resources of the families. By the time the families move into

the new housing units they will have built an average area of 30 square meters, the minimum area required to render the units habitable. From then onwards, a process of improvements and enlargements begins. This is generally carried out individually using the family's own resources.

Physical Development

The studies show that almost all families (90 percent) add extensions to the new housing unit. These generally include an additional bedroom which is completed before moving in, which more or less doubles the total constructed area.

The following is the order of priority for most families in the improvement of their houses.

(a) Enlargement of living space.

(b) Security and family privacy.

(c) Improvements in terms of physical (aesthetic) appearance.

This process occurs in approximately the same form and at the same speed in all the projects. At the end of two years the families have built a total roofed area of 35 to 40 square meters; of this total, 15 to 20 square meters correspond to the self-help period. It would seem that 35 to 40 square meters is an acceptable area to most of the families. Although there are differences in the initial areas the families receive, depending on the types of units, this acceptable area is usually achieved in two years.

After achieving the 40 square meters of roofed construction, most of the further improvements the families plan to carry out are related to the appearance and decoration of the house.

In general, the quality of housing in the FSDVM projects is considerably higher than in the informal settlements and of equal quality to that in the formal sector. (See Chapter 4).

Consolidation Costs

In order to test the efficiency of progressive development as a method of housing construction for the poorer economic sectors, studies were carried out which made a comparison between:

a) Expenditure made by the family in building materials and labor when building their housing unit themselves; and

b) An estimate based on budgets for materials and labor at market prices which the same housing unit would have cost the family.

In both cases studies show that the families save approximately 35 percent by building their houses themselves as shown in Table 10.3.

The factors contributing to this reduction in cost are:

1. The families buy the materials for the basic housing structures at prices lower than the corresponding market prices. For certain accessories for the house they use second-hand materials in good condition. Estimates show that a 30 percent cost reduction is achieved in this way.

2. There is a reduction of approximately 50% in the total cost of labor at market prices; this is due basically to two factors: (a) the use of labor by family members trained during the mutual help process; (b) the exchange of favors generated between members of the community. In general, both these methods are used.

Although estimates of labor costs for this project did not take into consideration the shadow price of manpower, studies carried out in Sonsonate estimated that labor in the form of mutual help resulted in a saving of 27 percent for the FSDVM, compared to labor supplied by contractors, and that even taking into account the longest delay encountered by certain groups (35 percent), the family saved 12 percent by building their own house instead of paying a contractor. The comparison includes only the direct cost of labor without adding the profit margin (assumed to be from 10 to 33 percent) obtained by the construction company.

Satisfaction with Housing

In all the projects built there has been a high level of satisfaction with all the different components of the housing unit; in most cases the level of satisfaction in the FSDVM projects is higher than that observed in colonias ilegales or mesones, but the latter competes favorably in terms of urban services, since it is located within the city limits.

The great majority of the participants (75 percent) stated that their new house had brought about many positive changes in the living conditions of the family. The reasons given include security of tenure, more peaceful surroundings, better conditions of hygiene and a better social ambience.

Table 10.3: COMPARISON OF THE COSTS OF HOUSING CONSOLIDATION BY MEANS OF DIRECT FAMILY INVESTMENT AND AT FORMAL MARKET PRICES. THREE TYPES OF HOUSING UNIT.

	Direct Family Investment * C$	Investment at Market Prices ** C$	Relative Saving
Basic Unit	1287	2030	37%
Sanitary Unit	1271	2370	46%
Site and Services	2821	3454	19%

* Real investment made by the family.
** Investment estimated on the basis of unit costs at formal market prices.

Source: Analysis of the development process and of autonomous solutions. El Pepeto Project. Vol. II. FSDVM. 1978.

CHAPTER 11

COST RECOVERY

The FSDVM probably has one of the best loan repayment records of any World Bank financed shelter program. As of July 1980 total payments in arrears represented only 2.3 percent of the total loan portfolio. The information is presented in more detail in Table 11.1. This shows that out of a total of C$15,276,400 which should have been collected by the end of June, 1980, only C$345,717 was in arrears. Table 11.2 shows that most of the amount overdue represents only 2 or 3 payments in arrears and only 22.4 percent of families are more than 90 days in arrears.

The FSDVM combines strict collection procedures with the development of a high sense of social responsibility. This has meant that although many families occasionally fall into arrears for short periods due to economic difficulties, very few fall so far into arrears that they cannot catch up. The situation is particularly impressive as the collection rate appears to have been improving over time. 1/ Once families become established in the project a definite payment routine is established and most families comply strictly.

The question should be asked as to why the FSDVM repayments position is so much better than most projects of this kind. The following reasons can be given:

1. The FSDVM is a private organization and is thus free from some of the bureaucratic constraints and political pressures which make collection more difficult in many government agencies.

2. The FSDVM is non-profit and does not have a large reserve so a high repayment rate is absolutely essential if the program is to continue operating. This means there is more motivation to collect than in many organizations.

1/ Since 1980 the default rate has begun to rise as a consequence of the political instability.

Table 11.1: DEBT REPAYMENT BY FSDVM PROJECT PARTICIPANTS. NUMBER OF FAMILIES IN ARREARS AND AMOUNT OWED BY PERIOD OVERDUE. ALL FSDVM PROJECTS AT JUNE 1980.

	Number of families			Amount Owed (Colones)		
Time Overdue	No.	Percent all families	Percent families in in arrears	Amount C$	Percent of total to be paid	Percent of outstanding debt
30 days	1185	26.6	33.1	114,971	0.8	33.3
60 days	844	19.0	23.6	75,526	0.5	21.8
90 days	549	12.3	15.4	49,098	0.3	14.2
120 days	334	7.5	9.4	31,507	0.2	9.1
150 days	208	4.7	5.8	20,695	0.1	6.0
180 days	120	2.7	3.4	14,011	0.1	4.1
Over 180 days	333	7.5	9.3	39,905	0.3	11.5
TOTAL	3572	80.3	100.0	345,717	2.3	100.0
Total families in the project	4450					
Total amount due to be paid				15,276,440		

Source: FSDVM 22nd report to World Bank on the Advance of the First Loan. July 1980.

Table 11.2: PROPORTION OF PARTICIPANTS IN ARREARS ON LOAN REPAYMENTS BY TIME AND NUMBER OF PAYMENTS IN ARREARS. ALL FSDVM PROJECTS.

June 1980

Time Overdue	Number of Payments Overdue	Cumulative Proportion of all Participants (%)
Over 180 days	7 or more	7.5
Over 150 days	6	10.2
Over 120 days	5	14.9
Over 90 days	4	22.4
Over 60 days	3	34.7
Over 30 days	2	53.7
Less than 30 days	1	80.8

Source: FSDVM 22nd report to World Bank on the Advance of the First Loan. July 1980.

3. Relatively tough and highly visible measures are used to pressure families to pay. Although it has rarely been necessary to resort to eviction, a lawyer will visit the family when they fall too far behind.

4. An important contributing factor has been the efficient administrative systems of the FSDVM. Records are computerized so that there is an up to date report on the payment status of each household. In addition the FSDVM employs fulltime collectors who visit each house every month. This helps create a regular routine as well as providing constant pressure on any potential defaulters.

5. The FSDVM devotes considerable time and resources to the development of community institutions and a sense of community responsibility for the maintenance and development of the project. One of the main ways in which this is achieved is through the requirement that all participants work together with their neighbors to construct the core house through mutual help. It is believed that the sense of responsibility for the project which is developed during this phase makes an important contribution to the low default rates. In several projects the community has even taken over the responsibility for the collection of the loan payments.

6. Until now the organization has remained relatively small so it has been easier to maintain a close supervision of debt collection.

7. Careful selection of participants to ensure they have the capacity to pay is another important factor.

Studies suggest that in a new project the default rate tends to be higher but that it drops once families become established in the community and the payment routine is developed.

One final point with respect to the relationship between community organization and loan repayment should be stressed. Although in general the community organizations have helped considerably with loan repayments, there have also been several cases where the communities have organized themselves against the FSDVM to resist making payments until certain basic services such as water were provided. The point is that an active community

is not a passive tool of program management, if the program is generally progressing well, as in the case in El Salvador, the community can be very cooperative, but if a project is facing delays or the community is not satisfied, it is quite likely that the higher the level of community organization the lower the rate of loan repayment.

CHAPTER 12

THE EFFICIENCY AND EFFECTIVENESS OF EMPLOYMENT AND INCOME GENERATING COMPONENTS

When the Bank project was planned it was intended to affect income and employment generation both directly and indirectly. The indirect effects were expected through the generation of employment during the construction process and through additional income which would subsequently be earned by people who had learned new construction skills during the mutual help construction phase. The impact of the construction of the houses on employment has been discussed in Chapter 7. As yet we do not have firm information on whether the new construction skills learned during the mutual help have had any subsequent effect on income or employment.

The purpose of this chapter is to review the direct effects of FSDVM programs designed specifically to promote income and employment. Initially it was intended to develop cooperatives and also to provide credit and technical assistance in small business development. The second of these activities was never really developed by the FSDVM although a small business loan program was developed by FEDECREDITO with financial support from the World Bank. This chapter will therefore be limited to a review of the FSDVM cooperative program. 1/ The FSDVM cooperative program is not intended purely as an economic program but is intended to have five main objectives:

1/ This section is based on FSDVM Report No. 17, "Effectiveness of the Cooperative as a Medium for Social Change and the Definition of the Alternatives for Action for the Community Enterprises Program", 2 Volumes, December 1977.

(a) To improve the economic conditions of the participating families.

(b) To promote self-management and community control 1/ of the means of production.

(c) To contribute to the development of an organizational base and to act as a unifying factor in the promotion of community and intercommunity organizations.

(d) To raise the level of social awareness.

(e) To develop model projects with the aim of demonstrating, firstly, that it is technically feasible to develop economic projects based on the concept of self-management, but that, secondly, the existing structural barriers seriously limit the possibility of applying the model on a larger scale. On the basis of this experience, it is hoped to convince and pressure decision making groups to eliminate or reduce some of these barriers.

The Impact of the Cooperative Program

The evaluation of the FSDVM cooperative program contains a chapter reviewing the experience of other cooperative programs. The review shows the tremendous difficulties which cooperatives have faced in trying to reach the low-income population. In fact most programs in both urban and rural areas have come to the conclusion that the lowest income groups are too high a risk and have concentrated their efforts on higher income groups. Despite this experience of other organizations, the aim of the FSDVM program is to reach the economically marginal groups. The report concludes:

> "...it is difficult to think of a less propitious condition for the development of a cooperative program. But this was the context in which FSDVM, without experience, with no fixed budget assigned to the program, and with very limited personnel, decided to undertake the development of cooperatives."

1/ The Spanish term "auto-gestion" can mean self-management of an organization by its members, or community control of such an organization; the term used will therefore vary according to the particular context.

The Number and Types of Cooperatives Which Have Been Organized

The analysis covers the period up to November 1977. Since then considerable progress has been made in experimenting with alternative forms of economic organization as well as in the founding of a number of new cooperatives. Tables 12.1 and 12.2 present the latest information available in September 1978 although the report itself only refers to those cooperatives which had been founded prior to November 1977. During the five year period from 1972 (when the first cooperatives were started) and November 1977 (when the analysis for this study was conducted) the FSDVM had created a total of 7 cooperatives, a marketing and sales center and an artesan school. At the time of the study the cooperatives had a total of 629 members. The experimentation with the cooperative model included savings and loan, consumer, agricultural and production cooperatives. Some type of cooperative exists in each of the FSDVM projects and in some cases as many as half the project families have been members (although in no case has a cooperative involved all families in a project).

Despite a promising start in 1972 the cooperative program suffered a certain degree of stagnation during the period 1975-1977. The total number of members fell from 637 in 1975 to 629 in 1977, and during the same period the social capital only increased from U.S.$11,400 to U.S.$15,314. During the same period one cooperative had to be closed and most of the others suffered serious administrative problems. In this context it is important to note that the same pattern of rapid growth followed by administrative problems and a slow-down, was observed in the other two major cooperative programs studied (FUNPROCOOP and FEDECACES).

The Economic Impact

The cooperative model was able to generate employment and income for 3.5 percent of the economically active population in the first six projects. Of these 2 percent obtained work for the first time. In absolute terms the number of people employed in the cooperatives in 1977 was 94 out of a labor force of approximately 2700 (in the first six FSDVM projects). It should be stressed that only three of the cooperatives were designed to create employment, the others being consumer or savings and loans cooperatives.

The Potential for Generating Employment and Income

Three production cooperatives were started by 1977, plus a technical training school which places graduates in work. The experience of the three production cooperatives can be summarized as follows: 1/

(a) A bakery and agricultural production cooperative in a small rural project

A total of 44 families live in this rural project in the center of one of the major coffee growing areas. Most of the families had previously been day laborers during the coffee season and largely unemployed during the rest of the year.

Initially it had been hoped to create an agricultural cooperative which could offer work to the majority of the families in this community. On the basis of studies of availability of land and the difficulties of

1/ Information was not available on the newly founded technical training programs.

establishing any type of agro-industry, it was decided that it would not be possible to start a major project in agriculture. However, 11 hectares of land were rented in 1975 and 12 people have been employed in the cultivation of maize and black beans (the former being used for the bakery).

Studies were conducted in 1975 on the consumption and supply of basic consumer goods, and on the basis of this study it was decided to start a bakery. A training course was given and as of November 1977, seven people were employed full time in baking the bread and a further 12 worked part-time on the distribution. Approximately US$120 of bread was sold every day and the seven bakers received the minimum wage. Distribution of bread was done on foot and the sales could probably be expanded if transport was available.

Studies so far suggest the bakery project is economically viable but with very little prospect of expanding beyond the present work force.

The agricultural project has been less successful and the main barrier has been the obtaining of productive land. The only land which could be obtained is 7 KM from the community and on a steep and wooded side of a volcano. Clearing the trees was expensive and the land is difficult to work and not highly productive. There are also major transportation difficulties. Despite the high level of unemployment, interest in the project was relatively low and 3 of the 12 workers had to be hired from outside the community.

Both projects have made an important economic contribution as they have been able to generate employment outside of the coffee harvest, which previously had been the almost exclusive form of employment.

