PD-AAM-811
ISN = 29730

615-HG-03/5

CLASSIFICATION

PROJECT EVALUATION SUMMARY (PES) — PART I

Report Control Symbol U-447

1. PROJECT TITLE Nairobi City Council Housing Guaranty (Umoja I)	2. PROJECT NUMBER 615-HG-003	3. MISSION/AID/W OFFICE RHUDO/E. & S. Africa
	4. EVALUATION NUMBER (Enter the number maintained by the reporting unit e.g., Country or AID/W Administrative Code, Fiscal Year, Serial No. beginning with No. 1 each FY) 615-83-05 Final ☒ REGULAR EVALUATION ☐ SPECIAL EVALUATION	

5. KEY PROJECT IMPLEMENTATION DATES A. First PRO-AG or Equivalent FY 75 B. Final Obligation Expected FY 78 C. Final Input Delivery FY 78	6. ESTIMATED PROJECT FUNDING A. Total $ 10 mill. B. U.S. $ 1 mill.	7. PERIOD COVERED BY EVALUATION From (month/yr.) Sept., 1979 To (month/yr.) Dec., 1982 Date of Evaluation Review Dec. - Feb. 1982-3

8. ACTION DECISIONS APPROVED BY MISSION OR AID/W OFFICE DIRECTOR

A. List decisions and/or unresolved issues; cite those items needing further study. (NOTE: Mission decisions which anticipate AID/W or regional office action should specify type of document, e.g., airgram, SPAR, PIO, which will present detailed request.)	B. NAME OF OFFICER RESPONSIBLE FOR ACTION	C. DATE ACTION TO BE COMPLETED
As this Project is complete, no further decisions or issues are noted. Implications of findings for Umoja Phase II and other projects are included in Section VIII.		

9. INVENTORY OF DOCUMENTS TO BE REVISED PER ABOVE DECISIONS

- ☐ Project Paper
- ☐ Financial Plan
- ☐ Logical Framework
- ☐ Project Agreement
- ☐ Implementation Plan e.g., CPI Network
- ☐ PIO/T
- ☐ PIO/C
- ☐ PIO/P
- ☐ Other (Specify) ____
- ☐ Other (Specify) ____

10. ALTERNATIVE DECISIONS ON FUTURE OF PROJECT

- A. ☐ Continue Project Without Change
- B. ☐ Change Project Design and/or
- ☐ Change Implementation Plan
- C. ☐ Discontinue Project

11. PROJECT OFFICER AND HOST COUNTRY OR OTHER RANKING PARTICIPANTS AS APPROPRIATE (Names and Titles)

Jeremy Hagger, AID/RHUDO/E & S Africa
Lloyd Morris, Nairobi City Council Housing Advisor

12. Mission/AID/W Office Director Approval

Signature

Typed Name Fredrik Hansen, Asst. Dir., RHUDO/E & S Africa

Date March 31, 1983

AID 1330-15 (3-78)

UMOJA EVALUATION QUESTIONS
Wang Document 0123F
FILE:Kenya 615-HG-003
5.4 Umoja Housing Estate-Final Evaluation

Reference:STATE 081077, 1982, PRM-3

Q.I. What constraints does this project attempt to overcome and who does it constrain?

Answer:

Construction costs were, and still are, rising faster than the Nairobi median household income. Therefore, lower income households were being squeezed out of the market for formal sector housing. Although it was Government policy to focus on housing for lower income groups, technical innovation was required to overcome construction cost constraints.

Q.II. What technology does the project promote to relieve this constraint?

Answer:

20 m/square core houses were introduced. These comprised a kitchen and bath, and at least one room with space for expansion to three rooms and 40 m/square. The timing of expansion was left for the beneficiaries to decide, and this flexibility facilitated large investments by beneficiaries.

Q.III. What technology does the project attempt to replace?

Answer:

Previously, housing built by the public sector had been built to ultimate size at the outset and to higher standards of space and amenity, at double the cost of the new core house.

Q.IV. Why do project planners believe that intended beneficiaries will adopt the proposed technology?

Answer:

The new core houses were affordable to the target group, that is those earning less than the Sh/ 1600/month (approximately $200.00 at time of construction), the Nairobi household median income. No other formal sector housing was being developed anywhere in Nairobi for this target group.

Q.V. What characteristics do intended beneficiaries exhibit that have relevance to their adopting the proposed technology?

Answer:

The target group was those persons who permanently lived in Nairobi but owned no property there, who had steady incomes between Sh 1000 and 1600/month, and who were prepared to make substantial investments in downpayments and self-help construction. Effective demand from this group was much larger than Umoja I could supply.

Q.VI. What adoption rate has this project or previous projects achieved in transferring the proposed technology?

Answer:

Adoption was constrained by the limited supply of capital for development of plots. Applications were far in excess of plots available, so no meaningful adoption rate can be determined. The expandable core housing approach, however, became an accepted part of Kenya's shelter strategy.

Q.VII. Will the project set in motion forces that will induce further exploration of the constraint and improvements to the technological package proposed to overcome it?

Answer:

The core house concept has been well received in Kenya and is now seen as better suited than completed, high-standard houses for meeting the needs of lower-income households.

Q.VIII. Do private input suppliers have an incentive to examine the constraint addressed by the project and come up with solutions?

Answer:

Until recently, private builders and lenders have avoided provision of affordable housing for the target group. However, the highly visible market success of Umoja I has sparked the interest of leading lenders and builders. This interest will be mobilized in the next HG project, now being proposed.

