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CONSULTING ECONOMISTS

HOUSING AND COMMUNITY UPGRADING FOR LOW-INCOME EGYPTIANS

Final Evaluation Report
Project No. 263-0066

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EXECUTIVE SUMMARY

Robert R. Nathan Associates, Inc. (RRNA) was contracted by the United States Agency for International Development to undertake a comprehensive evaluation of the project titled "Housing and Community Upgrading for Low Income Egyptians" on behalf of both USAID and the Government of Egypt (GOE). The Evaluation Study Team (EST) was allotted 20 working days after its arrival in Egypt in which to prepare a draft final report for review by both the GOE and the USAID representatives.

Background and Current Status of Project

The program to assist low-income Egyptians in housing and community upgrading was authorized by USAID and the GOE in 1978. Both parties agreed to share equally the $160 million costs of the Project. The Grant Agreement between USAID and the GOE required the latter to establish an overall implementation agency. The GOE established the Joint Housing Project (JHP) and under it the Project Implementation Unit (PIU). Together these two organizations manage the project subject to review and approval by USAID of decisions involving expenditures of funds or technical criteria concerning design and implementation.

Under the JHP/PIU are three consulting firms: (1) a technical assistance group from the Cooperative Housing Foundation (CHF, formerly FCH) whose responsibility is to advise, assist, and train staff members of JHP/PIU; (2) a consortium of American and Egyptian planners and architects, Basil Warner and Nasser (BWN), which is responsible for the site and urbanization planning for the new community, the design of its infrastructure, and the supervision of construction; and (3) an Egyptian architectual firm, the Arab Bureau (AB), which is responsible for the design of dwellings and community facilities for the new community. In addition, the Credit Foncier Egyptien (CFE) is also under contract to JHP/PIU for the credit and home finance arrangements called for under both the new community and upgrading facilities.

The project was orginally scheduled for completion by mid-1983. However, owing primarily to protracted negotiations of the contracts of American consulting firms, Project start-up was delayed by approximately a year and a half. As a consequence, the Project was rescheduled for completion by mid-1984.

The Project has two basic components: development of the Helwan New Community (HNC), basically a sites and services and core unit housing program for an ultimate population of 110,000, and an upgrading component designed to assist six communities with existing populations of between 10,000 to 30,000 inhabitants. In the cost estimates supporting the Project Paper, two-thirds of Project funds were allocated to the HNC component community and one-third to community upgrading activities.

As of early 1982, the implementation progress of the two components is as follows:

- HNC - All major design work is completed, model housing estate (MHE) of nearly 200 units is under construction, and the first major infrastructure contract award is waiting approval by USAID. Also a marketing program for the MHE is under development, and mortgage agreements are being prepared.

- Upgrading Communities - Activities have been initiated in only three of the six communities originally envisioned to receive assistance. Major accomplishments to date include school and community center construction, access road design and construction, and commencement of home improvement loans. In addition, activities also are underway or being planned for vocational training programs, and for water, sewer, and electrical systems upgrading.

Major Conclusions

The study team's effort was directed toward three overall issues. First is whether the HNC and community upgrading programs have reached the intended beneficiaries while keeping within the budget envisioned in the Project Paper. The second issue is the Project management and implementation schedule, while the third overall issue is the Project lessons to be learned. Summary answers to the EST's response to these key issues are provided in the

following 11 questions and answers which are an explicit part of the consultant's Terms of Reference.

Project Beneficiaries and Costs

1. Is the Project reaching intended beneficiaries in both the new community and in the areas to be upgraded?

To analyze affordability, it was necessary to estimate income distribution as well as costs. This was done by examining the income distribution data used in the Project Paper as well as more recent, albeit incomplete, information. The main conclusion from this analysis is that while it is difficult to get complete agreement on a specific income distribution curve, reasonable estimates of its upper and lower bounds are possible. These estimates, together with the cost estimates, support the original Project Paper analysis concerning the target income levels likely to be reached for the new community in Helwan.

Concerning the upgrading communities, the answer to this question is more problematic since the Project Paper presents no rigorous analysis on this issue similar to the affordability analysis for the new community, and data to make an original analysis still are lacking. The information that the EST was able to obtain from CFE was taken from applications for home improvement loans in three upgrading communities. Such data do not include the income level of applicants, which prevents a firm determination of whether the loan program is actually reaching target income groups. However, the average loan repayments are in the range of LE 11-12. Therefore to the extent that data limitations permit, it appears that the community upgrading program also is meeting the beneficiary levels indicated in the Project Paper.

2. What is the major adverse impact of the project?

The principal adverse impact experienced by the Project to date is that the cost savings advantages the HNC was projected to achieve in comparison to alternative GOE housing strategies no longer appear attainable. This situation results from the apparent success the GOE has achieved in lowering its costs of constructing low-income housing since the time the Project Paper was prepared. The GOE is currently constructing five-story walk-ups at a cost of some LE 65/m^2 which is less than the current projected cost of a complete three-story build-out at HNC. If true, this fact will doubtless undermine to some degree the credibility of

USAID since the HNC component of the project was represented in the Project Paper as being a much lower cost alternative than the conventional GOE five-story walk-up low-income housing project. The loss of credibility will be particularly damaging to any further USAID interest in undertaking experimental or demonstration projects aimed at the long-range policy objective of changing Egyptian national housing policy. A mitigating factor is that the HNC project in the long-run be a viable approach for redirecting the development of the informal housing sector from irrigable areas to nonproductive land areas.

3. Are the original Project cost estimates still valid?

Both components of the Project are estimated to be very close in aggregate to the cost data used in the Project Paper. Indeed, given the allowances for escalation used in the Project Paper, the upgrading component appears to be costing about $1.0 million less than originally estimated. In the HNC, present infrastructure cost estimates are appreciably lower than projected in the Project Paper, while the total costs for this component of the Project are about the same as estimated in the Project Paper. The cost reductions in the HNC that have been achieved, however, cannot be attributable to the lowering of building standards or the introduction of new technologies, both of which were important objectives of the Project Paper.

4. Are the size and complexity of the new community and upgrading areas appropriate in meeting Project objectives?

In large measure, the objectives of a project dictate and define its size and complexity. This Project involves a broad set of social and economic goals to be achieved through a complex range of activities extending from simple construction to complicated matters of law and politics (legalization of land), economics (cost recovery and reduction of subsidies), finance (mobilization of private resources), public administration (lowering of building standards), and social development (community organization).

Whether all Project objectives could have been addressed and all activities necessary to the achievement of such objectives actually been more appropriately implemented in a smaller and less complex Project mode cannot easily be determined.

Relating size and complexity to Project objectives becomes a question of trade-offs: although some objectives

might be met just as effectively by reducing the size and/or complexity of the activities required to carry them out, doing so might increase the difficulty of reaching some other objectives. Experience to date may suggest that some Project objectives are too ambitious, such as changing national housing policy and including six communities in the upgrading program, but there is no evidence to suggest that the overall size and complexity of the Project are inappropriate to meeting its stated objectives.