(b) Building construction materials

At the time of the study this cooperative had temporarily been closed due to administrative problems and the FSDVM was considering the necessity of assigning their own administrator. Due to these problems it was not possible to obtain detailed information on the project.

When the cooperative was working it had two main sections, building materials and carpentry. Most of the building materials were bought by the FSDVM and the main outlets for carpentry were through FSDVM construction and the marketing center set up by the FSDVM.

In an earlier study of employment generation in the construction stage of the FSDVM projects, 1/ an analysis was made of the contracts received by the cooperative in the La Periquera project in Santa Ana. The cooperative received three contracts for the construction of cement washing units, doors, and the wooden frames for doors.

The contract was for 1000 washing units and the cooperative paid U.S.$4 to the worker for each one. Out of this the worker had to hire and pay his own assistant. On the assumption that a worker and his assistant could produce one unit a day, this first contract produced approximately 60 to 70 man/months of employment at a wage slightly below the minimum salary.

For the two contacts for wooden products (doors and surrounds) it is estimated that 40 to 60 man/months of employment were generated with total salaries of US$2,000 to US$4,000. Information is not available on the number of hours worked on the production of these wood items so it is not possible to estimate the daily wage.

1/ FSDVM, "The Effect of Construction and Mutual Help on the Generation of Employment and Income. The Case of the Projects in Santa Ana, Sonsonate and Usulutan." Report No. 4, September 1976 (Revised).

In summary, the project generated during the construction of the 1000 housing units a total of 100 to 130 man/months of employment with total payment to labor of US$6,000 to US$8,000. This represents the generation of approximately 3-4 days of employment and US$6 to US$8 of income for every unit built. Similar contracts were received from some of the other projects.

As the cooperative was highly dependent on the FSDVM, it is not clear whether it would be able to obtain independent contracts from other sources. The building construction industry is controlled by a number of large concerns and it might be difficult to break into the market. The FSDVM plans to build a maximum of 2000 units per year which means that possibly 30 people could be employed fulltime, but to make a more significant impact the cooperative would obviously have to seek contracts from other sources.

The experience of this cooperative indicates a number of serious administrative problems which must be faced. Carpenters are traditionally self-employed and very reluctant to accept discipline and regular hours. This made it very difficult to comply with contract dates for large orders and in many cases the lack of discipline was further complicated by a serious problem of alcoholism. Obtaining and controling of construction contracts also requires an efficient administrative system and this is likely to be a problem for a cooperative which is mainly employing unskilled or semi-skilled labor with a low educational level.

Despite these problems this type of cooperative clearly has considerable potential, particularly as the FSDVM construction and consolidation process offers a substantial and partally protected market.

(c) Dressmaking and Rugmaking

This project, started in 1974, was in 1977 the largest employment generator of the FSDVM cooperatives with 50 women and 2 men working fulltime. The project mainly caters to the tourist trade, making high quality embroidered shirts and dresses, rugs, etc.

Table 12.3 which is based on interviews with members of the cooperative suggests that between 1974, when the cooperative started, and 1977, the incomes of women who had previously been working increased by 70 percent 1/ whilst the average income for all members (including those who had not previously been working), more than doubled. The majority of those previously employed had been working on sub-contract for a middleman and had earned a very low wage on a piece-rate basis. The cooperative, by setting up its own marketing system had been able to eliminate the middleman and hence increase profits to the workers.

The cooperative seems to be economically viable but will be dependent upon the FSDVM for a considerable time to provide many administrative and marketing skills. The dependence upon the FSDVM and the difficulties of replicating a project which depends on the tourist trade raise questions as to how far this model could be applied on a significantly larger scale.

(d) Savings and Loans

To the end of 1976 (the last available figures at the time of the study) the cooperatives had total assets of C$350,000 (about

1/ Given an increase of about 40 percent in the Cost of Living Index in that period this represents a net increase of about 30 percent in real income.

US$140,000) and a total of C$36,287 (US$15,314) of social capital (savings and shares of members). As most of the members are too poor to have previously had access to a cooperative it is difficult to obtain a yardstick against which this figure may be measured.

The studies show that many of the savings and loans cooperatives, after a rapid start, later suffered from the effects of a lack of administration and planning, and, as a result, their growth rates were reduced by a very high default rate. This rate was steadily being reduced by more careful management but, at the time of the study, was still requiring most of the cooperatives to consolidate their position rather than pursue further growth.

The Cooperative as a Way of Creating Self-Government and Community Control of the Means of Production 1/

Neither of the two rural projects had been able to obtain suitable land for developing agricultural production, and the families are dependent on the big landowners. Bakeries and other similar projects can create a certain number of sources of employment, but the only way real financial autonomy can be achieved is through control of the land. An analysis of the economic structure shows that there has been a progressive concentration of land ownership and a continual dispossession of the small farmer. 2/ The other organizations working in rural areas have encountered the same problem, and it will be extremely difficult for the FSDVM to counteract this long-term trend. Without access to land it is almost impossible to achieve community control on a significant scale in rural areas.

1/ This section is taken from a report written in 1978. The political situation has changed dramatically since then.

2/ See Volume 2 of original report in Spanish.

So far, none of the cooperatives have been able to become completely independent of the FSDVM. In each case the FSDVM covers certain costs and provides certain administrative or marketing services which the organization is not yet capable of covering. In all the cooperatives the educational level of the members is extremely low and this has made training in administration and marketing, etc. more difficult. It is seriously questioned whether it is feasible to expect that the cooperatives will become completely independent and self-managing when the educational level is so low. Many persons consider that it is inevitable, at least for a few years, that the FSDVM will have to participate directly in the administration and management of the cooperatives.

The interviews carried out in Plan Piloto show that almost all the members consider that the FSDVM must participate directly in management and administration, either because the community does not possess the necessary skills or because it is desirable to have someone from outside to resolve conflicts. All the work of creating designs and defining markets is done by the FSDVM, and since sales have been oriented towards the tourist markets and the middle class, it is difficult for somebody from the community to acquire all the necessary skills.

Another obstacle to self-management is the paternalistic attitude of the members, many of whom still feel the need for a patron, and have looked upon the FSDVM as a surrogate for their previous patron. For many families, access to a patron is their only hope in a case of emergency, such as the illness or death of a member of the family, and they therefore have little desire to give up this source of security.

In the opinion of the promotors, another reason for the lack of progress towards self-management has been the FSDVM's failure to define clearly its policy. For a long time, self-management was not considered an objective of major importance and more time was spent on creating new cooperatives or finding markets for the products. It is possible that there would have been much more progress in this respect if self-management had really been defined as a high priority objective.

Another limiting factor is the complicated legislation and organization of the cooperative movement in El Salvador. These regulations and the way in which the regulating body operates 1/ make it very difficult for the social sectors with which the FSDVM is working to understand and comply with all the regulations and the philosophical aspects.

Organizational Development of the Cooperatives and their Potential as an Integrating Force in the Community

All the cooperatives have at one time or another undergone serious administrative and/or financial crises. The amount of time and energy devoted by the FSDVM and the Cooperative Division to the resolution of these problems has seriously reduced the time available for developing a stronger community base. The lack of administrative controls often meant the cooperative was not able to provide up-to-date information to the members on the financial situation and this caused suspicion and lack of confidence in the directors.

1/ Annex 2, Monograph 3, Section 5.3 of main report.
2/ INSAFOCOOP (Instituto Salvadoreno de Fomento de Cooperativas).

Despite these set-backs in many of the cooperatives the directors have made substantial progress in acquiring organizational skills, but their low-level of education slows down the acquisition of many formal skills and this is likely to imply a close involvement by the FSDVM for a longer period than had been originally envisaged.

Although the FSDVM perceives the cooperative as a medium for community integration, most of the members only see its economic functions and this has made the process of education a slow and difficult one. Despite the lack of interest in wider issues by most members, substantial progress has been made in the preparation of a core of leaders in each cooperative who have a deep understanding of the wider goals of the cooperative.

None of the cooperatives have served as a base for the development of other community organizations, and in most cases relations between the cooperative and other community organizations have been non-existent or in some cases even negative. Most of the members see the cooperative as a way of resolving their own financial problems and are unwilling to allow too many new members to join, so as not to reduce their own access to employment. This has caused, in some cases, resentment among the rest of the community who consider the members to be a privileged elite keeping themselves aloof from other less fortunate families. This tendency has been re-inforced by the fact that in many communities a particular group has managed to gain control of the cooperative and has tried to exclude other groups from entering.

Despite the weakness in developing relationships within the community, the cooperative has proved to be the most successful means yet developed by the FSDVM for developing relationships <u>between</u> different

communities. The economic motivation, which serves as a divisive factor at the level of the community, has served as a bond between groups in different communities (for example dress-makers, carpenters, etc.)

In terms of achieving the FSDVM's wider organization goals the cooperative has the advantage that it is not necessary to restrict membership to one geographical area and hence has greater organizational flexibility than a housing program which is innevitably restricted to given geographical areas.

Development of Social Awareness

For the FSDVM the creating of a higher level of social and political consciousness is one of the main goals of the cooperative. Until now the small scale of the cooperatives has limited their direct confrontation with the realities of the political and economic system; therefore, there has been little opportunity for education of the members in the understanding of these wider problems. The following are indications of the ways in which the cooperatives may be starting to encourage understanding of these problems:

(a) Many of the dressmakers and embroiderers who work with "Plan Piloto" had previously worked through middlemen and received very low pay for many hours of very hard work. Through their experience in the cooperative they have realized how much money the owners of enterprises make. Several of them say that the owner obtains all the profits from the workers' labor and that they have no share in the profits.

(b) Recently, when there was a disagreement between the members of "Plan Piloto" many of the members talked about organizing a strike. Then they began to think about who they were striking against, and realized they would be striking against themselves. This provided an important lesson in the concept of control of the means of production. This is an important experience because many of the members still do not feel they are the owners of the cooperative; this is one of the reasons for the conflicts between the members and the board of directors.

(c) In the rural cooperative, where the more direct control by the land-owners over access to land and employment would seem to bring the cooperative more directly into conflict with the economic realities, it is much more difficult to detect any changes in the level of social and political awareness of the members. It is suggested in the report that this is due at least in part to the fear of the members to openly express their views as this would probably prejudice their future employment opportunities.

(d) In several cooperatives, the members have seen the effects of official intervention in the control of the cooperatives. Several of the members have expressed their doubts as to the suitability of the cooperative in its present form as a means of achieving social change, since their scope for action is limited by legal and official controls. There has been talk of the need for a different type of organization that would really allow community autonomy and would make it possible for the community to convert the cooperative (or communal enterprise) into a more powerful social force.

The Principal Causes of the Problems Faced by the Cooperative Program

The problems of the cooperative program can be divided into two groups: external problems caused by structural factors beyond the control of the FSDVM, and internal problems caused by the methodology of the FSDVM and the ways in which it operates.

(a) External Factors

The most serious problem is the acute poverty in which most of the families live, and the economic and political factors that maintain this inequitative structure. Poor families are unable to accumulate capital by investing their savings in a business. Also, when a family is living on the breadline, inevitably it has to think about its more pressing needs and thus cannot concern itself with the more general situation. It is for this reason that most of the families consider the cooperative as a means of solving their own financial problems and would therefore like to limit the entry of new members in order to protect their own access to jobs.

In rural areas, the monopoly control of land and of the means of production greatly reduces the possibility of achieving improvements and community control, and serves to reinforce an attitude of dependency. The two rural cooperatives have been unable to acquire land for agricultural development.

The low income levels also reduce the market for production cooperatives. Many of the families spend 80 percent or more of their income on housing and food and have no money to spend on other things. The low level of internal demand in the country means that many projects will have to be oriented towards the export market, but this is a much more difficult field for a small company to get into.

The high level of unemployment is an extremely serious problem for the participants and this is particularly true in rural areas. The abundance of labor enables the employers to pay subsistence wages and the situation provides a dramatic illustration of the effects of having a reserve army of the employed. In many cases, landowners do not even comply with their legal obligation to pay the minimum wage, and the workers, since they have no alternative, have to accept the conditions imposed.

The political situation also is unpropitious for a program oriented towards social development and community participation. The possibilities for forming grass-roots organizations and the open discussion of political matters are severely limited.

The legal and philosophical structure of cooperativism in El Salvador also creates problems. The philosophy is too sophisticated for most of the members to comprehend, nor is it directly applicable to

the Salvadorean situation. Some of the administrative requirements for the formation of a cooperative are excessively demanding and it is therefore questioned whether cooperatives are really the most appropriate means of achieving the economic and social development of the poorer sectors.

(b) Internal Factors

In the opinion of the personnel of the Community Enterprises Department, the most serious internal problem has been the FSDVM's failure to define its policy with respect to the cooperative program. This made it impossible to systematically develop a working strategy, and has been one of the causes of many of the other problems. This lack of clear orientation is still felt, and is evident in the lack of attention to education programs, in the low priority given to the definition of a systematic methodology aimed at achieving self-management and in the lack of criteria to aid in the selection of the type of project to be carried out.

In almost all the cooperatives, the administrative systems have been inadequate, and at least at one time, the FSDVM had no control over the finances involved. In almost all cases this lack of control led to financial losses, and on several occasions to accusations that somebody had taken personal advantage of the situation.

There has been very little continuity of promotors. This is due in part to the limited budget of the Department and also to numerous changes in the personnel.

In the early stages of all the savings and loan and consumer cooperatives, there was great interest in increasing the volume of loans

or credit. As a result credit was given to many persons whose need for such credit was acute, but who were not able to repay. Almost all the cooperatives have high arrearage, and many of the debts are unrecoverable. This has led to a serious loss of capital and has created a negative atmosphere. Obviously the FSDVM cannot simply ignore these debts, but the effect is that the directors of the cooperatives have to spend a great deal of time and effort to loan repayment.

In their eagerness to develop more cooperatives, the FSDVM pressured those interested to find other families, in order to obtain the number of members necessary to legalize the cooperative. The result has been that many cooperatives started with a very weak base and in one case the cooperative never recovered and had to be closed down, while in almost all the others the organization is still suffering the results of this initial hastiness.