Q.IX. What delivery system does the project employ to transfer the new technology to intended beneficiaries?

Answer:

The core houses were built under contracts let by Nairobi City Council, who also advertized and allocated them to eligible beneficiaries.

Q.X. What training techniques does the project use to develop the delivery system?

This project did not include a formal training component as conventional housing development skills were considered to be adequate for implementation of the project.

\\V

I SUMMARY

The Umoja I Project was Kenya's first low-income housing project financed through AID's Housing Guaranty Program. The Project has by and large achieved its goal of demonstrating that owner-occupied housing for low-income families can be built without substantial public subsidy, by reducing building standards and relying on private investment by the allottees to upgrade and expand their dwellings.

The Project has been highly successful in spurring private housing investment in expansion of the core housing units. More than three-quarters of the units were added to within four-and-one-half years. To date about KSh.42 million has been invested by the allottees. The market value of the house expansion construction is nearly KSh.47 million. Overall the project has so far generated KSh.56 of private investment for every KSh.100 of the HG loan at the then current exchange rate.

Umoja I was conceived of as an owner-occupied development. Many of the allottees rented out their units shortly after receiving them. More than three-quarters of the units are now renter-occupied. No sustained effort has been made to enforce the non-renting clause of the tenant purchase agreement.

There is no e· dence that as a result of a predominantly rental tenure Umoja I is less stable as a commmunity. However, the socio-economic characteristics of the community have changed from that envisioned due to the fact that house rents far exceed mortgage payments. Umoja I residents could generally be classified as middle-class with an average income significantly higher than the median for Nairobi. The Project thereby has not resulted in much of a permanent increase in the supply of housing affordable by low-income families. Assuming that most of the original allottees did in fact, as required, have incomes below the median, then the poor have benefitted from the project. However, the benefit has been largely in the form of income generation rather than an increased supply of affordable housing.

The units were sold at cost, but due in part to the great demand for housing in Nairobi, the houses rent at rates that bring a highly positive cash flow. Return on investment for an expanded unit is probably in excess of 18 percent per year. Due to devaluation of the Kenya Shilling and the reluctance of the NCC to increase the mortgage interest rates, as it is permitted to do, about 25 percent of the development costs (the HG loan) are being repaid by general revenues. In effect, the NCC is subsidizing the already lucrative renting out of houses.

The site and house design was perceived by the allottees as an adequate based for private investment. However, there are several areas where the design could have been improved. One major problem that is rectifiable is the lack of planned areas to dump the black cotton topsoil found throughout the site.

The Umoja I Project has achieved many of its objectives. Most importantly, it has demonstrated that core housing can be affordable on an owner-occupied basis for families below the Nairobi median income. It has also generated substantial private investment in permanent housing. Although the NCC must now cover part of the HG loan repayments, the Project has demonstrated that the cost of housing and the willingness to pay for housing could allow for full cost recovery from the allottees. These seemingly modest achievements are noteworthy considering that this was a transition project from previous high standard, high subsidy projects to affordable housing for low-income families.

II INTRODUCTION

A. Background

The Umoja I Project (HG-003) was the second AID Housing Guaranty (HG) project implemented in Kenya. Planning for this Project began in late 1971. The one previous HG project -- Kimathi Estate (HG-001) -- was a middle income owner-occupied project of 343 units completed in the early 1970s (a second HG project, Kenya Canners, was authorized in 1972 but never constructed).

The Umoja I Project was approved in principle in 1972 by the AID Africa Bureau. In 1973 the Kenyan Treasury decided on two separate housing programs, one national and one local, funded under the HG. A $15 million project was decided on, with $10 million for the Nairobi City Council (NCC) for Umoja I, and $5 for the National Housing Corporation (which would became HG-004) for housing in towns other than Nairobi. The two projects are contained in a single project paper.

The type of housing to be provided, and thereby its cost, was a subject of continued analysis and discussion with the NCC before and after project authorization. In 1972, a pre-investment survey concluded that a majority of the houses in Umoja I should cost not more than KSh.12,000. In November 1973, the NCC proposed three types of houses ranging in price from KSh.10,000 to KSh.16,000.* In early 1974, an AID team worked on further reducing costs by KSh.2,000 by changing design details and incorporating more self-help labor. The project as eventually built consisted of attached (row) dwellings designed for expansion into the rear yeard. The breakdown by unit type and final cost was as follows:

TABLE 1: UMOJA I UNITS BUILT

HOUSE TYPE	ROOMS**	NUMBER BUILT	COST
01	1	2,123	KSh.30,600
02	2	637	35,530
03	3	164	39,030
	TOTAL	2,924	

* At that time the exchange rate was $1 = KSh.7.5.

**In addition to kitchen, W.C. and shower. Each unit has individual water, sewerage, and electricity hookup.

Planning and implementation of Umoja I was concurrent with the development of the IBRD-funded Dandora Sites and Services Project. In order for the NCC to experiment with various project types as it entered the low-cost housing field, and to strengthen its capacity to implement a variety of housing solutions, there was some value in AID and IBRD projects representing different approaches to low-cost housing.