Project Management and Implementation

5. Is the implementation of the Project proceeding according to schedule?

Although the many different parties involved in the Project and the dual management role of both JHP/PIU and USAID obviously present management difficulties, the work flow progress of the Project has in the recent past been satisfactory. The Project, however, is reaching a very critical period; it is more than half way through its authorized time period but less than 10 percent of its original funds have been spent. Also, the largest single contract award to date is due to be let but USAID has delayed approval. The model housing estate design to provide market information for subsequent dwelling design and construction scheduling is running considerably behind schedule, and there is an apparent major conflict between USAID and JHP/PIU over the ultimate design of the dwelling units for the new community.

The upgrading communities component of the Project has experienced fewer major problems due in part to the smaller scale of individual program elements involved and the limited interdependence of the successive stages of implementation of programs in those communities. However, the upgrading program still is reaching only 50 percent of the originally intended communities and has expended only a small fraction of its total budget in over half its project life. Further, some of its most difficult concepts, such as developing replicable community action programs, have not been started to any significant degree.

Project start-up was delayed by approximately one year and a half as a result primarily of prolonged negotiation of contracts with U.S. consultants. USAID consequently extended the termination date of the Project by an additional year. Currently, the implementation of principal Project elements is approximately in line with the schedule outlined in the recently approved Implementation Plan. Some Project activities, however, have yet to make much progress. Activities

in upgrading have so far been limited to only three of the planned six communities. Neither the training program nor the evaluation plan has been developed. Work on a comprehensive Project finance plan has just begun, and only modest headway has been achieved in developing a building methods and products design and evaluation program. The national housing and land use policy has been undertaken in a separate USAID sponsored project called the National Urban Policy Study (NUPS). The Vocational Training Center has been eliminated in favor of training programs within community centers in each community.

Several potential impediments might retard further timely progress on the Project. First is the continuing need for staff expansion and development at the JHP/PIU. Second is the need for a more expeditious USAID technical review process regarding all program actions requiring its approval and an equal need for a more expeditious processing of JHP/PIU reimbursement requests to avoid potentially serious GOE cash flow problems. Improvements in this regard will be partly dependent on assisting the GOE to reach a more complete understanding of USAID compliance requirements. A third possible impediment is construction delay and a fourth, the possibility of a lag in core house sales in the HNC. The potential for delay is now greater than ever as the Project reaches a critical stage requiring the concurrent initiation and execution of numerous program elements.

6. Are the agencies and units involved in Project management and implementation functioning in a coordinated and effective manner?

Although experiencing some minor problems in earlier stages, the Project currently faces no major difficulties in institutional coordination. The JHP/PIU has done a commendable job of managing a numerous and highly complex array of institutional resources. Some questions of internal lines of communication and authority, however, remain at the JHP/PIU. These questions need early resolution to prevent the rise of management issues when the Project comes under the pressures of increased activity in the coming months.

7. Do all agencies and units involved share a common view of the Project?

Although Project actors clearly do not share a common set of views on all issues, particularly with regard to matters involving priorities and relative emphasis, the views of most parties to the Project appear at this stage to

be in general harmony. There are two important exceptions to this statement. First is the lack of agreement between USAID and the JHP/PIU over the inclusion of the concept of a three-story vertical core alternative in the design plan for the HNC. This matter requires immediate attention. Second is the disagreement prevailing over the nature and degree of USAID's technical oversight function. A joint committee comprising USAID, JHP/PIU, and U.S. consultants needs to be formed soon to work out guidelines for USAID review acceptable to all concerned.

Project Lessons to be Learned
and Possible Project Modifications

8. What lessons can be learned to date from the Project?

Some lessons learned on the Project to date appear to have direct applicability to the design, development, and monitoring of other USAID projects in Egypt. It is important to establish clear and realistic project implementation schedules. Not enough attention was paid to this subject in the design stage of this Project. In addition, there must be a firm meeting of the minds between USAID and the GOE regarding the relationship of levels of effort and Project work tasks before a Grant or Loan Agreement is signed. A lack of understanding on this point leads to long delays in contract negotiations with U.S. consultants. Also in advance of any agreement there is a need for USAID to explain to the GOE agency concerned much more fully the nature of AID monitoring requirements. Explanation and assistance in compliance should be a continuing process. Necessary compromises should be agreed to in advance, and all U.S. contractors should be made fully aware of the agreed USAID role before contract negotiations begin.

More specifically, it is imperative that to the extent possible USAID outline in advance the essential substantive criteria GOE must meet for individual program elements to comply with USAID requirements for technical review and approval. Under present practice of this Project, the JHP/PIU submits a program proposal for approval representing it and its consultants best technical judgment. The subsequent USAID process of review seems oriented toward demonstrating USAID technical capacity, if not superiority, by searching out weak points and recommending refinements. As a result, mission staff often inadvertently put themselves into more of an adversarial than supportive and collaborative role vis-a-vis the Project co-sponsor, the GOE.

The current USAID technical review system on this Project has two potentially serious negative impacts. First, it tends to hinder expeditious Project implementation, which might have serious repercussions in the coming months of anticipated accelerated Project activity. Second, it frustrates if not eliminates the JHP/PIU's sense of accomplishment and consequently any real sense of confidence it may have in its ability to replicate various elements of the Project.

Another lesson learned is that GOE agencies not signatory to the Grant Agreement cannot be counted on or easily persuaded to carry out tasks or change policies to assist a Project in which they have no direct involvement. Their conventions and systems are too well-established and fixed to respond to the kinds of innovative suggestions for lower standards the design of this Project required.

Finally, Project experience suggests that successful implementation of subproject objectives at the HNC and the upgrading communities is a necessary but not sufficient condition to attain the Project's long-term policy goal of placing GOE housing strategy on a more economical footing. Although it remains to be seen whether essential cost recovery and affordability goals will be met, more emphasis needs to be placed on policy issues. This might be accomplished through the development of a combined program of lectures and seminars in Egypt by well-known visiting scholars and experts, continuing study tours, and field visits abroad by MOH officials and interested parties, including local contractors, univerity scholars active in this field, and others.

9. How do the outputs of the Project compare, in terms of improvement in living standards over existing conditions, with current housing and with GOE-supported housing projects?

The HNC contains several advantages over currently provided GOE housing, as envisioned in the Project Paper. The HNC provides ownership where individuals can build up equity by expanding their dwellings, both to meet family desires and to provide a potential for rental income. The HNC clearly provides better site planning, by reapportioning open land among the lot areas with less open area remaining under public responsibility.

Compared to informal housing, improvements provided by the HNC essentially include clear land title, a quicker, initial full standard provision of services, and the inclusion of a range of build-out options. The informal

housing sector usually attains most of these same advantages over time, although the process may occur in stages over an extended period.

As for the upgrading areas, a major "output" of the Project is simply that the process of providing a range of basic community services in these particular areas has been considerably accelerated. Another significant output is the provision of institution-based home improvement finance, clearly an innovation for low-income families in Egypt. Whether land tenure issues can be resolved and communities organized to maintain environmental, sanitation, and other needs and services remains to be seen. The Project deserves credit, however, for engaging the GOE more directly in the resolution of such problems.