In many of the cooperatives a situation has developed where the organization is dependent on the FSDVM, because the cooperative is unable to cover all its administrative costs. The FSDVM often provides personnel without charge, or directly pays other expenses such as rent, transport or machinery. In the short run this policy may be justified to give the cooperatives an initial impulse, but in the long term it can lead to economic dependence. As it is the FSDVM still makes many of the important decisions concerning marketing, investment, etc. In the inteviews with FEDECACES it was emphasized that this policy of covering certain costs was, in their opinion, one of the main mistakes they made at first, and they recommended that the FSDVM should avoid falling into the same trap.

The FSDVM has not been able to devote sufficient time to member education and as a result many of the members only see the economic aspects of the cooperative and are unaware of its social functions.

Although this was not evaluated in the present study, there is concern within the Department that the emphasis of the training courses is excessively "developmentalist" and does not give sufficient weight to criticism of the present economic and political system.

In the past, there was poor coordination between the program and the Social Action Division. This problem has been solved, but it meant that many of the cooperatives were not properly integrated into the social development policy of the FSDVM.

There were various changes in the directors and advisors assigned to the cooperative program, and this led to a certain lack of continuity in policy and orientation.

Table 12.1: DETAILS OF FSDVM ASSOCIATED COOPERATIVES WHICH WERE OPERATING IN SEPTEMBER 1978

Name	Activity	Founded	Members	People Employed	Daily Income (Colones)	Social Capital	Total Capital
Plan Piloto	Dressmaking	1974	60	59	6.00	22,000	66,650
La Semilla de Dios 1/	Artesan products of wood, leather, etc.	1977	58	116	7.00	1,892	1,892
El Conacastal	Bakery	1975	56	10	5.00	2,079	51,079
La Victoria	Savings and loan and consumer cooperative	1975	383	3	7.00	14,922	16,147
Liberacion	Savings and loan and consumer	1977	70	-	-	6,714	6,714
5 de Noviembre	Savings and loan and consumer	In the process of being formed	90	-	-	6,618	3,618
TOTAL			717	188		C$51,225 ($20,490)	C$145,650 ($58,260)

1/ This cooperative is not associated with an FSDVM housing project.

Source: Departamento de Empresas Comunitarias. FSDVM. Information prepared at the request of IBRD, September 20, 1978..

Table 12.2: DETAILS OF COOPERATIVES AND OTHER TYPES OF COMMUNITY ENTERPRISES BEING FORMED BY FSDVM IN SEPTEMBER 1978

Name	Activity	Members	People Employed	Daily Income (Colones)	Functioning
Agricultural production group "Coloquil"	Agricultural production	19	19	6.00	Yes
Cooperative "La Periquera"	Not yet defined	18	-	-	No
Production and consumer group "Sensunapan"	Consumers cooperative	32	-	-	No
Chicken farm "El Vaticano"	Chicken rearing	16	16	3.00	Previously operated
Supermarket "Del Hogar"	Consumption	-	6	8.00	Yes
Artesan School, Santa Tecla	Making toys and dolls	12	12	7.00	Yes
Fishing cooperative "El Maculis"	Fishing	80	70	?	Yes
Cooperative "Las Conchitas de Hilo"	Making hammocks	20	20		
TOTAL		235	143		

Source: Departamento de Empresas Comunitarias. FSDVM. Information prepared at the request of IBRD. September 20, 1978.

Table 12.3: THE ESTIMATED IMPACT OF THE PLAN PILOTO SEWING COOPERATIVE ON THE INCOME OF ITS MEMBERS DURING THE PERIOD 1974-1977

	Monthly Income of Members Who Were Previously Employed	Monthly Income of Members Who Were Not Previously Employed	Average Monthly Income of All Members
	Colones Per Month	Colones Per Month	Colones Per Month
Income before entering the cooperative	116.00	0	70.20
Income after entering the cooperative	197.50	138.20	174.00
Increase	81.50	138.20	103.80
Number interviewed	26	17	43

Note: The total number of members at the time of the study was 50, but 7 could not be interviewed.

Not all members entered at the same time so it is not at present possible to estimate the annual increase in income of members, as the cooperative has continued to grow rapidly the best assumption would probably be to assume the average person has been working with the cooperative for one and a half years.

CHAPTER 13

A COMPARISON OF THE FSDVM PROJECTS WITH ALTERNATIVE SHELTER OPTIONS IN THE FORMAL AND INFORMAL HOUSING MARKET

Introduction

It was argued in Chapter 1 that traditional housing programs both public and private virtually do not reach to the poorest 50 percent of the urban population. The poorest half of the population and in fact nearer to 70 percent must rely upon the informal housing market for the provision of shelter and urban services. It was shown in Chapter 6 that the FSDVM projects are able to reach down to about the 20th income percentile (and in some cases slightly lower) so that they offer a potentially attractive option to a large sector of the urban poor.

In this chapter we will compare the FSDVM projects with alternative forms of shelter in the formal and informal market. The comparison will be made in terms of cost, quality and the benefits which are purchased for a given amount of money. On the basis of this analysis the following chapter will draw policy conclusions for a national housing strategy designed to reach the urban poor.

1. Cost and accessibility

In 1977 Richard and Bamberger 1/ compared the monthly cost to participants of all types of formal and informal housing potentially accessible to the low-income population of San Salvador. The results of this analysis are summarized in Table 13.1. The third column estimates the lowest income percentile who can afford each of the

1/ Jim Richard and Michael Bamberger, "Economic Evaluation of Sites and Services Programs and Their Accessibility to Low-Income Groups in El Salvador." FSDVM. Report series on the evaluation, No. 16. July 1977.

Table 13.1: ACCESSIBILITY OF FORMAL AND INFORMAL HOUSING PROGRAMS TO THE URBAN POOR. SAN SALVADOR. 1977

Institution	Type of Housing	Lowest percentile who can afford this option
Tenement housing (mesones)	Poorest quality	6
Extra-legal subdivisions (colonia ilegal)	Poorest quality	10
FSDVM	Basic core unit	24
Tenement Housing	Adequate quality	24
IVU (Instituto de Vivienda Urbana)	Marginal housing in squatter areas (discontinued)	27
Extra-legal subdivisions	Adequate standard	42
FSV (Fondo Social para la Vivienda)	Normal program (1975-1978)	48
IVU	2 bedroomed houses	52
IVU	4 bedroomed houses	Beyond 60th percentile
IVU	Apartments	Beyond 60th percentile
FSV	Normal program (1978-1982)	Beyond 60th percentile

Source: Jim Richard and Michael Bamberger, "Economic Evaluation of Sites and Services Programs and Their Accessibility to Low-Income Groups in El Salvador", Table 2.15, FSDVM Report Series on the Evaluation Program. No. 16. July 1977.

options. According to these estimates none of the public housing programs were affordable to families below the 48th income percentile and most were only affordable to families above the 60th percentile. These conclusions are also supported by a comparison of cost figures for different projects (Table 13.2). The figures show that the cheapest government housing costs at least twice as much as FSDVM project houses.

In terms of a comparison with public housing the conclusion is very clearly that the FSDVM is accessible to much lower income groups. The situation becomes more complicated, however, when the FSDVM is compared with the informal housing sector. In most cities between 50 and 70 percent of the population live in mesones (tenements), colonias ilegales (extra-legal subdivisions) or tugurios (squatter settlements). Table 13.1 shows that several types of informal housing are cheaper and more accessible than the FSDVM. The poorest quality mesones and colonias ilegales are accessible to families in the poorest 10 percent of the population, and even good quality mesones compete with the FSDVM in terms of their potential accessibility. The same finding is shown in Table 4.6 (Chapter 4) where estimates are made of monthly rent in different types of informal housing. The estimated median monthly rent in FSDVM projects was shown to be about 3 times the median rent in mesones, twice the median in colonias ilegales and 5 times the median for tugurios.

The conclusion is that although the FSDVM reaches down to poor families it is by no means the cheapest option, and there are several other forms of shelter which are more accessible to the poorest urban families.

Table 13.2: COMPARISON OF COST OF FORMAL AND INFORMAL SHELTER OPTIONS. SAN SALVADOR. 1978.

(Note future costs discounted at 12%)

	Cost (Colones)
Upgrading and Sites and Services	
FSDVM basic unit	3383
FSDVM serviced lot	3204
IVU squatter upgrading	4083
Traditional Housing	
IVU Multi-family units	14023
IVU Single family 2 bedroom units	8414
FSV Single family unit	7046
Informal Housing	
Extra-legal subsidivisions	5096
Tenement	2127
Squatter settlement	1255

Note: The information is based on a sample of typical units in each category.

Source: Marisa Fernandez-Palacios and Michael Bamberger, "An Economic Analysis of Low-Cost Housing Options in El Salvador" (draft), August 1979. DEDRB.

2. Comparing benefits received from different shelter programs

An obvious explanation of why some shelter costs more than others is that there are differences in the quality of the package of services rendered. An important question is to find a way of comparing the amount of benefits received per unit cost in different housing programs. A number of different methods have been developed during the El Salvador evaluation, some of which have already been referred to in earlier chapters. Some possible indicators are the following:

2.1 Comparison of quality/access to services

Table 13.3 presents a comparison of the quality of housing in mesones, colonias ilegales, tugurios and the project in 1980. It can be seen that with the exception of floor quality (many project houses have dirt floors) the project houses are of equal or better quality than the housing offered in the informal sector. Chapter 4 showed that in 1976 most participants were living in typical mesones (Chapter 4, Table 4.3) and that the move to the project produced a significant increase in housing quality whereas for families who continued to live in mesones there was no significant improvement (Chapter 4, Table 4.4).

This analysis suggests that the quality of project houses is superior to that of houses in the informal sector from which most families came.

When we compare access to services the pattern is not so clear. Chapter 5 showed that in many ways the mesones, with their central

Table 13.3: QUALITY OF THE HOUSE IN 1980. COMPARISON OF INFORMAL HOUSING AND THE FSDVM PROJECT. SANTA ANA.

	Percentage Score on Quality Index (100% = maximum)						
	Roof	Walls	Floor	Water	Sanitation	Light	Average
Meson	99	55	53	47	47	95	66
Colonia Ilegal	93	79	41	84	74	96	78
Tugurios	48	47	2	49	34	40	35
Project	100	99	48	100	100	100	91

Source: Chapter 4.

location, have better access to services than the project. The project does however enjoy an advantage in comparison to most colonias ilegales. In the case of most interior cities such as Santa Ana and Sonsonate, not too much importance should be attached to differences in distances from services as the cities are so small that the difference in distances to services between one type of community and another is usually less than one mile.

In general the project has a considerable advantage over other types of informal housing in terms of water quality and access, quality of sanitary services and, to a lesser extent, quality of building materials. The projects tend to be at a disadvantage in comparison with mesones in terms of access to public services such as transport, schools, hospitals, etc. In comparison with colonias ilegales the main disadvantage of the projects is in terms of a smaller lot size.

Direct comparisons of quality were not made in quite the same way with public housing programs but a similar type of comparison will be discussed in the following paragraphs.

The comparisons of quality become much more meaningful if we can compare them with differences in cost and value. If we find that a family can buy better quality housing in the project if they are prepared to increase the amount they pay for housing, this would not be a very dramatic conclusion. What is more interesting is to compare the "amount" of housing which can be obtained in different projects for a given quantity of money. In other words can a poor family obtain more housing services (benefits) in the FSDVM project than they can obtain elsewhere, for a given amount of money. This question has been approached

in two different ways in the evaluation. First through the use of cost-benefit analysis and second through the use of hedonic price indices and the estimation of utility functions.

A cost-benefit analysis was conducted of 9 housing options in San Salvador (Fernandez-Palacios and Bamberger) 1/ which represented the major options potentially accessible to low-income families. The analysis included the main types of housing offered by the informal market (mesones, colonias ilegales and tugurios); three types of upgrading and sites and services programs (2 FSDVM options and one government program through IVU); and 3 traditional public housing programs. An attempt was made to measure all costs and all benefits produced by these projects and on this basis to develop a number of indicators to compare them. Three of the basic indicators are summarized in Table 13.4. These are:

a. The internal rate of return. This means, in somewhat simplified terms, the "return" which a family could expect to receive if they bought (or rented) the different types of housing. The higher the rate of return, the higher the benefits received by the family. In general, the most attractive project is the one which offers the highest rate of return.

b. The net present value. This is the difference between total project benefits and total project costs for each year of the projects life (in this case projected over a period of 20 and 30 years). The figure is then discounted at the current rate of interest. If the NPV is positive this means that a family obtains more benefits from investing their money in the shelter option being studied than they could have obtained by investing the money in the bank. Again the higher the NPV the greater the net benefits obtained. To adjust for differences in the amount of initial investment, NPV is divided by total cost, so as to obtain a standardized comparison between projects.

c. The simple net present value is also included in the table for comparative purposes.

1/ Marisa Fernandez-Palacios and Michael Bamberger, "An Economic Analysis of Low-Cost Housing Options in El Salvador". (Draft) August 1979, DEDRB.

Table 13.4: COMPARISON OF HOUSING OPTIONS IN TERMS OF ECONOMIC RATE OF RETURN NET PRESENT VALUE AND NET PRESENT VALUE/TOTAL COST. SAN SALVADOR. 1978.

Housing Option	Rate of Return	Net Present Value (Colones)	NPV/Cost	Ranking on 3 Indicators (1 = highest)
Upgrading and Sites and Services				
FSDVM Basic Unit	33	4065	1.2016	1
FSDVM Serviced Lot	28	2329	0.7269	2
IVU Rehabilitation	18	1078	0.2640	4
Traditional Housing				
IVU Multi-family units	9	-1828	-0.1304	9
IVU Single family 2 bedroom unit	11	- 606	-0.0720	8
FSV Single family unit	13	452	0.0641	5
Informal market				
Colonia ilegal	22	1788	0.3509	3
Meson	12	1674	0.0141	7
Tugurio	20	373	0.2972	6

Source: Marisa Fernandez-Palacios and Michael Bamberger, "An Economic Analysis of Low-Cost Housing Options in El Salvador." DEDRB (draft). August 1979.

The nine projects are ranked from highest to lowest on each of these indicators and it can be seen that the pattern of ranking is consistent between the three indicators. In each case the FSDVM projects have the highest ranking with the colonia ilegal the next highest. The highest ranked public housing project is the IVU squatter upgrading program which is not a traditional program. None of the traditional government programs achieve a ranking higher than 5 on any of the indicators and in general they occupy the lowest positions.