B. AID Shelter Sector Policy

This project was conceived of in 1971; construction began in 1975. The planning phase covered a period during which AID policy and, specifically, that of the Office of Housing and Urban Programs (PRE/H), changed significantly in response to the "New Directions" legislation of 1973. The new Agency policy stipulated that project benefits were to flow to the low-income sector of the population. During the 1960's and early 1970's, the Housing Guaranty Program was predominantly used to finance middle-income housing built to relatively high standards. In response to the new AID policy, and based on the recognition that shelter needs in the face of rapid migration of low-income people to cities in virtually all developing countries, could not be met through traditional approaches, PRE/H proceeded to adjust its programs and policies so as to make its housing affordable to families with incomes below the median. In order to do this, building standards would have to be lowered and reliance on self-help and informal sector labor would have to be increased. It is important to note that this policy and programatic transition was gradual. There was little experience worldwide with the types of housing solutions now deemed appropriate, and a process of careful experimentation was necessary.

The Kenya housing policy contained in the 1974-78 Development Plan, while calling for accelerated housing development, also was to:

> "insure that housing design and construction conform to Government standards and that each housing unit constructed in urban areas have at least two rooms plus its own kitchen and toilet."

It also stated that no additional unauthorized housing settlements were to be constructed, and that existing slums were to be removed when alternative housing had been found.

It is important in considering the Umoja I Project to note that its planning and early implementation phase was concurrent with the transition in AID policy, and that the evolving PRE/H policy was inconsistent with Kenyan housing standards then in effect, and past GOK and NCC approaches to public intervention in housing. In this sense, Umoja I should be considered a transition project for the GOK, and the value of demonstrating a core housing approach is an important characteristic.

C. Goal and Objectives

The combined goal of the Umoja I and National Housing Authority (004) projects is stated in the project paper:

> "to help the GOK implement a housing policy with emphasis in favor of the poor by demonstrating that lower cost houses can be built despite the rises in building materials and other construction costs."

Although there are no specific objectives in the project paper, imputed objectives might be stated as follows:

to demonstrate the affordability of a core housing approach in providing shelter for low-income families.

to provide the NCC with experience in the design and implementation of low-income core housing projects.

to demonstrate increased cost recovery in publicly financed housing.

to increase the supply of low-income housing in Nairobi.

to mobilize private resources for investment in low-cost housing.

D. Conceptual Design

The Umoja I Project was designed as a pilot effort to demonstrate the core housing approach to low-cost shelter. Generally, this approach is one where shelter is delivered that is immediately inhabitable -- that is it affords the basic necessities in terms of privacy, protection from the elements, sanitation, cooking, and formalized land tenure. The site is laid out and individual houses are designed to allow efficient expansion at low cost as the allottees' priorities for expenditure of limited disposable income dictate.

Income analysis in 1974 indicated that three types of project units (expandable one and two-room units, and a small number of three-room units) would be affordable by those in the 20 to 40 income percentile of the Nairobi population.* The site was laid out to accomodate subsequent expansion of all housing units to three rooms. Certain improvements were left undone, such as installation of the ceilings and interior painting.

*Based on expenditure of not more than 25 percent of household income on housing, applying the husband's income and half of the wife's income.

III BASIC ASSUMPTIONS OF PROJECT DESIGN

A. Housing Demand

It was assumed, based on available data and the evident overcrowding in many parts of Nairobi, that sufficient demand existed for the nearly 3000 units to be built in Umoja I. A further assumption was that among the large number of families who would qualify by virtue of income there was sufficient interest in, 1) entering into ownership of an expandable core unit, and 2) relocating to the Umoja area (which is on the outskirts of Nairobi). All of these proved accurate assumptions as evidenced by the number of applicants for the housing (about 20,000 families of which 8,000 were found eligible) and the speed with which the units were occupied upon completion.

B. House Consolidation

A second and crucial assumption of the project was that significant house expansion would occur over a period of years following occupation. One of the successes of this project is the extent of house expansion to date. (Section VII is devoted to the issue of private investment in house expansion.) This illustrates also that the design, although with certain imperfections, was perceived by the allottees as an adequate base for private investment in housing.

C. Implementation Capacity of the Nairobi City Council

This project was implemented by a special unit of the City Engineer's Department, established solely for this project. The housing was constructed relatively rapidly and within reasonable cost. Thus the assumption was valid that the NCC did have adequate capacity to implement a core housing project. The Umoja I Project Unit has since been incorporated into the Housing Development Department, created in 1978 from the Dandora Project Unit. However, this Department has not as yet produced any housing that was not externally financed.

D. Formal and Informal Credit

Unlike many progressive housing projects, Umoja I did not contain any associated loan fund for the allottees to expand their houses. The assumption was that most had adequate access to formal and informal credit. This assumption was correct. As early as March of 1978, more than a quarter of the houses had been enlarged, and by March of 1982 three-quarters had been enlarged.

There is little available information on the source of the capital applied to house expansion. In a limited survey of 38 homeowners in July of 1979, it was found that of 33, only nine had financed expansion through formal sector credit (banks, cooperatives, etc.). The majority had financed expansion through a combination of savings, sale of property, wages and salary, and informal loans from family and friends.*

*This is from previously untabulated data collected by the Mazingira Institute.

E. Tenure Regulations

In Kenya land is usually conveyed through long-term (50 years) leasehold. The leasehold agreement approved by AID for the Umoja I Project has the following special requirements:

1. That the allottee not sublet the premises or any part of it for five years.

2. That all enlargements of dwellings be approved by the NCC, and erected according to approved standards and plans.

The requirement that the tenant not sublet is further contained in the Implementation Agreement, which states that:

> "No tenant purchaser will sublet the housing unit without the written authority of Borrower during the term of the tenant purchase agreement. In event the tenant purchaser sublets the housing unit for speculative purposes, the Borrower shall strictly enforce the terms of the Tenant Purchase Agreement."