10. Does the Project represent a possible model for packaging low-income housing?

This is a difficult question to answer, primarily because the Project is in such an early stage of development. Certainly the issue of social acceptability cannot be answered definitively. The basic concept of upgrading sites in the informal sector communities may represent a possible model for future low-income housing projects. By providing an alternative to the standard five-story walk-up, the HNC design may also be a possible model for some portion of future low-income housing developments. Also, there is some evidence, both in the Cairo Governorate and in Ismailia that sites and services may be considered as an alternative to standard solutions.

It is difficult to see how construction of the HNC could be considered a possible model since as far as infrastructure is concerned, it represents no significant departure from present GOE practices. The build-out of homes would represent a new model, but empirical evidence on which to base a judgment is not available.

The issue of beneficiary financing also has not yet been answered. The implementation structure has worked reasonably well. Its usefulness as a model in Egypt has been diminished, however, by GOE legislation subsequent to the Project's development that shifts responsibility for Project implementation from the central government to the governorates. As for the question of cost-effectiveness, the HNC would not appear to represent a model owing to its high cost relative to GOE alternatives. Some degree of cost-effectiveness, however, may be achieved in the upgrading areas in infrastructure development and shelter improvement and expansion.

11. Are there modifications to the Project which could improve the prospects for meeting Project objectives?

Given the present implementation status of the Project, there do not appear to be many modifications that could significantly alter the course of the Project, without resulting in more than minor effects on timing and costs. The Project's major outstanding issue is to determine the demand for dwelling units that are planned for HNC. Obtaining the full benefits from marketing activities associated with the MHE appears to be the best way to determine what will be the demand. Further clarification of USAID's monitoring role, as previously indicated, would help to ward off possible delays in implementation as Project activity accelerates in the coming months. Some modification of current practice regarding USAID technical review could substantially advance the long-range goal of replicability by giving the JHP/PIU greater responsibility over issues involving technical judgment.

There is a major modification to the Project which could have a large impact. This modification would entail adoption of the vertical core concept that is supported by the JHP. Such a major modification, however, would essentially change the Project from what was originally intended.

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I. INTRODUCTION

The firm of Robert R. Nathan Associates (RRNA) was contracted by the Agency for International Development (AID) to prepare an Interim Evaluation Report on its Project No. 263-0066, Housing and Community Upgrading for Low Income Egyptians. A four-person Evaluation Study Team (EST) consisting of two economists (Drs. Fay and Karanshawy), a low-income housing specialist (Mr. Goethert), and a management and public information specialist (Mr. Irelan) spent six weeks in Egypt (January 19 - March 1, 1982) conducting the evaluation study. Twenty working days after arriving in Egypt, a draft report was submitted to USAID Cairo. Prior to the departure of the EST, an exit briefing was given to representatives of USAID and the Government of Egypt (GOE). Subsequently, written comments concerning the draft report were received from these parties.

These written comments have been carefully reviewed by the EST. Where appropriate, changes have been made to the draft report to reflect specific mistakes or lack of clarity that might have existed in the draft report. It was felt that other comments reflected different viewpoints or judgments. In these instances, there have been no changes, other than editorial, between the final and draft report. However, references, usually in the form of footnotes, indicate that comments have been received which may disagree with the opinions expressed by the EST. In addition, the complete list of comments received from all parties who reviewed the draft report are contained in Appendix C.

The purpose of the interim evaluation was to assess the status of a Project consisting of two major elements: (1) the development of a new community and (2) upgrading of several existing housing areas. The Project, which was initiated by a Grant Agreement between the GOE and AID, signed in 1978, is currently in the implementation phase with total completion not expected before mid-1984.

The overall purpose of the Project as stated in AID's Project Paper is to demonstrate that "...basic housing and

community facilities can be provided for low-income families which are socially acceptable, at a price they are willing to pay, and which provide the GOE a substantial cost recovery on its investment."[1]

In addition, according to the Evaluation Study Team's terms of reference, the project seeks to demonstrate the social acceptability and financial feasibility (from the point of view of low-income households) and the cost effectiveness (from the point of view of government) of options for low-income housing that compare favorably with both the heavily subsidized housing provided by the GOE and with the infrastructural and legal deficiencies associated with housing provided by the informal sector.

To provide the range of desired demonstration effects, the two basic components of the Project have the following objectives:

1. Development of a new community at Helwan (which is in the greater Cairo area) based on pilot tests of a range of housing and finance options for low-income residents in a model housing estate (MHE) which is in its first phase of development leading to a final built-up community of 110,000 residents by the year 2000.

2. Promotion of an upgrading program for several existing informal housing areas in Helwan and Ain Shams through the provision of basic infrastructural services, home improvement loans, assistance in legalizing title to informally held land, and developing community organizations.

When the EST arrived in Cairo in mid-January 1982, construction activities on both major elements of the Project were in very early stages of development. Therefore, it was not feasible to devote extensive time to physical inspection of completed facilities. Rather, the EST concentrated its efforts on data gathering; interviews with USAID, GOE, and consulting firm representatives involved in the implementation of the project; and analysis of plans, drawings, and other documents upon which the Project is based. Also an

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1. Project Paper Egypt - Housing and Community Upgrading, Department of State, Agency for International Development, July 1978, p. 3.

extensive review of USAID files was made to obtain a comprehensive understanding of the Project background and analysis and investigation of other projects in Egypt having similar goals and objectives.

The following section of this report contains a fairly detailed review of the Project background. The EST believes this elaboration is necessary to indicate both its understanding of Project developments to date and the thoroughness of its research. Such detail was also meant to enable reviewing entities to correct any misunderstanding that the EST may have had.

Following the background section is an analysis of the current income distribution of urban households. This section establishes the basis for making an affordability analysis similar to that shown in the Project Paper.

The next section reviews the design and implementation progress of the Helwan New Community (HNC) and Community Upgrading Program as a basis for comparing their present cost estimates with those given in the Project Paper. The cost analysis also compares the HNC with three other programs in Egypt assigned to provide low-income groups with housing. This review provides information for the affordability analysis which seeks to provide an answer to whether target income groups envisioned in the Project Paper can be reached once the HNC and community upgrading programs are completed.

In the next section of the report, the project management and work-flow process is examined and analyzed in terms of the performance of project tasks and functions, the staffing patterns involved, management practices, the relationship among participating agencies, and the project's inter-organizational linkages.

The final section of the report provides the EST's answers to a list of 11 specific questions raised in the team's scope of work. The answers to these questions are based on the documentation and analysis provided in the five preceding sections.

Appendices, in addition to the list of comments received on the draft report, contain detailed data supporting statements or analyses in the body of the report.

II. BACKGROUND

Project Activities Before 1980

The Helwan Housing and Community Upgrading Project developed from a series of studies initiated by AID in 1976 and 1977.[1] In 1976, a joint US/GOE team, following an on-site review in Egypt, prepared a report titled, "Immediate Action Proposals for Housing in Egypt."[2] Of the five members on the AID team involved in this study, the EST was able to interview two, Mr. David McVoy and Mr. Alfred P. Van Huyck. The written conclusions of this report, which appear to have been supported by the team members we interviewed, essentially indicated that a considerable housing deficit of 1.5 million dwelling units existed and that an additional 1.6 million units would be required by the year 2000. Given the magnitude of this deficit, the team suggested a series of guiding principles for immediate action, including:

1. Reducing the average cost of housing units by reducing size and infrastructure standards and improving site planning and improved building technologies;

2. Increasing the level of cost recovery from the dwelling units provided;

3. Encouraging the semi-public and private sector to play a larger role; and

4. Establishing a housing program which focuses on meeting the needs of the lowest income people.

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1. Several individuals interviewed indicated that these studies developed as a consequence of a trip to Egypt by the head of AID's Office of Housing in 1975.