The conclusion of this analysis is that the FSDVM projects produce the highest return (benefits) for each colon invested. For a family living in a meson (where most project participants previously lived), the rate of return will almost treble if the family moves to the project. If the family had to choose between moving to an FSDVM project and moving to a colonia ilegal, the rate of return would be higher for the FSDVM but the difference would not be as great. This underlines the fact, to which we will return in the next chapter, that the colonia ilegal is potentially an attractive option if some of its shortcomings can be reduced.

Conclusions

The analysis indicates that the FSDVM projects offer a very attractive option to low-income families. The projects are cheap enough to be affordable down to about the 20th income percentile, whereas most government programs do not reach below the 50th percentile. The FSDVM projects also compare favorably in terms of cost-benefit indicators such as internal rate of return and present value. In both cases it

appears that a family can obtain more housing services (benefits) for a given amount of money from the FSDVM than from any of the shelter options available in the informal housing market.

The option which most closely competes with the FSDVM appears to be the colonia ilegal. This offers considerably more space and hence more flexibility in styles of construction and types of materials used. The disadvantage of the colonia is the lack of direct access to water and sanitation services. In a large number of cases these services are provided after a certain period of time, but there is no guarantee. The colonia appears to be a more attractive option for higher income families who are able to arrange their own financing but compares somewhat less favorably with the FSDVM for the lower income families. 1/

None of the traditional public or private housing programs are able to compete with the progressive development model, and it is interesting to note that the highest ranked government housing program is the squatter upgrading project of IVU. It would seem that with the present Salvadorean income distribution and the relative costs of providing complete housing as opposed to the provision of serviced plots combined with progressive development construction, the latter option is without doubt the most attractive for the urban poor.

1/ This is evaluated by comparing the ranking of the projects on Efficiency Analysis, where it does not matter who receives the benefits; with the ranking on social analysis where higher weights are given to benefits received by poorer families. The relative position of the colonia declines where social analysis is used. See Fernandez Palacios and Bamberger, Part 3.

CHAPTER 14

RECOMMENDATIONS

1. Recommendations Relating to Present FSDVM Programs

The main conclusion of this report is that in general the FSDVM program is working well and, despite the extremely difficult economic and political context within which it operates, the program is achieving most of its objectives. It is within this generally positive context that the present recommendations are presented. They should be considered as ways to improve an already effective program rather than as basic criticisms of that program.

1.1 Project Design

1.1.1 Macro Level Decisions

Rural vs. Urban Location:

The FSDVM should continue to limit itself to urban projects. The demand is sufficiently high to absorb all of the Fundacion's resources for many years to come. Rural housing is also sufficiently different to require completely new types of programs in which the Fundacion has only very limited experience and no great comparative advantage.

Choice of cities:

The FSDVM should continue to distribute its programs among a large number of different cities, and hence to set an example to other housing programs which have tended to concentrate in the Metropolitan area.

Locations within the city:

Economies of scale, combined with the problems of finding affordable prime land suggest that the FSDVM should continue its recent policy of selecting large project sites, usually on the periphery of the city.

At the same time there is a large demand for housing located near to the center of the city, and where possible smaller projects should be developed on any centrally located land which can be found. The rehabilitation of tenements and the construction of 2-storey units are both potentially important models for providing inner city shelter.

Project size:

A number of pressures (mentioned above) suggest that priority must be given to larger project sites. Not least among the reasons is the problem of acquiring land. Often a large project should be broken down into a number of stages so that it becomes a sequence of smaller projects.

At the same time the FSDVM should continue to develop a number of smaller projects, both to permit continued experimentation and to take advantage of inner city locations if they become available.

1.1.2 Micro-level decisions

Options within a project

Larger projects make it more economic to offer a number of different options. There are several reasons for wishing to do this. The most important is that experience has shown that different types of families demand different types of shelter. This variation depends on factors such as income, family size, willingness to become involved in mutual help and self-help construction, preference for purchasing or renting, etc. The following are some of the main options which should, where possible, be offered within a project:

(a) Some variation in plot size. This could include both smaller plots for poorer or smaller families and larger plots for wealthier families or those with larger families. If plot sizes could be increased to 150 m2 (for some plots) this would compete favorably with the typical colonia ilegal.

(b) Include rental units as well as units for sale. There is a very large demand for rental units from small incomplete families and from people who are not yet established in the city. In some cases this could be a step towards ownership but in others it could be a permanent arrangement. One very interesting approach would be to encourage families to sub-let one or more rooms as a way of covering their investment costs, and of making the project more accessible to poorer families. This has been done successfully in other countries. 1/

(c) The two main types of option should be the serviced plot and the partially completed house. The serviced plots should normally be sold to higher income groups, but with some exceptions (for example encouraging families from tugurios to transfer the materials from their previous dwelling to the project).

(d) A final option should be units with certain shared services (such as clothes washing, showers, toilets, etc.). This could produce significant cost reductions. Initial experiments with these condominium models were not very successful but that was due to a number of specific problems which it should be possible to correct in the future.

New types of project:

The FSDVM should continue to develop both the tenement rehabilitation projects and the two storey units as both have a strong potential. The first is a way to take advantage of existing structures with favorable locations, and the second to reduce the cost of land and hence to give access to better located sites.

Lower service levels:

The FSDVM projects offer higher service levels than almost any other Bank supported sites and services project. All units have individual water

1/ The Dandora project in Nairobi is an example where poorer families are encouraged to construct additional rooms for renting. About 80 percent of dwellings have at least one room sublet.

connections and water borne sanitation. These service levels, which are required under Salvador's urban planning laws, mean that project costs are increased and the projects become less accessible to poorer families. Every effort should be made to find ways of experimenting with lower service levels and hence of reducing costs.

1.2 Project Finance

Larger loans for materials and for hiring labor

(a) In many projects construction has become paralized once the material loan from the FSDVM is exhausted. This is particularly a problem for poorer families. If possible the size of the material loan should be increased, at least for poorer families, so as to permit them to complete the construction.

In a free market the rationing of loans would be achieved by making financing available but at a relatively high interest rate so that families would have an incentive to first seek alternative sources. However, in the present case this would penalize the poorest families who most need help. An alternative would be to make larger loans available to poorer families but without increasing the interest rate.

(b) Until now loans have only been available for obtaining materials from the project material store. The FSDVM should also consider the possibility of allowing families to use the loans to purchase materials from other sources.

(c) As most families hire labor to complete the construction, the possibility should be considered of allowing loans also to be used to pay for hired labor.

Cross Subsidization

A number of positive social benefits are achieved by having a mix of families from different economic levels in the project. One possible approach is to permit the use of cross-subsidies whereby the better off families are charged higher prices and the surplus which is generated is used to reduce the charges to the poorer families. In the

past little success has been achieved with cross-subsidies, largely because the better off families are still sufficiently poor not to be able to pay much higher costs. Despite these problems it would be useful to consider the possibility of developing a cross-subsidy program. The following are some of the options:

(a) Charge higher prices for the serviced lots which are intended for higher income groups.

(b) Charge higher prices to families who do not participate in mutual help construction.

Financing of extra-legal subdivision development

The studies by Fernandez-Palacios and Bamberger, and Richard and Bamberger suggest that one of the main determinants of the higher rate of return to the FSDVM projects compared with the colonias ilegales is the provision of subsidized interest rates. At the same time it seems that the lack of access to financing may be one of the barriers limiting the access of lower income groups to many of the colonias. One suggestion deriving from this analysis is that the provision of more attractive interest and financing might make the colonias more accessible to lower income families and be an interesting alternative way to provide low-income housing. Although the program itself may be interesting it is not immediately clear whether the FSDVM would be the appropriate institution to provide the financing.

1.3 Project Implementation

1.3.1 Selection procedures

(a) In assessing capacity to pay, sources of income other than earned income should be taken into consideration. Female headed households in particular receive a high proportion of

their income from transfers, and taking these sources into account would make it easier for female headed households to become eligible for the project.

(b) Mutual help has been shown to be a barrier to participation in the project by certain groups. Although this is an important part of the program, consideration should be given to ways of permiting a certain proportion of families to enter without passing through this process. As suggested earlier, exemption from mutual help could possibly be linked to a cross-subsidy scheme whereby the exempt families paid higher prices for their house.

(c) The need exists to give more complete information on all housing costs at the time when families are being selected. It is important that families realize the total financial commitment they will have to make.

(d) In large projects a more active attempt might be made to seek low-income families. One possible way could be to reserve sections of the project for poorer families and conduct systematic campaigns in tugurios and other low-income areas to encourage families to participate. Active guidance could then be given on how to use cheaper materials.

1.3.2 Mutual help

(a) Although mutual help has proved quite successful and should be retained as a central part of the program, ways should be found to permit a certain proportion of families to enter without having to participate in mutual help.

(b) Large projects should be broken down into a number of phases so as to ensure that all groups begin with their full complement of participants.

(c) Although the development of a feeling of group identity is important, the attempt to make each group self-sufficient might mean inefficient utilization of the scarce skilled labor. A bricklayer may be working on routine manual activities in one group while at the same time another group has to pay money to hire a bricklayer. A way should be found to pool the skilled labor of a number of groups so that specialized workers can move from one group to another as they are required.

(d) The possibility should be investigated of permitting groups to work during weekdays as well as weekends so as to accelerate the completion of the work.

1.3.3 Self-help

(a) The use of cheaper materials should be actively encouraged by:

(i) Provision of transport to help people bring materials from their previous house.

(ii) Model houses, using cheaper materials should be on show.

(iii) Sectors of the project should be set aside for lower income families so as to encourage use of cheaper materials without feeling compelled to keep up with the Joneses by building to higher standards than they could afford.

(b) Research should be continued on the use of local materials.

(c) Loans should be made available for hiring labor as well as for purchase of materials.

(d) Families should be permitted to use their loans to purchase materials outside the project as well as from a material store if they can obtain a better price.

1.3.4 Employment generation

(a) The cooperative program should be continued with emphasis on the following:

(i) Reactivation of production of building materials with possible expansion into small construction companies which could be hired by the FSDVM or directly by households.

(ii) Production cooperatives. To achieve larger scale the idea of working on subcontract for larger national or international companies should again be considered. 1/

(iii) Consumer cooperatives should be continued as they offer several advantages: they can reduce the cost of basic commodities, generate employment and provide linkages with production cooperatives in other areas.

1/ The FSDVM has received various offers from international companies. For example the production of jeans or toys. In both cases a substantial market would have been provided and technical assistance and training would have been given. In both cases, however, the FSDVM would have had to make a very substantial investment which would have placed considerable constraints on the flexibility of the organization and would have made the whole of the FSDVM dependent on the sucess of this venture.

(b) Small business loans should be provided to support existing businesses and to encourage the growth of new ones. The program should probably include a certain level of technical assistance but not to such a level as to substantially increase the cost of borrowing.

2. Making Housing Accessible to the Urban Poor: Recommendations for a National Urban Shelter Policy

As part of the evaluation of the FSDVM, a wide range of studies have been conducted in other types of informal and formal housing programs. It is on the basis of these studies that the following recommendations are made. A number of general guidelines are suggested by these studies.

First, given the limited available resources, the policy should be to conserve and upgrade as far as possible the existing housing stock. Providing new housing stock tends to be much more expensive than upgrading and also tends to dislocate poor families to provide housing for higher income groups.

Second, there is a need to provide a range of different shelter options as different types of family have different requirements. The demand varies in terms of location, cost, tenure, level of services, etc. and an integrated program must cover a wide range of options.

Third, the programs should try to stimulate private initiative as a complement to government programs. Both the entrepreneur who builds houses for profit, and the household which can use own labor and resources should be encouraged. In many cases considerable increases in the housing stock can be achieved at a very low cost simply by stimulating, or removing barriers from private initiative.

Fourth, efforts should be made to encourage the mobilization of previously untapped financial and human resources. Studies have

shown that families, including very poor families, are able to generate considerable amounts of resources for house construction and improvement.

Fifth, if housing is to be financially affordable to the urban poor, it will be necessary to accept lower standards of services and construction.

Sixth, a national land use policy is absolutely essential. Land is so scarce and represents such a large component of the cost of the shelter package that the government must intervene to regulate the price and use of land.

2.1 Three main systems for producing shelter

A national housing policy must actively pursue the use of three distinct systems for providing shelter. These are:

(a) Upgrading of existing housing stock. Traditionally upgrading has been restricted to squatter settlements but similar strategies can also be used with tenement housing and extra-legal subdivisions.

(b) Sites and services. This includes both the model developed by the FSDVM and also a more dynamic regulation and encouragement of the extra-legal subdivision.

(c) Traditional single family and multi-family housing.

Table 14.1 describes the main characteristics of each of the types of housing within each system and we will elaborate on this in the following sections.

2.1.1 Upgrading existing housing stock

Upgrading has the advantage that it can improve the quality of the housing stock at a relatively low cost and relatively rapidly. It also has the advantage of ensuring that the benefits reach the existing

Table 14.1: MAIN COMPONENTS OF AN INTEGRATED LOW-INCOME URBAN SHELTER STRATEGY

System	Type of Housing	Location	Target Population Income Percentiles	Characteristics	Institutional and Financial Arrangements
Upgrading	Squatter settlements	Inner City	Lowest 20%	Irregular employment	IVU with strong public works component
	Extra-legal subdivision	Periphery	30 - 60	Wide variation	Regulatory. Some infrastructure and major financial component for self-help.
	Tenement	Inner City	15 - 60	Small families, commerce, some migrant workers	Regulatory. Some public works. Condominimum development with financial assistance.
Sites and Services	FSDVM Model	Periphery	20 - 60	Stable families and relatively stable income	FSDVM or IVU. International financing. Possible linkage to FSV.
	Extra-legal subdivision	Periphery	35 - 60	Wide variation	Regulatory. Infrastructure and finance for construction loans or land purchase
Traditional Housing	Single family or multiple family	Various	40 - 60	Stable families and stable employment	IVU, FSV, FNV

population, something which is very often not the case with demolition and relocation. In the study by Fernandez-Palacios and Bamberger 1/ it is shown that upgrading and progressive development were much cheaper and yielded a much higher internal rate of return than any of the traditional housing programs.