Although there are slight discrepencies in these two restrictions, the underlying assumption was that the NCC had the capacity and the will to enforce the non-subletting condition. As more than three-quarters of the units are now sublet, it is obvious that it did not. This leads to the further question of whether, given the conditions existing, a subletting restriction is reasonable or consistent with the overall objectives of the Project. This will be discussed in Section VI A.

F. Cost Recovery

The Umoja I Project had a simple cost recovery scheme. The $10 million HG loan to the NCC was on-lent to the ultimate tenant purchasers for 25 years at 10 percent (based on the 8.7 percent HG loan, the .5 percent PRE/H guaranty fee, and a .8 percent administrative fee). Allottee housing expenditures are as follows:

TABLE 2: UMOJA I Financing Terms

House Type	Downpayment	Monthly Payment*
01	5%	KSH.265.50
02	5%	308.50
03	10%	320.50

*plus rates, insurance, and ground rent totalling KSh.440/year.

With devaluation of the Kenya Shilling, mortgage payments from the allottees are no longer sufficient to repay the HG loan. The difference is paid by the NCC, and consequently the project receives a development subsidy. Yearly payments on the HG loan increased from $920,000 to $1,018,219 in July, 1979 when repayment of the principle began, and will stay at this rate until the loan is fully repaid in year 2004. Yearly mortgage payments from allottees total KSh.9,752,796 (without considering arrearages). At the rate of $1 = KSh.10.5, which was the approximate exchange rate in effect for about half of 1982, this equalled about $929,000, and would have covered 91.2 percent of the HG loan payments due that year. The Kenya Shilling was further devalued in December, 1982 to $1 = KSh.12.5. At the new rate, mortgage payments would equal $780,000, and cover 76.6 percent of HG loan payments.

The tenant purchase agreement does permit the NCC to increase the interest rate, and thus increase cost recovery in the event of devaluation. However, the NCC has not increased the interest rate and has no current plans to do so. The .8 percent administrative fee added to the HG loan, considered higher than actual administrative costs, did provide some cushion against devaluation, although it is not clear that this was its intent. At the current exchange rate, an increase in the interest rate to about 14.25 percent would raise mortgage payments adequately to capture (without considering arrearages) the full HG payment.* Without action on this issue, and assuming no further devaluation, the NCC will continue to subsidize each unit to the extent of about KSh.1,025 ($82) per year.

The NCC has been successful in substantially reducing the arrearages rate to a manageable but not adequate level. As of September 30, 1982, thirty days arrearages was KSh.536,552, which is equal to 1,940 average monthly mortgage payments. This is down from a March, 1980 arrearages of KSh.1,050,000 or 13,020 monthly payments. Data were not readily available on the number of allottees actually in arrears, but considering that a substantial amount of the arrearages may be attributed to a relatively small number of long-term cases, perhaps a quarter of the allottees are in 30 days arrears. There is, however, no rationale for more than a minimal arrearages rate since more than three-quarters of the units are rented out at a substantial profit and generate a highly positive cash flow.

IV INPUTS AND OUTPUTS

A. Housing Guaranty Loan

The HG loan of $10 million was provided by the Federal Home Loan Bank of New York in 1975. The Implementation Agreement provided for a pre-construction draw-down of $2.8 million and subsequent drawdowns after verification of completion of units and a certificate showing a schedule of eligible tenant-purchasers. Actual disbursements occured as follows:

*Based on 20 years left on the 25-year mortgages.

TABLE 3: Drawdown of HG Loan

DATE	AMOUNT	UNITS COMPLETED	UNITS ALLOCATED
Oct. 1, 1975	$250,000	(Advance)	
Jan. 14, 1976	2,000,000	(Advance)	
Nov. 29, 1976	1,100,000	530	296
May 3, 1977	2,400,000	997	367
Dec. 19, 1977	1,200,000	300	1,056
May 31, 1978	2,550,000	(escrowed pending notification of completion of units)	
Dec. 14, 1978 (escrowed $ released)		1,297	1,215
		2,924	2,924

B. Housing Production

The actual construction of housing in Umoja I was highly successful. This is so both in terms of, 1) construction completed in a timely manner, and 2) the planned number of units completed without excessive cost overrun, in spite of inflation and devaluation. A year-and-one-half after the Implementation Agreement was signed, more than one-half of the housing had been constructed and allocated.

There was a total cost overrun of 42 percent from the construction estimates contained in the Implementation Agreement. This can be partly explained by devaluation of the Kenya Shilling. The remainder of the cost overrun was due to inflation in the construction industry. In response to these cost problems, the unit mix was changed; the number of one-room units was more than doubled and the number of two and three-room units reduced by 51 percent and 77 percent respectively. These adjustments proved more than adequate, and in the end 24 units more than the number planned were built.

The ability of the NCC to deliver the housing in a timely and efficient manner stands out as an even greater success of this project considering that the NCC had heretofore built only middle and upper income housing. Not only was the Umoja I Project directed at a new income population, but the concept of cost recovery, a central feature of the Project, was new to the NCC. The NCC had also never developed a project designed for private investment in house expansion.

C. Community Facilities

The Umoja I Project was designed as an integrated community, with educational, commercial, and community facilities provided in the project area. The following facilities are listed in Annex A of the Implementation Agreement as host country contributions to the project:

- One nursery school by January 1, 1978.
- Reservation of a site in or near the project area for a secondary school (to be built by the GOK).
- An outdoor market by January 1, 1978.
- A health clinic by January 1, 1978.
- Parks, recreation, and playing fields.