2. The Joint Housing Team, Ministry of Housing and Reconstruction, Arab Republic of Egypt with Office of Housing, Agency for International Development, June 1976.

According to the Project Paper,[1] the "Immediate Action Proposals for Housing in Egypt" report was well received by the GOE. Furthermore, the Ministry of Housing (MOH) requested that a joint US/GOE team work together to identify specific demonstration projects to fulfill its recommendations. As a consequence, the Office of Housing financed three additional studies that were conducted in March and April 1977:

- Housing Finance in Egypt, by the National Savings and Loan League;
- National Urban Land Use Policy, by PADCO; and
- Housing and Community Upgrading, by the Foundation for Cooperative Housing (FCH).

In The "Housing and Community Upgrading" study there were recommendations for the development of several demonstration projects directed at improving the shelter and general well-being of low-income families. Specifically, the following demonstration projects were recommended:

- Helwan Upgrading Project;
- Helwan New Cooperative Community Project;
- Old Cairo (Gamalis) Upgrading Project;
- Ain Shams Upgrading Project; and
- Minia-Qena "Growth Pole" Project.

The recommendations emphasize upgrading. However, the report also supported the Helwan New Cooperative Community Project as a demonstration project to provide homes for about 12,000 families. According to the report, "[t]he purpose of this project would be to substantially add to the housing stock of the Helwan area for low and middle income families of industrial workers." (p. 78).

Preparation of a Project Implementation Document (PID) apparently began before the other three studies were completed.[2] The PID estimated total project costs of $121 million, including a GOE contribution of $40 million, broken down as follows:

Helwan low-cost housing project	$ 31 million
Helwan upgrading	16 million

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1. Op. cit., Annex F, p. 1 of 4.
2. In an undated draft, the PID refers to the in-depth information that will be provided once the final reports on these three studies are completed.

Mataria upgrading	16 million
Central Cairo upgrading	10 million
Upper Egypt: Minya and Qena	2 million
Project design cost	1.5 million
Technical assistance and training	3 million
Planning resources	1.5 million
	$ 81 million
GOE direct contribution	40 million
Total project cost	$ 121 million

Based on these calculations, the PID proposed a grant of $80 million.

The basis for the cost estimates of the Helwan low-cost housing project and the upgrading projects appears to have come from a document attached to the PID found in the files with the heading "Project Identification Document Housing and Community Upgrading - Egypt, C. Dean, FCH, April 22, 1977." In this document, the basis for the $31 million for Helwan is that "(i)f AID provided funding for 5,000 expandable 'core' dwelling units and related utilities, services and community facilities, the cost would be about $31 million." Later in this paper there is a statement that "(t)he total cost of the program would be about $120 million, which would include 7,000 additional units in the Helwan new community project."[1]

The next step was the preparation of the Project Paper. The PID indicated that a low-cost housing project development team would be contracted for a six-week period to complete the necessary field work and to design the project implementation plan and draft major sections of the Project Paper. Although the EST was not able to review any files prior to 1979, this action apparently was taken and a team from CHF assisted USAID in the preparation of the Project Paper. Based on interview information or inferences from the files, as many as five drafts were prepared before the official Project Paper was authorized in July 1978. Thus, a long interval seems to have elapsed between the time when the PID

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1. Neither the PID nor the "Housing and Community Upgrading" report discusses the issue of specific income level of target groups or affordability for either the Helwan New Community or the upgrading schemes. Such an analysis would have indicated from data in the FCH report that the income level for the lowest 51 percent of households in 1977 was less than LE 500, while the mortgage payment on a $6,200 dwelling unit in the new community, assuming 30-year terms at 7 percent interest, would be $467 per annum.

indicated that a six-week study team effort was required and when the Project Paper was finally approved. Lacking access to files covering this period, it can only be surmised that the complexity of the issues involved, including the process for increasing the GOE contribution from $40 million to $80 million, prolonged the period required to prepare the Project Paper. Indeed, the PID had indicated that submission of the Project Paper would be scheduled for as early as November 1977.

The delay in preparing the Project Paper may have been caused partly a study on the Final Engineering and Feasibility Report prepared by ES-Parsons. The copy made available to the Evaluation Study Team, dated September 27, 1978, indicates that a draft report was submitted on July 27, 1978. The contract for this study was dated April 27, 1977, and amended April 27, 1978.

The Project Paper indicates that ES-Parsons was contracted in March 1978 to make an environmental assessment in accord with AID regulations and that its initial report was submitted to USAID in May 1978.

Also, during the period between the PID and the Project Paper, a report on the financial and credit arrangements related to the project was prepared by Richard Pratt Associates (May 17, 1978).

The Project Paper that was approved in July 1978 maintained AID's share of the funding at $80 million but indicated a substantial change in the breakdown between the Helwan New Community and the upgrading projects estimated in the PID. Although these cost estimates are based on the ES-Parsons study, it appears that a dollar figure for the total project cost had previously been determined:

> It was determined that total project costs, based on data furnished, were higher than USAID's budget limitations....On June 12, 1978, USAID listed a letter changing some of their goals and objectives and drastically reduced the planning criteria.... Concepts and infrastructure for the new and upgraded communities were changed to meet the required criteria. In this redesign some minor additions were required; however, USAID instructed that the cost estimates not be altered since the costs could be absorbed in contingencies. It was also agreed that several elements of the scope were

not necessary including grading plans for upgraded communities and operations and maintenance costs...[1]

The ES-Parsons cost estimates in escalated dollars for the Helwan New Community Project were $98,695,000,[2] including $5,760,000 for land purchase. These cost estimates were for a site planned for 6,500 to 6,800 dwelling units on 7,000 to 7,300 lots. In addition, the ES-Parsons study estimated the cost of upgrading six low-income communities as:

1.	Ghoneim	$ 20,043,000
2.	Rashed	6,043,000
3.	Kafr El Elu	16,520,000
4.	Izbet Sidqi	20,459,000
5.	Izbet Zein	2,099,000
6.	Ain Shams (Cairo)	19,774,000
	Land purchase	1,000,000
	Total	$ 85,938,000

An exact comparison of the cost estimates in the Project Paper with those in the ES-Parsons report cannot be made, partly because of several errors in addition in the Project Paper. However, an approximate comparison is:

	Helwan New Community Costs	
	ES-Parsons	Project Paper
Land acquisition	$ 5,760,000	$ 5,760,000
Site work and utilities	30,080,000	30,183,000
Public institutions	4,975,000	4,975,000
Housing	9,269,000	10,787,000
Design and construction supervision	2,660,000	3,690,000
Escalation	33,829,000	33,210,000[a]
Contingency	12,122,000	12,378,000[a]
Total	$98,695,000	$100,983,000

a. Estimates are based on calculation from data in the Project Paper which may not be exact due to addition errors as previously noted.