2.1.1.1 Upgrading squatter settlements

Squatter settlements are often the only available shelter option for the poorest 20 percent of the urban population. It is impossible to provide non-subsidized housing which is affordable to this group. Squatter upgrading programs have proved to be effective in many parts of the world, and once security of tenure is obtained and some basic improvements are introduced, families are often encouraged to use their own resources to improve their own dwelling. The squatter settlements usually have favorable locations with respect to places of employment so their improvement in situ also has advantages in this respect.

2.1.1.2 Upgrading extra-legal subdivisions

Although the poorest of the extra-legal subdivisions are often physically indistinguishable from squatter settlements the former enjoys a more stable tenure. The subdivision also covers a wide spectrum and many subdivisions house middle and even upper middle-class families. Because of their quasi legal and unregulated form of development, many of the subdivisions lack basic public services. The occupiers may also have a somewhat insecure tenure due to the quasi-legal way in which the sale of land is usually arranged.

1/ Marisa Fernandez-Palacios and Michael Bamberger, "An Economic Analysis of Low-Cost Housing Options in El Salvador." (Draft) August 1979. DEDRB.

Significant improvements in the quality of public services could be achieved relatively easily and in most cases with complete cost recovery. The main change which is needed to achieve this is a revision of the regulations relating to the tenure status of these communities. Once this is resolved the public authorities are legally able to install services and families would also have a much greater incentive to invest in house improvements.

2.1.1.3 Upgrading tenements

As was mentioned earlier, a large proportion of the cities population live in rented rooms in tenement houses. Although the location of many of these tenements is very good, the quality of water and sanitary services is often extremely low. Many of the mesones are converted middle class houses which are structurally sound. The FSDVM pilot project has illustrated one viable approach. Two main strategies can be pursued. The first is to sell the meson as a condominimum to the present tenants, who become responsible for the renovation. The second option is to provide incentives to the present owners to upgrade. At the moment improvements are legally prohibited so there is no incentive to improve. The problem is to make it financially attractive to make some improvements without encouraging such large rent increases as to make the meson inaccessible to the urban poor. This problem makes the condominium approach potentially attractive.

2.2 Sites and Services

The sites and services approach has already demonstrated its great potential. It has the advantage of being flexible and

providing different levels of development of the plot so as to appeal to different income groups. It is also a very effective way to mobilize private resources. Finally it has proved to be a very cost-effective way to make housing accessible to low-income groups.

2.2.1 The FSDVM model

This has already been discussed in Section 1 of this chapter. Future projects should offer serviced sites to slightly richer families and more developed plots to the poorer groups. Projects should probably include rental accommodations and should certainly encourage sub-letting. Although we have called this the FSDVM model, it could equally well be developed by IVU who already have experience with this method of construction.

2.2.2 Applying the sites and services approach to the extra-legal subdivision

Once the subdivision is accepted as a legitimate development, it becomes possible to introduce a certain amount of regulation of standards, and to provide basic services in coordination with the developer. The level of services could range from communual water and pit latrines to individual water connections and water borne sewerage. If regulation is used correctly it would be possible to ensure that a certain proportion of the subdivisions remain accessible to lower income families.

This form of regulation, in addition to upgrading the housing stock, also widens the tax base. The legalization of the subdivisions means that occupiers can pay property taxes and this provides the revenue base for the provision of additional services.

2.3 Traditional Housing

The present housing programs of IVU, FSV and FNV should continue more or less in their present form. The FSV has the potential to introduce a number of innovations which would enable it to reach lower income families. The most important change would be to accept lower standards of housing so that it could finance housing for the lower 50 percent of families who are potentially eligible to use its programs. Once this change is accepted it becomes possible to finance the purchase of sites and services units and to finance the development of some extra-legal subdivisions.

Conclusion

Using an integrated strategy similar to the above it becomes possible to develop a national housing strategy which encourages more rapid increases in the housing stock and even more rapid upgrading of the quality of present housing, both at prices accessible to the low-income population.

ANNEX 1:

THE RESEARCH METHODOLOGY USED IN THE EVALUATION

1. Definition of the Objectives of the Evaluation

In discussions with the FSDVM and the World Bank in 1975-76 three main types of evaluation studies were identified, each of which was intended to contribute to a different phase of project planning and implementation. The three types of studies were:

(a) Short-term evaluation studies designed to provide immediate feedback to project management.

(b) Medium-range evaluation of project components designed to help modify the methods used for project implementation in new project sites still in the planning stage. These studies were of particular value to the FSDVM as about ten new projects started during the evaluation.

(c) Long-range impact and policy studies designed to assist in the evaluation of overall project impact and to assist in defining future shelter strategies for both the FSDVM and national planning agencies.

A list of the main studies conducted in each of these categories is given in Table 1. In the following sections the methodology used in each of these types of studies will be described.

Table 1: SUMMARY OF MAIN EVALUATION STUDIES CLASSIFIED ACCORDING TO SHORT, MEDIUM AND LONG-RANGE OBJECTIVES

Short-Term Evaluation Studies	Medium Range Evaluations of Project Components	Long-Range Impact and Policy Studies
1. Demand Study in Acajutla	1. Evaluation of the FSDVM cooperative program.	1. Longitudinal impact study in Santa Ana
2. Demand Study in Sonsonate	2. Evaluation of the mutual help program in Sonsonate	2. Longitudinal impact study in Sonsonate
3. Demand Study in Apopa	3. Evaluation of the mutual help program in San Miguel	3. Cost-benefit comparison of low-income housing options
4. Demand Study in Usulutan	4. Evaluation of the house consolidation process in El Pepeto	4. Evaluation of project benefits through hedonic price analysis
5. Study of the reasons for absenteeism and project drop-out in Santa Ana.	5. Evaluation of the house consolidation process in San Jose del Pino	5. Evaluation of impact of alternative housing projects through the comparison of changes in rental and sale values.
6. Study of the reasons for absenteeism and project drop-out in Sonsonate	6. Analysis of the economics of self-help housing.	
	7. Evaluation of selection criteria	

2. Short-Term Evaluation Studies

2.1 Estimating the Potential Demand for FSDVM Projects

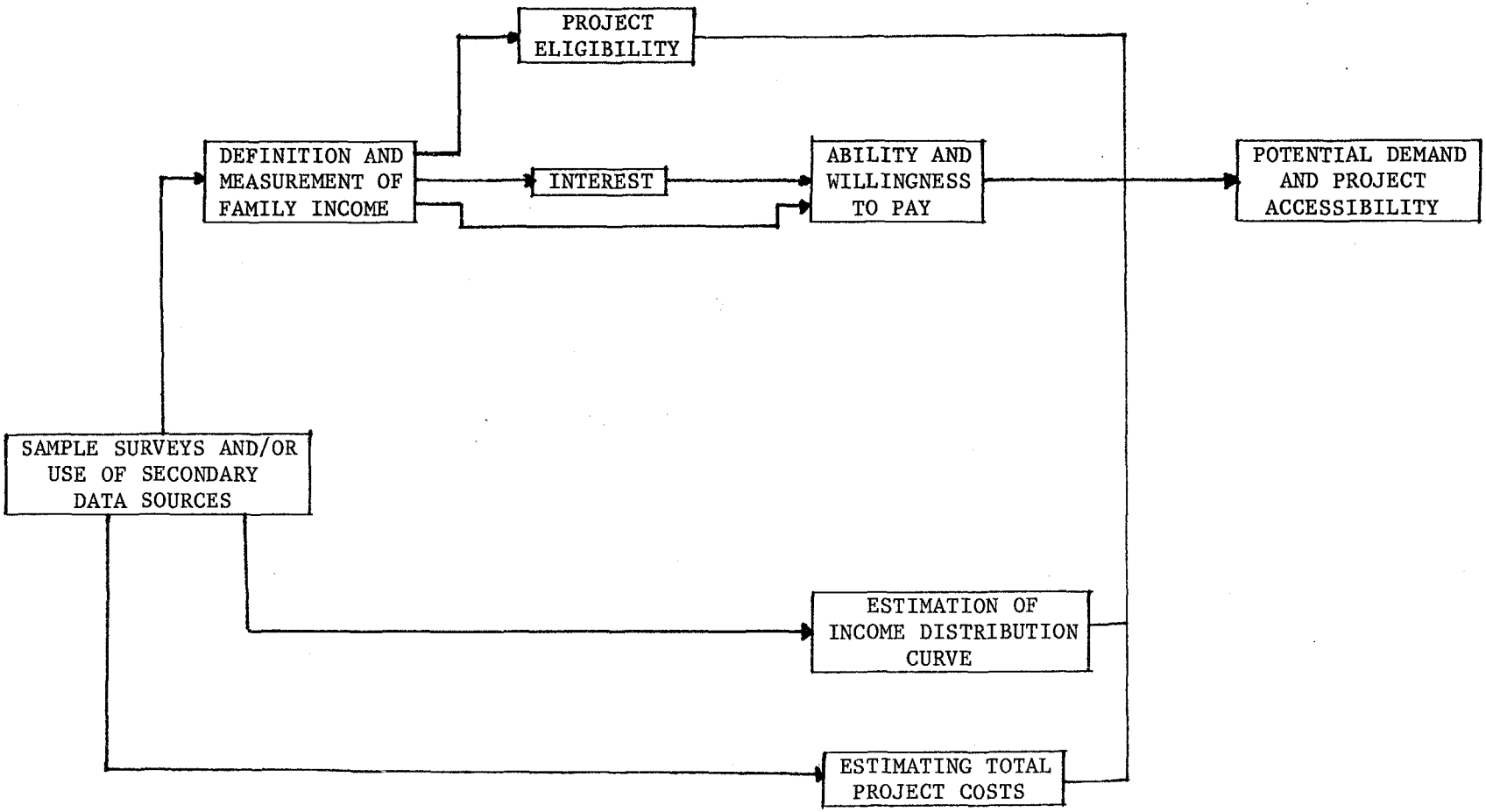
The objectives of these studies were to help FSDVM estimate the potential demand for its projects and to evaluate their effectiveness in reaching the low-income target population. Recommendations were made on dissemination, selection procedures and project design. Although there were certain variations, the main stages in the methodology were as follows: (See Figure 1).

a. Estimation of total family income

It was discovered that in the selection procedure for some of the earlier projects there was a confusion between: Household income which referred to money assigned for covering household expenses, and Total Family Income which referred to all income of household members, irrespective of how it is used. The total family income (or family expenditure) is a better measure but it is often difficult to verify. The interview is often conducted in the home with the housewife who in many cases is not aware of the total amount earned by her husband. It was found that Total Family Income tends to be between 30 and 50 percent higher than household income (or expenditure).

A series of consistency checks were built into the questionnaire to increase the reliability of the information. One was to compare income with expenditures, another was to compare stated earnings from different types of jobs with information on typical wage rates. Where inconsistencies were found a return visit was made to the respondent. Another conceptual problem relates to the definition of the

Figure 1: STAGES IN THE ESTIMATION OF POTENTIAL DEMAND FOR FSDVM PROJECTS



sources of income. Figure 2 illustrates the major components of total family income. Income is generated by many different people, and can be earned, received in kind or be obtained in the form of non-earned income (rents, pensions, etc.). In addition, income can be received in the form of loans or gifts from nonhousehold members.

The original affordability estimates were based only on earnings, rent and transfers from government. However, an analysis of sources of income showed that transfers from non-household members often represent a very significant proportion of the total income of the poorest families. 1/ For this reason the evaluation unit recommended that inter-household transfers should be included in the definition of total income. 2/

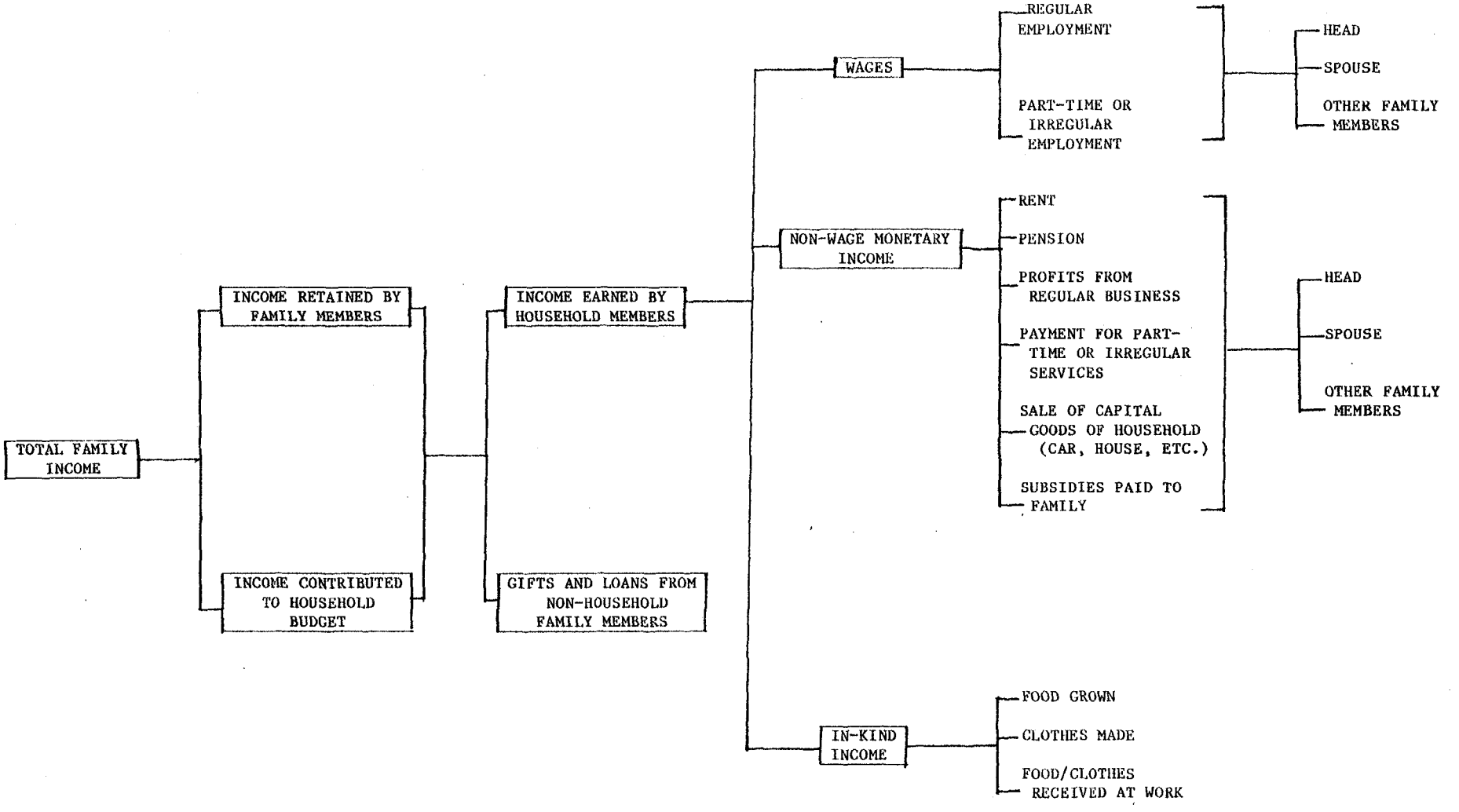
The analysis also includes questions on the stability of income over time. In most demand studies this information was obtained by asking families what was their lowest and highest income during the course of a year. The longitudinal studies in which the same family is interviewed three times over a period of three years also permit estimates of permanent income in that long-term fluctuations can be studied and adjusted for.