There was some delay in the construction of these facilities. By early 1978, only a primary school, the health clinic, and some of the market stalls had been completed. The proposed timing for construction of the facilities was problematic even had they all been completed as scheduled, since the first dwelling units were ready for occupancy in 1977. In retrospect, a more effective arrangement may have been to plan construction of these facilities for earlier in project implementation, and perhaps to make construction progress a condition precedent for one or more of the drawdowns of the HG loan.

V. BENEFICIARIES

A. Social and Employment Characteristics

The Umoja I area, in spite of the high rate of rental, has evolved into a stable middle class community of modest density. Ninety percent of the units in the September, 1982 tenant survey were occupied by only one household, and only six percent of the households were subletting out part of the unit. The median household size is 4.1, and only 25 percent of the units house relatives or friends of the household.*

Most household heads have clerical, tehcnical and professsional jobs, and work either downtown (59 percent) or in the industrial area (23 percent). Roughly equal numbers work in the public and private sectors. Less than 10 percent work in the Umoja I neighborhood, which indicates that the market area built as part of the Project has not served as a substantial employment generator for the Umoja I residents, but that its primary value is convenience for these residents and employment for others.

B. Income

Few of the Umoja I residents could be considered low-income. The September, 1982 survey indicated a median household monthly income among tenants of KSh.3,490. Only 14 percent of the families had incomes below the Nairobi median of about KSh.2,000/month (inflated from a 1981 median of KSh.1,800/month reported by the NCC Research Division). Roughly two-thirds of the Umoja I households are in at least the 60 percentile for Nairobi income. About a quarter of the households had incomes greater than KSh.5,000 per month and are at or above the 80 percentile for income.

About sixty percent are spending more than 25 percent of household income for housing, and 15 - 20 percent are spending more than one-half on housing. These figures indicate that, according to conventional affordability standards, many Umoja I residents are paying too much for housing in relation to income. However, housing expenditures are not out of line with what is typically found for low/middle income housing in Africa.

*This data was collected by Marja Hoek-Smit in a survey of 179 Umoja I tenant households.

VI UNPLANNED EFFECTS

A. Housing Tenure

The issue of individual allottees subletting their houses at Umoja I has been reviewed several times in the past (see, for instance, Auditor General Report of June 27, 1980). The level of subletting at Umoja I has been high. In 1978, it was determined that 65 percent of the units were being sublet.* The survey conducted in 1982 indicated that this level had risen to 76 percent.

Subletting is equally prevalent among different size units. However, there is some evidence that makeup of the renter class varies with house size. In 1978, it was found that, whereas 48 percent of those who rent one-room units are not friends or relatives of the allottees, this proportion rises to 61 percent for two-room units and 66 percent for three-room units. This suggests that the greater the income or savings of the allottee, as indicated by his capacity to buy a larger house or enlarge a smaller one, the more likely he is to rent out his house on the open market and hence capture the market rate rent.

That the NCC lacked the will and/or the capacity to enforce the tenant-purchase agreement is clearly indicated by the statistics. More relevant here is a consideration of the ramifications of extensive subletting in terms of the objectives of the project, the underlying question being whether prevention of subletting, if this is possible, is desirable for low-cost housing. An objective of this project (and any progressive housing project) was to generate private housing investment. The Umoja I Project has been highly successful in this respect (see Section VII). It can only be hypothesized the extent to which prevention of subletting would have compromised this and other objectives of the project.

One assumption often made about rental communities is that they are more transient and less socially cohesive. However, recent data (Hoek-Smit Report) cannot support this assumption. At the time of that survey, the average rented unit was about four-and-one-half years old, and already 49 percent of the families had lived in their units for three years or more. Furthermore, the housing was not being used as a first stop for migrants to Nairobi, as indicated by the fact that most occupants had lived in the city for more than six years. Fifteen percent (15%) of the renters listed security as the major problem, but without a control group it is not possible to determine if this or other community indicators are related to tenure status.

On the other hand, subletting should be expected given the conditions in the Nairobi housing market, and a determined attempt to prevent subletting is likely to have its own set of unplanned and pernicious effects. The reasons for this view are listed below.

*Bureau of Educational Research, University of Nairobi, "The Residents of Umoja Housing Estate," 1978.

1. Low-income housing is part of the overall housing market and unmet demand for low-cost, as well as middle-cost, housing in Nairobi has driven up the price of low-cost housing. Because extra space is not the priority among much of the populace, particularly the poor, and expenditure of limited savings and income are likely to be for non-housing commodities unless the housing is income-generating, it is probable that far less house expansion, and hence increase in the housing supply, would have occurred if subletting regulations had been enforced.

2. Because the demand for housing is so great in Nairobi, estimated to be at least 12,500 new units per year excluding replacement needs, a project on the scale of Umoja I cannot have a major effect on the housing market overall.* Therefore, any special restrictions distort the market.

3. Subletting can allow housing to be accessible to progressively poorer segments of the population, who lack the capital for a downpayment or who can afford to rent only a portion of a house.

4. When there are inadequate alternative investments particularly when accompanied by inflation and an expectation of devaluation, the opportunity cost of money is low and investment in real property is a natural response. Where the housing demand is great, as in Nairobi, this investment should not be unnecessarily discouraged.

5. Some of the profits generated through renting out units may be recycled into further housing investment, although it cannot be determined the extent to which this has happened for Umoja I. Re-investment is not possible where profits are not generated through housing.

6. Where income-related eligibility criteria are abided by, at worst subletting is a form of income redistribution to the poor.