Thus, the ES-Parsons cost estimates formed the basis for the Helwan New Community. However, in comparison with the earlier PID estimate of $31 million or ($71 million, including a GOE contribution), there is a considerable

1. ES-Parsons, Foreword.
2. In another part of the report, this estimate is reported as $98,857,000.

difference. This difference may be attributed to several factors including: (1) the time interval between the PID and the Project Paper, (2) the reliability of the PID estimates, or (3) the fact that PID cost estimates may not have been escalated.[1]

Although there was a close correspondence between the ES-Parsons and the Project Paper figures for the cost of the Helwan New Community, their respective estimates for the upgrading portion of the project are not the same. The ES-Parsons estimate for upgrading the six selected communities was $85,938,000.[2] The Project Paper estimate was $29,816,000, not including escalation. Total escalation was estimated in the Project Paper to be $51,421,000. Attributing $33,210,000 of this amount to the Helwan New Community based on the Project Paper division of construction expenditures implied from its design and construction supervision estimates as a percentage of construction costs leaves $18,211,000. This amount probably represents an estimate for escalation of construction costs in the six upgrading communities. Thus, the total Project Paper cost estimate for upgrading appears to have been $48,027,000, or 56 percent of the estimate contained in the ES-Parsons report.

In interviews, the EST was told that the ES-Parsons figures for the Helwan New Community were to have been used in preparing the Project Paper, but that expenditures for the entire project were not to exceed $160,000,000. Thus the community upgrading portion of the project appears to be given second priority, at least in the initial framing of the program.

In the Project Paper and ES-Parsons report, the only breakdown available for the upgrading cost of the six communities is by function, not by site:

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1. Although the ES-Parsons and Project Paper construction cost estimates were escalated, the design and construction supervision costs were not.
2. In another part of the report, this estimate is given as $85,776,000.

	Costs for Upgrading Six Communities	
	ES-Parsons	Project Paper
Land	$ 1,000,000	$ 570,000
Site work and utilities	67,492,000	19,421,000[a]
Public institutions	12,485,000	4,896,000
Design and supervision	4,799,000	1,429,000
Home improvement credit		3,500,000
Inflation factor (est.)	included	18,211,000
Contingency	included	apparently none
Administrative -- management	?	7,000,000[b]
	$ 85,776,000	$ 55,027,000

a. The Project Paper reports this figure as $22,121,000, but it appears to be based on an arithmetical error.

b. Some of this amount should be associated with the New Community, but the Project Paper gives no basis for doing so.

When all other items are included, the Project Paper estimated cost for the upgrading is 64 percent of the amount estimated by ES-Parsons. Presumably, these two cost estimates are not based on providing the same level of upgrading services to the six communities. However, since the Project Paper does not give a detailed breakdown of estimated expenditures by site, it is not possible to analyze what was specifically excluded in the Project Paper in comparison with the ES-Parsons upgrading cost estimates.

From the time the Project Paper was approved in mid-1978 until early 1980, the main activity concerning project implementation revolved around contract negotiations for: (1) a U.S. technical assistance team, (2) a U.S. architectural/engineering firm (A/E), and (3) an Egyptian A/E. The Project Paper implementation schedule estimated that the two U.S. consulting firms would be functioning by September 1978 and that the target date for the Egyptian A/E firm was October 1978. In fact, there were no consulting firm activities on the Project, other than contract negotiations, until 1980. Because of the significance attached to these delays and the possible lessons to be learned, a summary review of each contract negotiation follows.

Contract for Providing Technical Assistance to the GOE

The Project Paper allocated $2.8 million for technical assistance and another $4.2 million for other "administration-management" cost estimates. It indicated that technical assistance would be required by the Ministry of Housing to: (1) help in project implementation and community/cooperative organization, (2) establish a branch bank for the Credit Foncier d'Egypt (CFE) oriented to consumer services and data processing, and (3) help in preparing a national land and housing policy. USAID/Cairo intended to select CHF (then FCH), which had already been involved in the Immediate Action Study (1976), the Low Cost Housing Study (1977), and the Project Paper (1978) and had issued a Project Implementation Order/Technical (PIO/T). However, after AID/W objected, it was decided to make an announcement in the Commerce Business Daily for competitive bids, based on a host country contract. The announcement was scheduled to be published in September 1978, but for reasons not clear to the EST, the announcement was not published until December 29, 1978. Bids were received from three firms, including CHF, evaluated and a selection made by MOH on March 13, 1979, with USAID concurrence on March 21, 1979. CHF was selected to commence contract negotiations. Between this date and May, CHF submitted a cost proposal to MOH. In a memo on this cost proposal, the head of the Joint Housing Committee was reported to have complained that the proposed contract price of $5 million was much too high. Chairman Bendari was then reported to have said that the MOH did not need nor did it want technical assistance.[1]

In interviews with CHF representatives in Washington, it was reported that the original contract was based on eight long-term technical advisors, who would spend five years in country, plus short-term advisors. The Project Paper indicates that the technical assistance program would last from September 1978 to June 1983.[2] Since CHF had been involved in the program from the beginning and had participated in the preparation of the Project Paper, its cost estimate was purportedly based on a clear understanding on its part of an appropriate level of effort. Further, its cost of $5 million could also have been based on figures in

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1. Memo of conversation G. Hazel with Chairman Bendari, May 1, 1979.

2. Annex T, page 4 of 5, indicates that the duration of stay for two long-term technical assistance advisors would be 60 man-months.

the Project Paper which indicated that $7 million was available for "The Implementation Unit-MOH, Branch Bank Credit Foncier, and Technical Assistance and Training."

Owing primarily to the objections of the GOE over costs, it appears that CHF reduced its team size, cut the term of the contract from five to three years, and came up with a budget of about $1.9 million. Contract negotiations went smoothly after these modifications, and the contract was signed on August 22, 1979.

However, for reasons not clear to the EST, none of the team members proposed by CHF were available once the contract was executed (indeed, the contract only specified two out of five long-term members in any event). Thus, personnel for field work were not available under the CHF contract until the first quarter of 1980.

American A/E Consultant

The Project Paper indicated that a U.S. architectural/engineering firm would be provided for the site infrastructure -- water, sewage, electricity, roads, etc. -- and for the design and construction management associated with the Helwan New Community. Similar to the procedures followed for the technical assistance consultant, the American A/E consulting firm's contract would be with the GOE.

Interviews indicated that the MOH and the JHC objected to engaging an American A/E.[1] However, the JHP went ahead with the AID-required bidding procedure, received seven proposals, evaluated them, and on January 30, 1979, selected a joint venture headed by the firm Frank E. Basil. AID concurred on February 13, 1979. However, as soon as Basil submitted a cost proposal of around $15 million, based on its proposed level of effort of 2,400 man-months, using an American A/E again became a major issue.