The design of the sample in the demand studies depended upon the point in the project cycle at which the interviews were conducted. If they were done during the planning stage the study was usually based

1/ David Lindauer and Dani Kaufmann, "Basic Needs. Household Transfers and the Extended Family." Urban and Regional Report No. 80-15. Urban and Regional Economics Division. The World Bank. 1980.

2/ FSDVM, "Socio-Economic Study of Santa Ana," 1978.

Figure 2: THE STRUCTURE OF FAMILY INCOME



on a stratified random sample of low-income families. 1/ If the study was conducted after the project had begun (for example to evaluate reasons for lack of demand. 2/) then the sample was normally divided into: Participants, families who had dropped out and families who did not apply. The information given on income in the application forms tended to be very unreliable because many families misreported their income so as to fall within the income range specified by the FSDVM selection procedures.

b. Project eligibility

This is normally defined in terms of not owning property, family characteristics and residence requirements, and income within a certain range. In the analysis of the survey results the population is classified into eligible and non-eligible groups on the basis of these criteria.

c. Interest in the project

This is usually defined in terms of the response to simple questions on a) interest in owning FSDVM type house, b) interest in living in a particular location in the city, and c) willingness to participate in mutual help construction.

d. Ability or willingness to pay.

DEDRB studies in El Salvador and elsewhere have shown that the problem of estimating ability to pay for housing is more complex than

1/ For example, The Demand Study in Apopa (FSDVM Evaluation Report No. 18).

2/ For example, The Demand Study in Usulutan (FSDVM Evaluation Report No. 11).

previously assumed and that there is no fixed proportion of income which all families will be willing to spend on housing. 1/ In the FSDVM studies three independent estimates of willingness to pay were compared:

a) The assumption that a family would be willing to pay up to a certain proportion of their income on housing. Usually 25 percent of income was used as a liberal estimate and 15 percent as a more conservative figure. 2/

b) Assumption that a family would not be willing to spend more than they are currently spending.

c) Asking families whether they would be willing to spend the monthly amount specified by the FSDVM.

The combined use of three estimates provided lower (b) and upper (usually (c) limits for the estimates.

e. Estimation of income distribution curve

To estimate the proportion of the low-income population who can afford a project it is necessary to have information on the income distribution of all families. No complete income distribution data was available for most of the cities studied so two independent estimates were combined:

a) It was assumed the distribution would be the same as that found in the 1974 ILO study in San Salvador (with adjustment made for inflation).

1/ Douglas Keare and Emmanuel Jimenez, "Affordability, Income and Housing Consumption." DEDRB (draft), 1980.

2/ Normally about 90 percent of renters were found to be spending less than 25 percent of their income on rent.

b) The FSDVM studies of families living in low-income housing normally covered approximately the poorest 65 percent of the population. From this some rough estimates can be made of the characteristics of the lower end of the income distribution curve.

f. Potential demand and project accessibility

Combining the estimates from a, d and e it is possible to estimate the proportion of low-income families able and willing to pay the project costs.

2.2 Evaluating the reasons families drop out of the projects

During the early stages of many FSDVM projects, and before the houses were actually occupied, there was a high rate of absenteeism and families dropping out of the projects. In addition to the immediate problems which the drop-outs caused for project implementation (and to some extent for cash-flow) there was a more general concern that the drop-outs might signal some basic problems with the project design. The problems could either arise from dissatisfaction with the project or from inability to pay.

Several studies were conducted during the early stages of project implementation. Using project records, a comparison was made of the characteristics of families who dropped out of the project with those who remained. Although there was in some cases a slight tendency

for drop-outs to be poorer, the differences were not very great. In the same way there was no significant difference in drop-out rates between males and females. Follow-up interviews with families who had dropped out showed that often the main reasons for dropping out were administrative. In some cases it was a lack of information on procedures for re-entering the project after an absence, in others an address or a piece of paper was lost. It seemed that improving the communication systems would often make a major contribution to resolving the problems. There was also, however, a significant group of families who dropped out once they realized how small the house would be.

Studies were also conducted one and two years after families had occupied the project. Comparisons were made between drop-out rates in the control and experimental groups, and between drop-outs and families who continued in the project. The drop-out studies proved to be quick and cheap, and provided a lot of useful information to the FSDVM.

3. Medium-range evaluations of project components

3.1 Evaluation of the FSDVM Cooperative Program 1/

The cooperative program was perceived by the FSDVM to have both social and economic objectives. The program consisted of approximately ten cooperatives at the time of the study, and the following research techniques were used in the evaluation:

1/ FSDVM Evaluation Report No. 17.

a) Case studies were prepared on each cooperative by the promotor. These were prepared following a guide. In several cases the promotor conducted a brief survey with members to obtain information on their characteristics.

b) Interviews were conducted with members of the largest cooperative (sewing and rug-making). The interviews were semi-structured and sought to evaluate the impact of the cooperative on the social and economic life of the members.

c) Interviews were conducted to measure the change in income as a result of working in the cooperative.

d) Secondary sources, such as the cooperative accounts, were reviewed.

e) Interviews were conducted with the cooperative staff.

f) Interviews were conducted with other organizations promoting cooperatives.

g) A review was made of data on the social, economic and political factors which affected the development of cooperative programs in El Salvador.

3.2 Evaluation of the Mutual Help Program [1/]

Mutual help is a required part of the house construction process and is considered by the FSDVM to make a major contribution to the social and economic development of the communities. In most cases

1/ FSDVM Evaluation Report No. 12 (July 1977) and DEDRB Monitoring and Evaluation Report No. 3.

the mutual help construction process lasts between four and six months (only working on weekends). Evaluations were conducted in two of the projects using the following methodology:

a) Participant observation of the construction process and group meetings.

b) Interviews with families at the beginning and end of the process.

c) Case studies with a small number of participants.

d) Interviews with project staff.

e) Review of project records.

f) Obtaining information from the families on the amount of money they normally earned at weekends (so as to estimate the opportunity cost of participating in mutual help).

3.3 Evaluation of the House Consolidation Process [1/]

The process of house consolidation can continue over a period of two years or more. Consequently, it is not possible to obtain complete information on the costs or quality of the construction until this period is completed. It was also found that many families have difficulties recalling all of their expenditures at the end of this period so it is useful to conduct longitudinal studies in which

1/ Report prepared by the FSDVM for the Organization of American States on the progressive development process in the San Jose del Pino project. "Analisis del Proceso Evolutivo y de las Soluciones Autonomas", February 1977.

information is obtained on construction costs at different points of time. The methodology used in the studies was as follows:

a) Interviews with families at three points in time to obtain information on house construction costs.

b) Application of a detailed observation guide to record all of the materials used and the quantity of each. An estimate was then made of current market prices for purchase of these materials and for hiring labor.

c) Information was obtained from the families on the price paid for labor and the number of hours of unpaid labor used in the construction. An imputed wage was used to estimate the value of this free labor.

d) Architects evaluated the quality of the construction.

In the analysis it was found that families claimed to have spent substantially less on their house then the current market value of the materials and labor used. Care was taken to check these figures for consistency and accuracy. It seems that families are able to obtain materials at considerable discounts either through friends or through using (and sometimes reconditioning) second hand or lower quality materials. Care must be taken in interpreting the results of these studies. On a first reading it would appear that if applied on a massive scale, self-help housing would produce very large savings on materials and labor. In fact it is likely that if the scale of the

projects were increased it would become more difficult for families to acquire materials at such large discounts as the supplies of surplus materials would become used up.

3.4 Analysis of the Economics of Self-Help Housing 1/

Originally it had been assumed that families would build their house with their own labor. The studies showed that in fact many families prefer to hire labor, and that one of the main reasons is that the opportunity cost of labor is higher than expected. An analysis was made of the conditions under which families use own or hired labor. The analysis is complicated by the fact that families are both producers and consumers of housing. Normally when wages increase families tend to consume more. With self-help housing, however, a rise in wages means that the opportunity cost of building ones own house increases. If a participant's wage increases sufficiently in real terms it becomes possible to hire labor (if one is earning more than the going rate for construction labor). However, there is often an intermediate range where an increase in wage rates can lead to a decrease in house construction. In this range higher wage rates raise the opportunity cost of labor and discourage own-labor construction. The increase may not be sufficient, however, to justify hiring labor so the rate of construction may decline. Over this range housing might have a negative

1/ Emmanuel Jimenez, "The Economics of Self-Help Housing: Theory and Some Evidence." Urban and Regional Report No. 80-16. DEDRB. 1980.

income elasticity. An economic model was developed to describe the economics of the choices facing the family, and the model was applied to data from various FSDVM projects.

3.5 Evaluation of the selection process

An objective of the FSDVM projects is to ensure that priority is given to poor families but that at the same time only those families are selected who have the ability to pay. A number of studies were conducted to evaluate the efficiency and impact of the selection procedures. The main methodologies used were the following:

a) Comparison of the income of project participants with city income distribution curves to determine the location of participants on the curve.

b) An analysis was conducted of cost-recovery. The fact that the default rates were very low indicated that the selection procedures had selected families with the ability to pay.

c) A comparison of families leaving the project with those who stayed indicated that leavers were not significantly poorer than those who stayed so that affordability did not seem to be a major cause of leaving.

d) An analysis of the sources of household income suggested that if income transfers from non-household members had been taken into account, a significant number of low-income families (particularly female headed households) who are excluded on present income criteria, would in fact have had enough income to qualify.

4. Long-range impact and policy studies

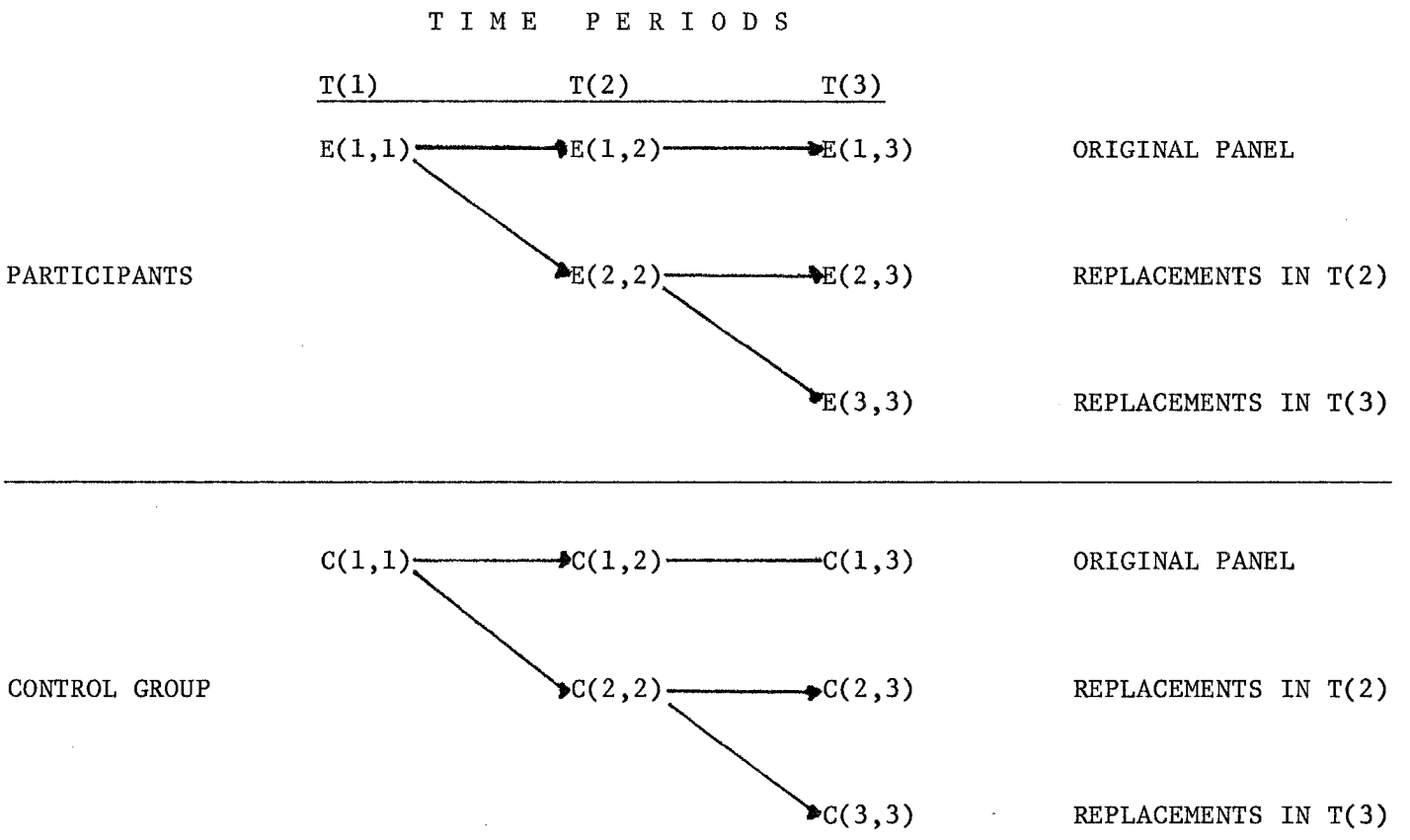
4.1 Longitudinal impact studies

One of the major objectives of the evaluation was to determine the impacts of the projects on the socioeconomic conditions of project participants. This was done through the use of a quasi-experimental design, the main characteristics of which are shown in Figure 3.