B. Housing Affordability

AID regulations stipulate that 90 percent of the housing financed through the HG Program be appropriate (affordable) for families with incomes below the urban median. The construction cost of Umoja I units was kept down to comply with this requirement. In 1978, with most of the units occupied, a survey of 335 allottees found that the average income of occupants of 01 and 02 units was about the median for Nairobi and about 25 percent lower than for renters. At that time, a far smaller number of units had been expanded.

More than three-quarters of the houses are now rented and more than two-thirds of the total are now three-room units. The median monthly housing expenditure in the September, 1982 tenant survey was KSh.1,087 (including KSh.49 for water

*Jorgensen, Niels O., "Kayole Housing -- A Demand Survey", 1981.

and KSh.38 for electricity). More than 90 percent of the units in this survey had three rooms; thus rents for one and two-room units are probably substantially less and rents for three-room units slightly more. To afford the median housing expenditure of KSh.1,087 according to the 25 percent affordability standard, a monthly income of KSh.4,348 is required. According to the available data, this is at about the 70 income percentile for Nairobi. Assuming a more realistic standard of 35 percent expenditure for housing, which is often found among low/middle income households, the income required would still be near the 60 percentile.

One-room units now constitute 18 percent of the total (although this is declining with continuing house expansion). If housing expenditure for a one-room unit is one-half the median, or KSh.544/month, then these units are affordable for households only slightly above the income median. Applying a 35 percent standard, the 530 one-room units are affordable at below the median income.

The monthly cost to the three-quarters of the households that rent at Umoja I is now, on average, about three times the cost of owner occupation. Assuming that the original occupants were, as required, from the below-median-income population, then the effect of the shift in predominant tenure from owning to renting has profoundly affected the type of households that comprise the Umoja I neighborhood. However, while the tenants are wealthier than envisioned for Project occupants, the allottees who have rented out their units have gained financially (see section on Windfall Profits). Therefore, the project has benefitted low-income families, but largely through income generation, rather than through an increased supply of low-cost housing.

C. Windfall Profits

The 75 percent of the allottees who have rented out their houses are realizing significant profits as landlords. This is illustrated in the following pro forma for a typical 01 unit that has been expanded to three rooms. Rents are based on the September, 1982 survey (adjusted slightly upward to account for one and two-room units in that survey) and maintenance is estimated at KSh.1,000, or about two percent of capital costs. House expansion is assumed to have been financed at 90 percent of cost at 12 percent over 15 years.

TABLE 4: Pro Forma for Rental of Expanded 01 Units

1. Improvement Costs		
Building Construction		KSh.53,800
Original Unit	KSh.30,600	
Expansion	23,200	
Closing Costs		1,950
Total Improvement Costs		55,750
2. Net Rent Income		
Annual Gross Rent @KSh.1,025/month		12,300
(Vacancy and Collection @ 5%)		(600)
Effective Gross Income		11,700
(Operating Expenses)		(1,440)
Rates	240	
Insurance	60	
Ground Rent	140	
Maintenance	1,000	
Annual Net Income		10,260
3. Financing		
A. Original Unit		
Mortgage Proceeds (95% of cost)		29,070
Annual Interest and Principal (10%, 25 yrs.)		3,186
B. Expansion		
Mortgage Proceeds (90% of cost)		20,880
Annual Interest and Principal (12%, 15 yrs.)		3,007
Total Annual Interest and Principal		6,193
4. Cash Flow		
Annual Net Income		10,260
(Annual Interest and Principal)		(6,193)
Net Cash Flow		4,067
5. Return on Investment		
Annual Net Income		10,260
Total Improvement Costs		55,750
Return on Investment		18.4%

Inadequate data are available on rent for units that have not been expanded. However, the high percentage of units expanded and the high percentage overall that are rented out, suggest that the return on investment for house expansion is highly favorable. Given this situation, it is likely that virtually all the houses will eventually be expanded to three rooms.

It is not clear that the profitability of renting out a Umoja I unit was considered during project design. The speed with which the predominant tenure switched from ownership to renta' following allottment of units does suggest that many of the allottees were well aware of the potential profit. The fact that renting out at substantial profit is now the norm, suggests that there would be substantial political opposition to any serious effort on the part of the NCC to enforce the tenure regulations of the tenant-purchase agreements.

D. Site Planning and Design

The site selected by the NCC for the Umoja I Project is largely overlain with a hygroscopic soil known as black cotton soil. In places this soil is more than one meter deep. Because of its extreme shrinking and swelling tendencies, it is unsuitable for load bearing purposes, and must be excavated and backfilled for house construction. These soil problems were adequately foreseen by the NCC and AID, and understood to be a necessary cost of construction.

During original construction, the black cotton soil was disposed of in designated areas. However, enforcement of proper disposal of this soil during house expansion has been poor. Much of the soil now lies in sporadic piles occupying public and private space that otherwise could be used for recreation, gardening, etc. In some instances the soil has been deposited in the roads. The NCC has removed some of the excavated soil. If plans go forward to remove all of the black cotton soil, this will be at considerable expense to the NCC, and constitute a construction subsidy to the allottees.

While the problem could be rectified through better regulation by the site engineer's staff (which perhaps would be possible only with a larger staff), the disposal problem could have been mitigated through better site planning. Most rear yards, where the additions are built, have no direct access to a right of way. This increases the difficulty and cost of proper soil removal. This characteristic of the site design could have been improved upon, although a layout with sufficient rear access might have created other serious problems, such as security, and perhaps reduced overall site density. Given the Umoja I design, the problem could have been mitigated by designating certain areas for soil disposal so as to develop desired earthen berns. This would have allowed for more efficient use of the site overall.