It is difficult to determine from the Project Paper the basis for the original cost estimate of an American A/E firm. A figure of $3.69 million is shown in the Project Paper under "Design - Construction Supervision for Helwan New Community," but, unlike the construction cost estimates, this figure was not escalated for inflation even though it is shown as being based on a percentage of construction cost. Also, the Project Paper does not contain any breakdown

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1. This objection was raised, however, in spite of the fact that the grant agreement signed by the GOE clearly indicated that an American firm would provide these services.

between the American A/E for Helwan and the Egyptian A/E that the Project Paper indicated would design houses and community building for the Helwan New Community.

Even without a precise cost estimate, and with allowance for escalation of construction cost, it is unlikely that the Project Paper's American A/E contract cost estimates would have been $15 million. As in the case of the CHF contract, the consultant appears to have based its proposal on a level of effort not envisioned by its client, although the winning A/E firm was not unique in terms of its estimate.[1]

By the end of July 1979, Basil had submitted its fourth reduced proposed contract price based on 1,150 man-months. However, it was not until November 23, 1979, that contract negotiations were concluded at a price of approximately $5.6 million.[2] Field work under this contract did not start until the first quarter of 1980. Thus, one year also elapsed from the time of selection to the time of commencement of work by the American A/E firm as well as for the Technical Assistance team.

Egyptian A/E Firm

The third contract that the MOH had to negotiate, subject to USAID concurrence, was for the design of housing solutions and community facilities at the Helwan New Community. The Project Paper had clearly reserved these services for an Egyptian A/E firm. Owing either to the problems with other contracts or to other delays, the short list of Egyptian A/E firms did not get USAID approval until January 24, 1979. Proposals were then received in March from eight local firms. After these proposals were evaluated, the Arab Bureau was ranked first.

Negotiations for this contract also proceeded slowly. In fact, by the middle of 1979, when all three contract negotiations remained in flux, individuals at USAID felt that the MOH was unprepared to move forward on the upgrading and the new community development at the same time. Since Chairman Bendari of the JHC was viewed as more favorably disposed toward the new community aspects of the project, it

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1. The average number of man-months in the seven proposals received for this contract was 2,700. (G. Hazel memo, April 10, 1979).

2. Part of the reason for bringing these contract negotiations to a successful finish is that USAID agreed to untie $5 million of its project funds to finance this contract.

was suggested that perhaps USAID should push for splitting out the upgrading part and putting it in some other part of the GOE.[1] Apparently, nothing was done in regard to this recommendation although four months later it was noted that the Arab Bureau and PIU were still meeting only weekly for contract negotiations.[2]

The Arab Bureau contract was signed on August 28, 1980, after extensive negotiations to reduce the price to LE 330,000.

While these contract negotiations were dragging on, the MOH and CFE were negotiating the credit arrangement for home improvement loans. Also, USAID had let a small contract for a social survey of the target population in Helwan with the National Center for Social and Criminological Research (NCSCR). This contract was cancelled in the latter part of 1979 for lack of performance.

As part of the grant agreement, the GOE agreed to establish a special unit in the MOH that would deal directly with the HNC and upgrading project. The entity established by decree in accordance with the Grant Agreement was called the Joint Housing Committee (JHC). The JHC was vested not long after the Grant Agreement was signed. A Project Implementation Unit (PIU) was included within the JHC and, by decree, personnel were assigned to it on February 14, 1979. According to the Project Paper, the PIU was to operate under a joint ministry steering committee. The first and, apparently, only such meeting of the steering committee took place on December 24, 1979.

The PIU appears to have developed more slowly than originally envisioned by USAID. Lack of staff and lack of progress on any upgrading programs were among the issues cited in many of the USAID memos and letters reviewed by the EST. A typical example from a memo reporting on a joint PIU/AID meeting was a statement made by an attending AID official concerning PIU activity that "nothing has been done in relation to the upgrading sites, although a lot could already be done."[3]

Project Activities in 1980

Once the three consulting contracts for the project were negotiated, it was anticipated that work on the project

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1. Memo from G. Hazel to Deputy Director, August 14, 1979.
2. G. Hazel memo, December 11, 1979.
3. Memo of December 11, 1979.

would progress rapidly in 1980. In some cases this happened; in other cases, new problems arose. Development of the site plan for the Helwan New Community was one such problem.

The American A/E contractor, Basil-Warner Burns Tone Lunde - Ali Nour El Din Nassar (BWN), Scope of Services involved:

1. Design of infrastructure facilities on and off site;

2. Preparation of complete cost-effectiveness studies and evaluations;

3. Materials, procurement services, and development of materials and services procurement documents;

4. Provision of complete construction management and contract supervision;

5. Preparation of information for builders;

6. Evaluations of tenders;

7. Recommendations for contract awards;

8. Training for the PIU; and

9. If requested, provision of contingent A/E services for building design and upgrading at existing communities.

The BWN contract is divided into five phases and covers a 40 calendar-month period from April 1980 until July 1983, the original completion date for project and construction management activities. Phase One -- Preliminary Implementation Studies, Urbanization Planning, and Design Development Services -- was scheduled to last four months and involve a level of effort of 100 man-months.

Because of problems that arose over the site plan, the BWN level of effort for Phase One increased by about 50 percent or 100 man-months and the work lasted around 10 months instead of the four to five months originally planned.[1]

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1. For a more detailed discussion, see BWN comment on this point in its memo of letter to Chairman Wakeel of the JHP of 15 March 1982 (Appendix C).

From reading the files and various interviews, it appears that the problem over the site plan arose over the initial BWN approach in developing it. The BWN team members engaged in Phase One did the preliminary engineering and design work in Athens and the urbanization planning chiefly in New York. In a series of review meetings in Cairo in June and August 1980, BWN, which had expected to receive quick approval of its plans, was instead severely criticized by JHP Chairman Bendari, PIU General Manager Gammal, and others. The major criticism was that BWN presented only one final plan, rather than a number of alternative plans for the Helwan New Community. The implication of the criticism was that because BWN had done most of the site planning and urbanization work outside of Cairo, it lacked sufficient inputs from various Egyptian sources.

After meetings on August 18, 19, 21, and 27, 1980, BWN essentially was informed that its initial plans were unacceptable. It was given until October 25, 1980, to make revisions and prepare alternative site and urbanization plans. BWN abided by this decision and submitted a set of plans labeled "Urbanization Plan," "Neighborhood Prototypes," and "Supplementary Drawings" on October 14 and "Illustrative Site Plans" and "Infrastructure Drawing Final Draft" on October 24 and 25. However, it does not appear that the final land-use plan was prepared until February 18, 1981, although accepted by the PIU in December with some modifications.

Although Phase One of its scope of work was delayed for as much as six months, it appears that BWN nevertheless proceeded on the following phases in accord with the time schedule shown in its contract with MOH.

While the American A/E consultants were encountering problems getting approval for their Helwan New Community plans, the technical assistance team from CHF also was encountering problems that delayed progress on their work. The contract negotiated between CHF and MOH specified a five-person team of resident FCH advisors. The five positions these residents were to fill were:

- Community Development Cooperative Housing Specialist;
- Home Improvement Advisor;
- Special Development Evaluation Specialist;
- Urban Economist Planner; and
- Branch Bank Systems Advisor.

These five positions represented 162 man-months out of a total of 198 provided under the contract. The other

person-months were provided for home office support, short-termers, and subcontractors.