The design, defined as a mixed panel sample, was used in two of the interior cities - Santa Ana and Sonsonate. We will describe the design in Santa Ana although it was similar to Sonsonate. The experimental group was formed by 196 families who had been selected for the project but who had not yet moved to their new house. There are three main types of low-cost housing in which virtually all low-income families in Santa Ana live. These are mesones (tenement houses), colonias ilegales (extra-legal subdivisions) and tugurios (illegal squatter settlements). A stratified control sample was used with approximately 100 families being selected from each type of settlement. 1/ Good estimates existed of the total number of families in each type of settlement so that in the analysis it was possible to use weights to adjust strata sizes and obtain estimates for the total low-income population. As no sampling frame existed it was necessary to draw a map of each community to be sampled so as to be able to locate all houses. This required the use of two-stage sampling to reduce the

1/ It was estimated that this was the minimum sample size to obtain reliable estimates on the main variables and to be able to measure changes over time. The estimating procedure is explained in "Socio-Economic Baseline Study of Santa Ana," Chapter 1. FSDVM Evaluation Report No. 10, October 1977.

Figure 3: QUASI-EXPERIMENTAL DESIGN WITH MIXED PANEL SAMPLE



number of maps to be drawn. The samples from the three control strata were drawn as follows:

Mesones: A sample of 50 mesones was drawn at random (out of approximately 1000 mesones in the city). Maps were prepared of each meson indicating all occupied rooms and a random sample of rooms was then drawn. This is technically a cluster sample but as both the total number of mesones and the number of mesones in the sample, were quite large, it is argued that for operational purposes the sample can be considered to approximate a simple random sample.

Colonias ilegales: About 30 colonias existed in the city. All were visited, classified on a series of indicators, and then ranked and classified into two groups, poorer and richer. A sample of five colonias was selected in each group. A map was drawn of each of the selected colonias to locate each dwelling unit and a random sample of families was then drawn. Although this sample can potentially have a larger bias, it was again treated as a simple random sample.

Tugurios: Only two tugurios existed in the city. Maps were drawn to locate each dwelling and a random sample of all dwellings was then selected.

The original samples are represented in Figure 3 as those households interviewed in T(1). The experimental sample is defined as E(1,1) to indicate that these are families selected in T(1) and interviewed in T(1). Similarly the control sample is defined as

C(1,1). It was decided to use a mixed sample design in which the attempt would be made to reinterview families in T(2) and T(3). The families who were reinterviewed would form a panel. If the family had moved, the second (or third) interview would be conducted with the new family now occupying the same house. In the case of the experimental group, participants had moved to the project by T (2) so the second interview was conducted in the new house. If the family had moved to the project but left before the second interview, the interview would be conducted with the new family occupying the project house. If the family never moved to the project, the second interview would be conducted with a randomly selected family in the project.

In T(2) the families who were reinterviewed in the project are classified as E(1,2) indicating they were selected in T(1) but are being interviewed in T(2). A replacement family is defined as E(2,2) indicating this family was selected in T(2) and is being interviewed in T(2). The advantage of this mixed panel design is that it can be disaggregated into sub-samples:

a) A panel sample of families who are interviewed at both points of time (or at three points). In T(2) this is represented by the E(1,2) and C(1,2) groups.

b) A replacement sample of new families. In T(2) this is represented by E(2,2) and C(2,2).

c) An approximately random sample of all families living in the survey area at the time of the study. This is represented in

T(2) by the E(1,2) + E(2,2) groups for participants and by the C(1,2) + C(2,2) groups for the control.

This design permits a comparison of the original families with replacements whilst at the same time providing an approximately random sample of all families. 1/ The same logic can be applied in T(3) although it can be seen that the sample is now disaggregated into three sub-groups. It was found that the turnover rates for the original panels were sufficiently low for it to be possible to conduct statistical comparisons over time within the panel sub-sample.

A major theoretical problem in the use of this design to evaluate project impact is that there is a non-equivalent control group. There are significant differences between participants and the control group in T(1) so that if differences are found between, for example, the income of the two groups in T(3) we cannot immediately infer that the difference is due to project impact. The difference may be a result of the initial differences between the two groups. To compensate for the non-equivalency of the control group, multiple regression analysis was used with the dependent variable, the score in T(2), being regressed on the score in T(1) and on other relevant factors such as education, family size and, of course, participation status (which is a dummy variable). If the coefficient of the participant

1/ The logic of this sample design is discussed in more detail in Bamberger "Quasi-Experimentation in an Urban Contect: A Review of Experience in the Evaluation of World Bank Urban Shelter Programs." Urban and Regional Report No. 81-5. Urban and Regional Economics Division. World Bank, 1981.

status is found to be significant (whilst controlling for the above mentioned independent variables) then there is a strong indication that the project has produced some effect.

In the following section the application of this model is illustrated with the analysis of project impact on income. 1/

Economic conditions tend to change dramatically for the urban poor (even more so in the tumultous conditions experienced by El Salvador during recent years) and the purpose of the Control Group is to give an idea of what the conditions of the Experimental Group would have been like if participants had stayed in their previous place of residence rather than moving to the project. A simple illustration of the importance of the Control Group is given in Table 2, which shows that in 1976, before moving to the project, the average monthly family income of the participants was 335 colones and that in 1980, about three years after the move, it went up to 569 colones. To be able to evaluate the extent to which this change can be attributed to the project, we need to know what happened in the same period to the income of equivalent families not affected by the project. It can be seen that although the absolute increase in participant income was greater [234.5 compared to 192.7] the rate of change was slightly higher for the control group [74.6 percent compared to 70 percent].

1/ The analysis for this section was prepared by Umnuay Sae-Hau.

Table 2: MONTHLY AVERAGE FAMILY EARNED INCOME
(Colones)

	1976	1979	1980	Change 1976-80 Absolute	Change 1976-80 Percent
Participants	335.0	469.8	569.6	234.5	70.0
Non-Participants	258.3	390.4	451.0	172.7	74.6

The analysis of the present sample is made more complex by the fact that the two groups are not perfectly matched on income in 1976 as shown in Table 2. The participants started at a considerably higher income level than the non-participants. 1/ There were also differences between the two groups on family size and education of the head. Technically, we are talking about a "non-equivalent control group". The problem for the researcher then is to try to remove the biases introduced by the initial differences attributable to self-selectivity and/or project selection criteria. The statistical approach is the use of multiple regression analysis to "match" the two groups statistically by controlling for the initial differences. 2/ We shall regress income in the subsequent period after the intervention T(3), on income in T(1)

1/ To get around the problem by comparing percentage changes rather than absolute values is not totally satisfactory as it imposes an assumption of a uniform rate of growth at different levels of income.

2/ For technical details, see "Quasi-Experimentation: Design and Analysis Issues for Field Settings," Chapter 4, edited by T. D. Cook and D. T. Campbell and also "Applied Multiple Regression/ Correlation Analysis for the Behavioral Sciences," Chapter 8, Cohen and Cohen.

plus a dummy variable representing participation status, and an interaction term between the dummy variable and income in 1976. 1/ The coefficients of the dummy variable and the interaction term between income in base period and participation status will approximate the project impact. 2/ Our equation will look like this:

$$Y_1 = a + bY_o + cD + dI + e$$

in which,

Y_1 = income after treatment (after moving into the project)

Y_o = income before treatment

D = dummy variable: Partipant = 1, non-Participants = 0

$I = Y_o \times D$

e = error term

Our null hypotheses will be: 1. H_o : c = 0 and

2. Ho : c = d = 0, i.e., the project had no impact. The joint hypothesis test in 2 is used to test whether jointly the coefficients of the dummy variable and the interaction are not equal to zero. This has to be used because of a high correlation between the variables D and I, which could affect the statistical significance of both variables. F statistics will be used for this test.

1/ Education, age of head and family size were included in the initial stages of the analysis but are not included here as they did not affect the results given in this section.

2/ The coefficient of the dummy variable represents a shift in the intercept while that of the interaction term represents a shift in the slope. This will be made clear in an actual illustration to be shown later.

4.1.1 Main Findings on Earned Incomes

Family Earnings

Taking total family earnings between 1976 and 1980, we found no significant project impact as shown in Table 3.

Table 3: REGRESSION RESULTS ON FAMILY EARNINGS

Family Earnings, 1976-80

	Equation 1	Equation 2
Intercept	279.39	270.98
Earnings in 1976	.66 (7.48)** 1/	.70 (6.48)**
Participation Status	49.24 (1.44)	80.57 (1.17)
Interaction Term		.10 (.52)
Adjusted R2	.18	.18
No. of cases	281	281

1/ "**" indicates statistically significant at .01 level.

According to the above table, in Equation 1, we regress family earnings in 1980 on family earnings in 1976 and participation status. The coefficient of participation status is not statistically significant at .05 significance level although it has a positive sign. This means that we are 95 percent confident that the project had no impact on family earnings. In Equation 2, when adding an interaction term, we found no change in our results. Neither participation status nor the interaction term are statistically significant at .05 significance level, singly or jointly.

Earnings of the Household Head

Using the same method, we also found no significant impact on the earnings of the household head between 1976 and 1980. The results are shown in Table 4.

Table 4: REGRESSION RESULTS ON EARNINGS OF HEAD

Earnings of Household Head, 1976-80

	Equation 1	Equation 2
Intercept	189.83	174.45
Earnings in 1976	..76 (8 03)**	.86 (7.75)**
Participation Status	3.34 (.14)	66.26 (1.47)
Interaction Term 1/		.35 (1.64)
Adjusted R2	.21	.22
No. of cases	240	240

1/ Earnings of Head in 1976 x Participant Status.

Earnings of Secondary Workers

When we took out the earnings of the household head and examined the earnings of the secondary worker alone, we found significant results as shown in Table 5.

Table 5: REGRESSION RESULTS ON EARNINGS OF SECONDARY WORKERS
Earnings of Secondary Workers, 1976-80

	Equation 1	Equation 2
Intercept	90.47	96.16
Earnings in 1976	.55 (5.25)**	.49 (3.45)**
Participation Status 1/	77.15 (2.54)**	60.79 (1.49)
Interaction Term 2/		.13 (.60)
Adjusted R2	.14	.13
No. of cases	249	249

1/ Significant at 0.01 level.
2/ Earnings of Secondary Worker in 1976 x Participant Status.

According to the results above in Equation 1 between 1976 and 1980, controlling for earnings in 1976, on the average the secondary workers in the Experimental Group experienced an increase of about 77 colones more than their counterparts in the Control Group. In Equation 2, when the interaction term is added, participation status ceases to be significant and the coefficient of the interaction term is not significant either. However, a joint hypothesis test shows that jointly they are significant at .05 significance level [$F_{2,245} = 3.4$]. This

means that together participation status and its interaction term are significant, suggesting that project participation may have affected the income of the secondary workers, the average difference between the participating household and the non-participant being about 77 colones. Since the coefficient of the interaction term has a positive sign (though not statistically significant) there might be a slight tendency for the increase to be greater among the better off families.

The same type of analysis was performed using 1976-79 period, but no significant difference was found on all earning categories between the two groups in that period.

Applying the same tests on the panel data from Sonsonate with a similar project, we found a similar pattern, i.e., the secondary workers in the Experimental Group seem to have experienced a greater average increase in earnings than their counterparts in the Control Group, about 63 colones between 1977 and 1980. As in Santa Ana, no difference was found in the earning of the household head over these periods.

Main Findings on Earned Income per Worker

Table 6 presents mean earnings per worker at three points in time. As can be seen, the difference between the two groups does not vary much over time, ranging from 29.2 to 36.3 colones.

Table 6: MEAN EARNINGS PER WORKER IN CURRENT COLONES

	1976	1979	1980
Participants	159.2	247.5	308.6
Non-Participants	130.0	211.2	275.0

However, if we control for the initial differences as we did in the previous analysis, we do find that there is a difference during 1976-79 but not during 1976-80. The results are presented in Table 7.

Table 7: REGRESSION RESULTS ON EARNINGS PER WORKER

Earnings per worker, 1976-79

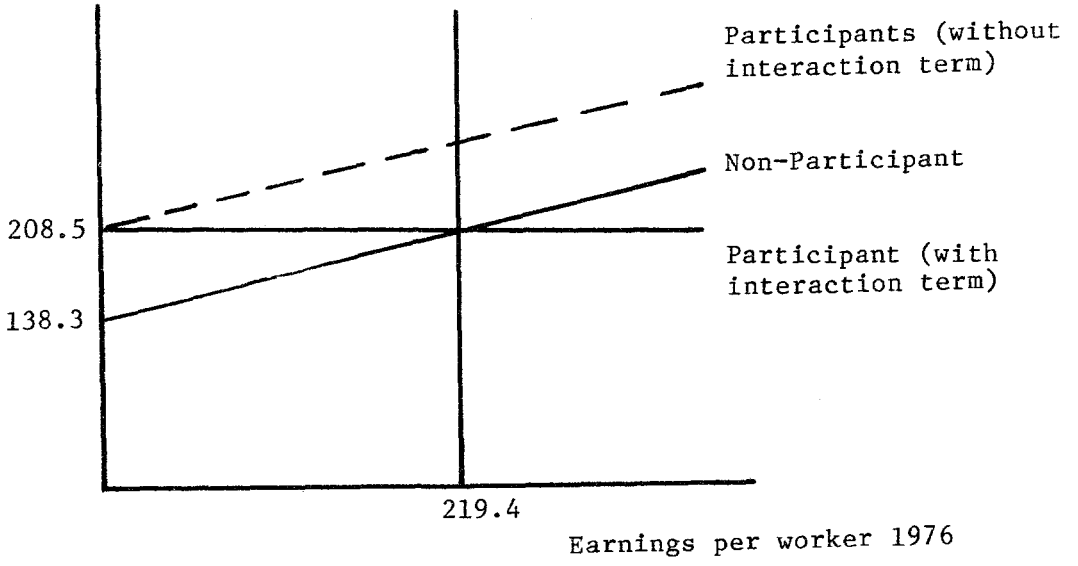
	Equation 1	Equation 2
Intercept	152.53	138.32
Earnings per Worker in 1976	.45 (6.03)**	.56 (6.09)**
Participation Status	23.10 (1.45)	70.23 (2.49)**
Interaction Term 1/		-.32 (2.02)* 2/
Adjusted R2	.12	.13
No. of Cases	281	281

1/ Earnings per worker in 1976 x participation status.
2/ Significant at .05 level.