The September, 1982 survey had several questions related to house design. The most common criticism of Umoja I units was that they are too small -- 53 percent mentioned small rooms as something they disliked about their houses, while only four percent mentioned size as something they liked about them. Dissatisfaction with size was particularly strong for the kitchen and bathroom. Eighty percent noted more storagge or work area as desired kitchen improvements; 65 percent considered the bathroom too small.

While many tenants are dissatisfied with space, the data indicate that the problem is largely one of total space. For instance, when asked their preference given the overall square footage of the house, only nine percent were willing to increase kitchen size at the expense of other rooms. On the other hand, given the lot size of 126 square meters, 56 percent perferred a larger house, while only nine percent preferred a smaller house, even though 49 percent of the tenants reported using their yards for clothes drying, gardening, and recreation. It is assumed that the answer to this last question on house size is prejudiced by the relatively high income of the tenants, and hence their capacity to pay rent for larger houses.

These data do suggest some modest ways in which house design could have been improved. However, given the cost constraints inherent in a low-income project and hence the constraints on square footage, the house design is reasonably effective. Substantial improvements could have been made in site design, particularly as it affects overall density, ease of house expansion, and disposal of topsoil.

VII GENERATION OF PRIVATE INVESTMENT

A. House Design for Expansion

Of the 2,924 housing units at Umoja I, 2,123 (72.6 percent) were designed for addition by the allottee of up to two rooms, and 637 (21.8 percent) for addition of one room. In sum, 2,760 units were built for expansion.

TABLE 5: House Size and Expansion Potential

HOUSE TYPE	ORIGINAL HOUSE	HOUSE SIZE	POTENTIAL EXPANSION ONE ROOM	POTENTIAL EXPANSION TWO ROOMS
01	1 Room & Kitchen	25.4 sq.m.	9.1 sq.m.	17.2 sq.m.
02	2 Rooms & Kitchen	34.5	8.1	-----
02	3 Rooms & Kitchen	42.6	-----	-----

Lot coverages for one, two and three room houses on typical lots are 20.3 percent, 27.3 percent, and 33.7 percent respectively. Thus even with full expansion the density is relatively low with sufficient outdoor space for gardening, etc. The houses are constructed of externally plasterd concrete block walls. The floor is a concrete slab on grade and aesbestos cement panels are used for roofing. In addition to expansion, certain interior work was left undone, most notably wall plastering and installation of ceilings and finished floors.

B. House Consolidation

The Umoja I tenant purchase agreement does not require any capital improvemts to the properties. The Housing Development Department approves house expansion plans and inspects construction work at various stages. The staff of the project unit of this Department has been reduced from 16 to 10 (four engineers and six inspectors), as most houses have already been expanded to the legal limit and construction has slowed. The building standards for house expansion are the same as those applied to the original construction.

According to the site engineer of the Housing Development Department, virtually none of the house expansion work was done in the purely self-help manner by the allottees. Much of the work was done by a group of small informal contractors and individual laborers who work solely in the Umoja I project area. Current wages are from Sh.40 to Sh. 90 per day. Few of the 01 houses are expanded incrementally (one room at a time). The process of house expansion typically takes about three months, but in about 20 percent of the cases construction is over a period of more than six months. There is no program to guide allottees to certain contractors, nor is there an outreach or technical assistance effort to spur on the house consolidation process. In light of the rate of house expansion, it is apparent that these services were not necessary.

There have been sporadic attempts to expand beyond the limit of three rooms (42.6 sq.m.). It appears that in less than two percent of the cases have allottees been successful in overexpanding the permanent structure. For five to ten percent of the houses, the front and/or rear yards have been enclosed with permanent block or stone walls, often eight or more feet high, which give the appearance of an added room, but apparently are intended for definition of private space and security. The site unit of the HDD spends part of its time enforcing the house expansion limit.

Aerial photographs were taken of the Umoja I Project in March, 1982. This is about four years after most of the units were occupied. Analysis of these photographs in comparison to the site plans indicates that house expansion occurred to the extent noted below:

TABLE 6: EXTENT OF HOUSE EXPANSION AT UMOJA I

HOUSE TYPE	NUMBER BUILT	1 ROOM ADDED	2 ROOMS ADDED	TOTAL EXPANDED	TOTAL ROOMS ADDED
01	2,123	23	1,570	1,593	3,163
percent		1.1%	74.0%	75.0%	
02	637	481	---	481	481
percent		75.5%		75.5%	
TOTAL	2,760	504	1,570	2,074 (75.1%)	3,644

Fully three-quarters of the expandable units (which constitute over 94 percent of the units built) were added to over a four-year period. For nearly all of the one-room units expanded, the additions consisted of the maximum two rooms allowed. In addition to those units noted in the above table where the addition is structurally complete, above ground construction is underway for 25-50 others. Thus the number of core units now expanded is probably approaching 80 percent of the total.