For the year 1980, CHF provided 32 man-months of resident advisor time instead of 50 that were scheduled to be provided.[1] Indeed, as of the end of 1980 or roughly one-third of the way through its contract, CHF had expended only 24 percent of its budget.[2]

It is difficult to relate how the reduction of resident staff time affected CHF's level of performance. The contract between MOH and CHF contains a 19-page detailed scope of work (Appendix A). It does not, however, contain any schedule for carrying out activities required by the scope of work. Monthly progress reports required by the contract also do not give a very clear assessment of the percentage of required work completed over a time interval.

Part of the problem of assessing CHF's accomplishments in 1980 is that its work efforts were somewhat beyond its control. In its role of providing general technical assistance to PIU, CHF was required to do what PIU wanted it to do. Review of BWN's preliminary site and urbanization plans that the PIU requested CHF to undertake took considerable time away from other CHF activities. Indeed, the CHF Monthly Progress Report for December 1980 states that upgrading did not receive as much attention as desirable, due to the work on the Helwan New Community and on administrative support to PIU.

At the start of its field work in February 1980, the CHF acting team leader devised a plan to select one of the six sites identified in the Project Paper for upgrading assistance for priority treatment. A memo to the Chairman of JHP indicated that such an approach would allow upgrading activities to begin in six weeks.[3] However, several months later, a report submitted by Dr. Nadim questioned this approach and recommended instead a phased approach for all six communities. In any event, it does not appear that any physical upgrading activities were undertaken in 1980. Indeed, the first upgrading implementation plan, which was a precondition for any actual work, was not submitted to USAID for approval until February 1981.[4]

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1. Jac Smit memo, January 14, 1981.
2. Disbursement voucher form, January 1981.
3. Salmen to Bendari memo March 3, 1980.
4. See the CHF present team leader's comment on this point (Appendix C).

Steve Silcox, the CHF Cooperative Housing Advisor, prepared a series of papers starting in March 1980 that dealt with broad issues of cooperative housing development. Other instances of specific CHF task accomplishments are difficult to find.[1] Part of this lack can be traced, undoubtedly, to the many administrative problems it faced. For example, a March 16 memo from Salmen to Bendari complains that "an inordinate amount of time has been spent on administrative details, especially, on per diem and allowance [issues]." This memo concluded, "If the major tenor of the relationship between the FCH and the PIU remains procedural and administrative, rather than substantive and programmatic, I do not feel FCH can provide the kind of contribution it should or can...."

Salmen's assignment as temporary team leader ended on March 20. After a short interval, Jac Smit arrived and remained as team leader until September 1981.

The team received a "major setback to the progress of financial and banking components" when Mills, the Branch Banking and Financial Advisor, was forced to leave Egypt for health reasons. However, CHF provided assistance in helping PIU and CFE work out financial arrangements for the home improvement loans envisioned as part of the community upgrading activities.[2]

In view of the many problems that all the participants in both the Helwan New Community and the upgrading sites were experiencing, a series of bimonthly coordinating meetings was arranged. The first was held on April 27. However, these meetings caused their own set of problems, including disagreement over the minutes of these meetings.[3]

During this period, CHF was attempting to fill the positon of social development evaluation specialist. It had received MOH and USAID approval to hire a local individual, since efforts to recruit an American had not been successful.

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1. CHF commented on this point, "Other areas of specific FCH task accomplishments include the development of financial arrangements for the home improvement loans, and the preparation of a first implementation plan for the upgrading program."

2. It was not until March 29, 1981, that the first trial home improvement loans were actually made.

3. On May 27, USAID wrote a letter containing four pages of requested changes to the minutes for the first two coordinating meetings. By September 30, G. Hazel, in a letter to Gammal, requested that no written minutes be issued. This later request was not granted.

This position, however, was not filled until 1981, in part because PIU required an Arabic speaking social development advisor.

CHF conducted a low-income housing training program in Ismailia for four days in September, but there is little evidence of other formal training activities during 1980. Whatever other specific accomplishments CHF achieved in 1980, it was obvious to its president that there were significant problems. In a letter to the USAID Director, Mr. Dean said, "The current situation is quite discouraging and I would like to suggest some action which might lead to improvement of the situation."[1] He then went on to say that there was an urgent need for a critical evaluation of the program to determine whether changes should be made in the program itself or in the way the working relationships were structured. He observed that "there may be some way to restructure the program, placing less emphasis on the long-range housing policy objectives in favor of a concentrated effort to get construction started and to show tangible end results." He suggested a "turn-key" arrangement, whereby AID would reimburse the MOH for the completion of, say, 1,000 core units, provided the quantity and quality were acceptable. However, nothing was done regarding this suggestion.

The activities of the Arab Bureau in 1980 appear to have been less controversial than those of either CHF or BWN, perhaps because their work was not as urgent in 1980 or their requirements to design a range of alternative dwelling units was easier to specify. Also the AB contract work did not begin until August.

Project Activities in 1981

The third year after the Project Paper was authorized saw the first expenditures for items other than technical assistance and A/E design and planning work. For the Helwan New Community, contracts were let for the infrastructure and housing elements of the model housing estate. The upgrading program also had expenditures for infrastructure improvements, community facilities, and the home improvement loan program. Thus, by the end of 1981, an estimated $6.6 million of the project's total budget of $160 million had been expended.[2] However, approximately $4.5 million of this amount went for the CHF, BWN, and Arab Bureau consulting contracts.

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1. Letter dated December 8, 1980.
2. Project Implementation Plan, October 1981.

Helwan New Community Activities

On November 24, 1981, concrete was placed on the foundations for the first house of the Model Housing Estate (MHE). However, work on the MHE has progressed much more slowly than originally anticipated. At the end of December, the construction contractor, MAK, had in place approximately 1 percent of the dwelling construction and had expended 38 percent of the contract duration.[1] Therefore, rather than completion of the MHE by July 1982 as originally scheduled, BWN forecasts completion no sooner than early 1983.

In spite of the construction delays of the MHE, bids for infrastructure for Zones A and B were prepared and let in 1981. Bid openings took place on January 16, 1982. Recommendations for selection of the low bidder were to be made in early 1982.

Bid documents for Zone C infrastructure were scheduled for delivery to the Ministry on December 17. However, to expedite completion of the work, PIU decided to make an "on board" review. This was done and the drawings were scheduled to be issued to the Ministry in January 1982.[2]

The design of the MHE dwelling units was prepared by the Arab Bureau under its contract with MOH. During the preparation of drawings for the MHE dwelling units, a disagreement arose over the foundation designs. BWN felt the foundation designs were suitable for construction on sand but that they were overdesigned and therefore overpriced for construction on the hard strata at the site of the Helwan New Community. Apparently, after much discussion, the original foundation designs of the Arab Bureau have been maintained.[3] (See Chapter IV for a more complete discussion concerning this issue.)

Since preparing the MHE designs, the Arab Bureau has also prepared the dwelling designs for Zones A and B, which essentially are the same as those for the MHE. Indeed, in accordance with its contract, the Arab Bureau is not required to produce any further work unless the JHP requests revisions in the designs.