According to the above results, in Equation 1, by itself participation status does not seem to be statistically significant at .05 level, but when the interaction is added to the equation in Equation

2, both participation status and the interaction term are statistically significant at .01 and .05 respectively. The joint hypothesis test is also statistically significant at .05 level with an estimated $F_{2,277}$ statistic of 3.04, implying that jointly participation status and the interaction term are statistically significant at .05 level. We thus cannot accept the null hypothesis that the project had no impact. The way the results in Equation 2 may be interpreted is illustrated in Figure 4.

Figure 4: PROJECT IMPACT ON EARNINGS PER WORKER



Without the interaction term the participant regression line is parallel to the non-participant but 70.2 higher as indicated by the dotted line. But as a result of a negative shift in the slope (coefficient of the interaction term), the resultant regression line for the participants with the interaction term will have a lower slope and will

intercept the line for the non-participants at a point where earnings per worker in 1976 equals 219.4 colones. This means that up to that point,the participants will be better off than the non-participants. It also indicates that the poorer the participants, the better they are likely to perform in terms of earnings per worker. About 85 percent of the participants had earnings per worker of less than 220 colones in 1976.

It should be noted that we found a similar result in the project in Sonsonate although it occurred in a different period, 1977-80. Now since the two projects started at a different time, about a year apart of each other. It is possible that the project impact on earnings may have occurred during the early stages of the project cycle roughly between year 1 and year 2.

4.1.2 Main Findings on Employment

Table 8 shows average number of persons employed per family for both groups over time. The figures in parentheses represent the absolute number of persons employed in the subsample used in the analysis in the previous paragraphs.

Table 8: AVERAGE NUMBER OF EMPLOYED PERSONS PER FAMILY

	1976	1979	1980	No. of Families
Participants	2.4(291)	2.0(241)	1.9(232)	119
Non-Participants	2.4(384)	2.0(320)	1.7(283)	162

The above table shows that over time the average number of persons employed per family declined in both groups, but the decline is slightly less among the participants. In 1976, both groups had about the same average number of 2.4. From 1976 to 1979, both groups experienced the same decline, from 2.4 to 2.0. However, between 1979 and 1980, the average figure for the non-participants continued to fall while that of the participants remained more or less at the same level.

The decline in the number of persons employed seems to have little to do with the employment status of the household head, particularly among the non-participants. Employment seems to have been fairly stable over time for the household head in both groups. In contrast, the employment patterns of the spouses, particularly among the non-participants show some significant changes as shown in Table 9.

Table 9: EMPLOYMENT STATUS OF SPOUSE

	Participant			Non-Participant		
	1976	1979	1980	1976	1979	1980
Employed	45	48	49	50	55	43
Unemployed	7	3	3	10	5	1
Economically active	52	51	52	60	60	44
Housewife	28	23	23	46	49	63
Others 1/	39	45	44	56	53	55
Total	119	119	119	162	162	162

1/ In most cases there was no spouse. The remainder indicate no information.

The most striking finding is that whilst the number of economically active spouses remained constant for participants, there was a sharp decline for the control group from 60 to 44. As this decline was accompanied by an increase in the number of housewives in the control group it would seem likely that many of these women left the labor force either to give birth or because they were discouraged in their job search or because of some other change in the household life-cycle.

The relative difference between the two groups is even more pronounced if we look at the employment patterns of secondary workers as a whole. The number of secondary workers among the non-participants rose from 180 in 1976 to 203 in 1979 but dropped sharply in 1980 to

150. In contrast, the participants did not experience such a drastic change. The number of secondary workers among this group fell from 144 in 1976 to 137 in 1979, suggesting that relocation may well have had a disruptive effect on the economic activity of this group. However, from 1979 to 1980, compared to the non-participants, the level of employment for this group remained quite stable at 137 and 135 respectively.

4.1.3 Summary of Findings

Our results indicate that the participants may have experienced a slightly greater increase in earnings than the non-participants and that the less well off they were, the better they performed with respect to earnings per worker. Whether one considers this a project impact is a moot point as earnings are a function of a variety of things and their connection with housing is by no means direct, nor is it a strong one. However, there seems to be some evidence of motivation at work among the participating households as indicated by a relative stability in the employment patterns among their secondary workers.

4.2 Cost-benefit comparison of low-income housing options

An important question for policy makers is to be able to compare the relative benefits which are obtained from investments in different types of housing options. A cost-benefit analysis, using a

modified version of the Squire-van der Tak 1/ approach was used to compare eight housing options which were potentially accessible to the low-income population of San Salvador. 2/ The following options were included in the comparison:

Public housing programs

a) Multi-family apartments constructed by IVU.

b) Single family homes constructed by IVU.

c) Single family homes constructed by the FSV.

Progressive development programs

d) IVU squatter upgrading project.

e) FSDVM project with serviced lot.

f) FSDVM project with core house.

Informal housing market

g) Colonia ilegal

h) Tugurio

For each of these housing options comprehensive information was obtained on all costs. The information was obtained partly from the organization responsible for the construction (in some cases this would

1/ Lyn Squire and Herman van der Tak, "Economic Analysis of Projects," Johns Hopkins, 1975.

2/ Marisa Fernandez-Palacios and Michael Bamberger, "An Economic Analysis of Low-Cost Housing Options in El Salvador," Urban and Regional Report No. 81-4, Urban and Regional Economics Division, World Bank, 1981.

be the family) and by conducting interviews with a sample of families. Benefits were estimated in terms of the imputed rent (this was estimated by asking families for how much they think their house could be rented). Conversion factors were then estimated so as to calculate the costs and benefits to the nation. Flows of costs and benefits were estimated over 20 and 30-year time horizons.

The resulting benefit-cost ratios were then calculated in terms of internal rates of return and Net Present Value/Discounted total cost. These two ratios were used for three main types of estimates:

a) Efficiency analysis in which no account is taken of who receives the benefits.

b) Social analysis in which weights are attached to different groups of beneficiaries. These weights are intended to reflect the priority which government gives to public and private expenditure and to the goal of income redistribution.

c) Private analysis in which the calculation of the IRR is based upon the costs actually paid by the families and the benefits actually received.

Each set of calculations was made with various different sets of assumptions about land values and consumer surplus.

4.3 Evaluation of Project Benefits Through Hedonic Price Analysis [1/]

One of the major problems in the evaluation of project impacts on housing is that the normal operation of the housing market is restricted by government reglations. Families are restricted from renting or selling their new houses so that changes in market rent cannot easily be used to evaluate changes in quality. One possible way to circumvent this problem is through the use of hedonic price analysis. Almost all project participants were previously living in mesones. The major characteristics of the mesones in Santa Ana were described in a set of scales and continuous variables. The variables so described included area, quality of walls, floor and roof, type of water supply and sanitation. In a subsequent stage certain neighborhood characteristics were also included. All of these attributes were included in a multiple regression analysis with rent as the dependent variable. The coefficient of each attribute can be interpreted as indicating the relative amount a family is willing to pay for each of these attributes. [1/]

The regression equation which was obtained was then applied to the attributes of the FSDVM project to obtain an estimate of the imputed market rent. Care must be taken in the interpretation of the results as the estimates only refer to imputed rent and do not include the value

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1/ John Quigley, "The Distributional Consequences of Stylized Housing Programs," Urban and Regional Report No. 80-18. Urban and Regional Economics Division, World Bank, 1980.

1/ This is an oversimplification of the meaning of the coefficients. There is considerable controversy as to the correct form of interpretation.

of owning as opposed to renting. One way to interpret the hedonic estimation of rent is to assume that this indicates the amount the family would have been prepared to pay to receive this package of benefits. If this imputed rent is compared with the amount the family actually has to pay to the FSDVM, the difference can be interpreted as indicating additional benefits which the occupant obtains "for free".

4.4 Evaluating project impact through comparisons of changes in value of the house

An alternative method to evaluate project impact on housing quality is to derive estimates of changes in housing value and to compare these with changes in costs. To do this the following indicators were calculated.

a) Imputed rent for owner occupied housing

This was derived by asking owners how much they think they could rent their house for.

b) Imputed sale value of owner occupied housing

This was derived by asking owners how much they think they could sell their house for.

c) Estimate of sale price/cost of construction

The process of estimating the cost of housing proved to be extremely complex because a number of different elements come into the purchase cost, and because different parts of the house may have been purchased in different years so that price adjustments have to be made. The price adjustments were in

themselves difficult to calculate because separate indices had to be developed for materials, land, labor and a complete house. In most cases these indices had to be developed as none existed covering the time period in which we were interested (going back as far as 1955). In the case of the land index this had to be constructed from information on the amount families had paid for land in different years. This is not a very reliable method as it underestimates the increases in land value (because land which is purchased later tends to be further from the city and hence not comparable in quality and location with the land on which we have information for earlier years).

An example of the complexity of the estimating process can be illustrated with the example of the colonias ilegales. The cost of the house and land (COLCOST) was defined as follows:

COLCOST = P1(Land) + P2(Labor for construction) + P3(Labor for extension) + P4(Materials for construction) + P5(Materials for extension) + P6(Value of house if purchased).

Each of these individual variables is in itself complicated to estimate as can be shown with the example of land. The cost of land is calculated as follows:

$$LAND = A + B \times (1-(1.01)-N/.01$$

where:

A = cash payment

B = monthly installment

N = number of months of credit payment

Monthly interest rate = 1 percent

This estimates the present value of the cost of land in the year of purchase. The figure then had to be adjusted to 1980 prices using the index of land prices.

Defining the indicators

Once the values of imputed rent, imputed sale value and cost have been estimated, the following indicators were calculated:

Change in rental value

This is assumed to be directly related to changes in value of the house.

Imputed rent/imputed sale value

This is an indicator of the rate at which the investment in the house can be recuperated. It is often taken as a rule of thumb that if the market is in equilibrium rent is approximately equal to 1 percent of value.

Imputed sale price/cost

This is an indicator of the return on the investment. The higher the ratio, the more rapidly the investment can be recuperated. Alternatively this can be used as an indicator of the added value which is produced for a given investment.

Projects were compared on each of these indicators, and on the basis of the interrelationship between the different ratios it is possible to make some tentative judgments as to which type of housing produces the highest benefits for occupants.

ANNEX 2: THE TERMS OF REFERENCE FOR THE EVALUATION

At the time of Appraisal the Terms of Reference for the Evaluation were defined as follows:

Evaluation

1. The Bank evaluation will seek to determine whether the objectives mentioned elsewhere in this report are being met over time, and whether project components (both physical and institutional) yield the intended social and economic impacts on project participants and on associated institutions. If they do not, evaluation should attempt to provide explanations for the unanticipated effects. It should also test assumptions concerning the project's goals, and thus provide the basis for recommendations on future project design and policy for both the Government and the Bank.

2. On-going FSVM projects are being evaluated by a team of researchers from the Universidad Centroamericana "Jose Simeon Canas" under a grant from the Inter-American Foundation. This evaluation includes a sample survey of 2,000 households within different types of settlements and studies of physical conditions in the neighborhoods surveyed. Their evaluation is expected to be completed by September 1975.

3. The El Salvador sites and services project has been designated as one of the three projects on which the Bank will seek to undertake a detailed socio-economic evaluation which would be distinct from the appraisal, monitoring or post-audit evaluations undertaken in other departments of the Bank. Such an in-depth evaluation should offer the opportunity of studying the ability of a private agency to provide services normally undertaken by Government agencies. The interest FSVM has demonstrated in analyzing its own past experiences and the institutional base offered within the agency for future studies of a similar nature strengthen the case for undertaking such an evaluation. The on-going evaluation should serve to provide a basis for testing the assumptions and hypotheses upon which the Bank will base its own study. The Bank study has been proposed for UNDP financing under the technical assistance program mentioned in para. 3.20, for which the Bank would serve as executing agency.

Methodology

4. The evaluation will be carried out in three phases: (i) before lot occupancy; (ii) during execution; and (iii) after the project's closing date. Household surveys and special studies will be used to gather information during each of the phases.

5. Household surveys will consist of questionnaires administered to respondents in both project and non-project areas (control groups). The same households will be interviewed during each of the three study phases. Participants will be chosen from stratified random samples in both project and control areas. To the extent possible, the universe from which the samples are to be selected will be provided by FSVM preselection forms. At the same time that families are interviewed, information regarding housing conditions will be gathered by the interviewers. Standardized measures and indicators will be formulated before field work begins.

6. In particular, the evaluation will attempt to determine the relationship between the specified objectives of the project and the means chosen within the project to achieve those objectives. The objectives - the dependent variables in the analysis - include, inter alia, the following:

(a) changes in the economic and social attitudes and behavior of project participants;

(b) improvement in the living conditions and community services for 8,000 families and reduction of the housing shortage for the low-income population in El Salvador;

(c) demonstration of a successful alternative shelter solution to conventional fully built government housing projects;

(d) expansion of employment opportunities through the organization of small commercial ventures and labor-intensive construction methods;

(e) changes in the patterns of household expenditures due to increased capital formation and the inclusion of particular project components such as piped water;

(f) improvement of Government planning for low-income settlements.

7. The means - material, human and financial - for attaining these objectives include:

(a) provision of urbanized building lots incorporating two service levels;

(b) housing construction based on self-help and mutual-help;

(c) provision of credit in the form of construction materials loans;

(d) provision of community facilities, including health clinics, community centers, sports fields, markets and schools.

(e) programs of technical assistance and credits for small-scale industries.

8. It will be necessary to see whether the relationship between the means and the goals are affected by certain cultural, demographic or socio-economic characteristics of the population. Thus, individual attributes (i,e., age, sex, education, income level, employment and migratory history) will have to be taken into account in determining that relationship.

9. A research team, consisting primarily of local researchers, will be recruited to undertake the evaluation. Their institutional affiliation will be decided by the FSVM and the Bank. The terms of reference and the research design for the project evaluation will be agreed between the two parties by December 1974.

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