C. Private Investment in Umoja I Housing

Private investment in house expansion can be measured as the actual expenditure (in 1982 Kenya shillings) by allottees. In theory, one feature of a core housing project is that the capital investment is more efficient -- that is the allottee pays less for house expansion because, 1) he acts as his own general contractor, 2) less expensive informal sector laborers are often used, and 3) some self-help labor is provided (although in the Umoja I Project this apparently was minimal). In a limited sample taken in July of 1979 the average allottee claimed to have spent KSh.12,950 on expansion of an 01 house to three rooms. Assuming an annual construction inflation rate of 12 percent and that the typical expansion had actually occurred one-half year earlier, this is equal to an expenditure of about KSh.20,400 in current shillings. The senior resident engineer for the project estimates that the average allottee actually spends about KSh.26,000 on two-room house expansion. The average of these factors is KSh.23,200. For purposes of this study, this is a reasonable estimate. Since only a few allottees who had expanded 01 units to two rooms and 02 units to three rooms were interviewed in 1979, the estimated cost of this expansion per unit is based on proportional reductions of the senior resident engineer's estimates. This results in a current cost of KSh.13,000 for a one room expansion of an 01 unit and KSh.10,700 for a one room expansion of an 02 unit.

Applying these costs, the total private investment in house expansion at the Umoja I Project is calculated in current Kenya shillings at KSh.41,870,000. This is shown below:

TABLE 7: TOTAL PRIVATE INVESTMENT IN HOUSE EXPANSION AT UMOJA I

UNIT TYPE	ROOMS ADDED	NUMBER	UNIT COST	TOTAL COST
01	1	23	KSh.13,000	KSh.300,000
01	2	1,570	23,200	36,420,000
02	1	481	10,700	5,150,000
TOTAL				KSh.41,870,000
			At $1 = KSh.12.5	$3,350,000

The multiplier ratio of public to private housing investment is 1:, 56 (i.e., every KSh. 100 of the HG loan has thus far resulted in KSh. 56 private housing expenditure.

D. Market Value of Private Investment in House Expansion

The market value of house expansion at Umoja I is calculated below. The figure used, KSh.1,500 per square meter, is the estimate of the Deputy Director/Technical of the Housing Development Department, and is based on what the work would be bid at if formally contracted on a large scale. This takes into account the extra expense due to the soil conditions.

TABLE 8: MARKET VALUE OF PRIVATE INVESTMENT IN HOUSE EXPANSION AT UMOJA I

UNIT TYPE	ROOMS ADDED(sq.m.)	NUMBER(sq.m.)	UNIT VALUE	TOTAL VALUE
01	1 (9.1)	23 (209)	KSh. 3,650	KSh.310,000
01	2 (17.2)	1,570 (27,004)	25,800	40,510,000
02	1 (8.1)	481 (3,896)	12,150	5,840,000
TOTAL				KSh.46,660,000
			At $1 = KSh.12.5	$3,730,000

E. Further Potential Investment

At Umoja I, 686 units (24.2 %) are still legally expandable. Of this number, 521 have one room and 156 have two rooms. Expansion of all of these units to the three-room limit would involve an investment of KSh.13,990,000, thus bringing total private investment at Umoja I to KSh.55,860,000 ($4,470,000). The cumulative market value of the private investment in Umoja I would rise to KSh.62,260,000 ($4,980,000).

VII IMPLICATIONS OF FINDINGS FOR LOW-COST HOUSING

A. Private Investment in Housing

The Umoja I Project has been highly successful in spurring private investment in housing in the form of house expansion. At least three factors have contributed to this investment. First, large profits are to be made in renting, and this appears to apply to enlargement of a house for rental purposes. Second, allottees had sufficient access to credit or savings to invest in house expansion. Third, the house design, while imperfect, was perceived as an adequate base for private investment.

All of these are conditions for private investment in house expansion. The substantial profits to be realized in renting one's house would appear to be necessary for widespread investment. The concept of housing as an income producer is well-established in Nairobi. Negating this established practice by preventing renting or partial subletting, or pricing the houses at full market value would probably decrease the pace of private investment.

B. Pricing of Houses

Umoja I houses were priced near cost. Due to devaluation of the Kenya Shilling, the NCC is now subsidizing development costs by drawing on general revenues to repay the dollar-denominated HG loan. The effect is to subsidize all allottees and increase the profitability of renting out one's dwelling unit. As a result, the incidence of renting increases.

For future projects, consideration should be given to pricing houses (or lots) above development cost. The excess demand for Umoja I houses, as indicated by the number of applicants, suggests that a price substantially higher than cost may be feasible in terms of being attractive to an adequate number of potential allottees. The effect of pricing houses closer to the market price would be to afford the NCC an opportunity to re-invest profits in a manner consistent with low-cost housing policy. An above-cost pricing policy would have to be balanced against the need to serve the low-income population. Hence, reducing standards while leaving prices at a level appropriate for the income group targetted might be a more effective way to establish prices closer to market levels.

C. Housing Tenure

The Umoja I Project is now more than three-quarters rental. The Dandora Project also has a high level of rental. No sustained effort has ever been made by the NCC to enforce tenure restrictions for Umoja I allottees. Unless housing is priced at its full market price, renting out of units can be expected. Rather than attempt to prevent this eventuality, the NCC might consider ways in which some of the rental profits can be recaptured through taxes, etc. Also, ways to incorporate rental income by designing units for partial subletting might be practical. In spite of Umoja I being a predominantly rental development, it may not be any less viable as a community.

D. Availability of Credit

Umoja I houses have been expanded rapidly even though no loan program was incorporated into the HG Project. The limited data available suggest that many relied upon savings and sale of property, as well as formal sector credit. It is possible that many allottees had incomes higher than reported, and that some of the house expansion was made possible by renting the unit before expanding it. Under these circumstances, a credit program was not needed. However, for a project targetted at a lower income class, or where a non-renting regulation is enforced, provision of a special line of credit may be appropriate.