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1. BWN Quarterly Progress Report, October 1-December 31, 1981, p. 42.
2. BWN Quarterly Progress Report, op. cit., p. 13.
3. This was confirmed during a meeting between the EST and Arab Bureau representatives, February 8, 1982.

PIU -- which was originally established on February 14, 1980, but with minimal staff, expertise, and direction -- continued to experience these and similar problems throughout 1981, although it continued to be given technical assistance by the CHF team. Its involvement in the HNC, therefore, has been limited although some of its staff make periodic visits to the site. Indications of PIU staffing problems are obtained from a comparison of its actual staff level of around 30, with recommendations made in the Project Paper of 60[1] and by CHF consultant Terzo of 122.

Also in 1981, according to discussions with PIU General Manager El Gammal, the JHP was reorganized and as a consequence PIU staff and responsibilities were further reduced. According to Mr. El Gammal, PIU no longer prepares drawings for community facilities, such as it was doing prior to April 1981.[2] The marketing phase for the MHE schedule to begin in mid-1982 may provide a real test for PIU capabilities.

The CHF technical assistance team was also reorganized in 1981 with the replacement of its original team leader;[3] it also played a relatively limited role in the HNC during 1981 in comparison with its activities in the upgrading areas. However, just as the need for more effective implementation resulted in the change in team leadership, so CHF's role in the HNC is intended to become more active, particularly in the planned marketing program for the MHE.

Upgrading Activities

In 1981 actual physical construction activities took place in two of the upgrading communities, Rashed and Ghoneim, while a trial for home improvement loans took place at a third community, Izbet Zein, and a full-scale home improvement program commenced in Rashed in mid-1981. No planned activities took place in the other three upgrading communities identified in the Project Paper. Indeed, owing to lack of staff and other considerations, there is some question whether these other three communities will ever be included in the upgrading program.[4]

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1. Op. cit., Annex O, P. 6.
2. Verbal report made at meeting with EST.
3. See comments by J. Smit in Appendix C regarding his dismissal.
4. The EST had some discussion on this matter with the CHF team. The consensus seems to be that a minimal four communities will receive upgrading programs.

In Ghoneim, work began in 1981 on a program to improve the community's water supply by adding 25 hydrants, eight fountains, and two wash stations. Construction commenced in March and was scheduled to be completed by the end of the year, at a cost of LE 425,000.

In addition, construction started on a community school in July with a scheduled completion target of January 1983. Construction of the school is estimated to cost LE 450,000.

Other upgrading activities in Ghoneim that reached the implementation phase in 1981 were improvements to the community drainage, development of a solid waste collection service, preconstruction preparations for building a youth center, and some temporary budget support for community organizations.

Second to Ghonein in terms of construction is Rashed, where a community center/vocational training school and primary schools are under construction, and plans for a health facility are at the implementation stage. However, whereas Ghonein had around LE 600,000 scheduled for disbursements in 1981, Rashed's schedule is less than LE 100,000. Rashed, however, was the site of the major activities in home improvement loans. Although this program began on a trial basis in Izbet Zein in 1981, the first permanent operatons of the home improvement program were established in Rashed when representatives from PIU, CFE, and CHF were all involved in processing loans for home improvements.

Apart from various studies and preliminary design work, Izbet Zein has only received capital expenditures in 1981 related to its trial home improvement loan program that took place between March and July 1981. All the other upgrading activities involving on-site capital expenditures are scheduled to commence in the first seven months of 1982. The largest programs for which studies and plans have been underway include upgrading its electric power supply system, constructing a primary school, establishing a sewage disposal network and site drainage systems, and constructing new fountains, hydrants, and washing stations.

The CHF team was very active throughout 1981 in getting the physical aspects of the upgrading program started. To continue these efforts and expand them to communities not currently involved will, in the opinion of the current team leader, require additional staff and revision of its present scope of work.[1]

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1. Discussion on February 7, 1982.

Current Status of Project Activities

The status of the overall Project as of mid-February 1982 is summarized below.

Helwan New Community

Construction of the Model Housing Estate continues but at a pace likely to increase construction time to completion by as much as six to eight months. However, construction of infrastructure for Zones A and B may begin in one or two months.

Upgrading Communities

Various improvements in infrastructure, community buildigs, home improvement loans, and community organizations are continuing at an accelerating pace in three communities.

In summary, both the HNC and the upgrading programs are proceeding much as originally envisioned, albeit anywhere from one to two years behind schedule. This present state of progress does not mean that all the problems associated with the Project have been solved. Indeed, the Project is probably moving into its most difficult stage.

Current Issues

Although the following discussion is not exhaustive and many more technical issues will be raised in other sections of the report, the following appear to be the basic issues now confronting policymakers.

Currently, the most basic issue concerns the overall viability of the project, that is, whether it will reach the desired target income groups specified in the Project Paper. Although the issue of affordability will be discussed in detail in a succeeding section of this report, any analysis of affordability depends on estimates of costs. While the cost of infrastructure appears to be established, at least for Zones A and B, the cost of the dwelling units and, indeed, their design is still subject to debate. Just as important, the time phase for construction of the dwelling units has not been established, nor is it certain what demand exists or what level of subsidy will be provided by the GOE.

All of the above issues must be dealt with in conjunction with the impact that completing dwellings from other

government housing programs, as well as the informal housing sector, will have on demand for the HNC.

Should the demand for the type of dwelling units planned for HNC appear to be lagging, there may be increased pressures to fall back to a vertical core concept which is advocated by the Vice Chairman of JHP. Such a development could set back the date for starting and completing the Helwan New Community so far that little if anything other than the MHE would be constructed before the USAID budgetary time limit expires.

Continuation of the project as now envisioned also appears to require extension of the BWN contract and, presumably, the CHF contract. Since, according to the Implementation Plan (October 1981), cost estimates for the project already exceed available funds, there is some question about the source of financing for these contracts.

Also crucial to the issue of demand for the Helwan New Community dwelling units is the role that the MHE can play as a marketing facility in view of its delayed completion date. Can the project wait for the development of Zones A and B to benefit from the marketing information that presumably would be best obtained from a completed MHE, or would it be better to start at least some construction of dwelling units on Zones A and B without the basis of complete marketing information? If the latter alternative is chosen, what impact might the development of units for which there is limited demand have on the overall success of the project?

A still more basic issue that does not appear to be completely resolved is whether the Graduated Mortgage Payment (GMP) principle will be adopted by CFE and MOH. If this is not done or not done willingly, how can the lowest levels of the target income groups be reached?

Another unresolved issue affecting HNC is the value of its land to be used as a GOE contribution in kind. Concerning the upgrading communities, the issue of whether to limit the program to less than the six sites identified in the Project Paper still seems unresolved. In part, the resolution of this issue may depend on whether the CHF contract and scope are extended. However, if the goal still is to reach six communities, can the PIU be assumed capable of carrying out an implementation program of such a magnitude? In view of the apparent downgrading of PIU within the JHP framework, can the PIU perform the role specified in the Project Paper and grant agreement?

Also of considerable importance to the success of the upgrading program is the issue of land title. Little progress appears to have been made in this area although it is obviously one of great importance to the community residents.

Other important issues concern the lack of training accomplishments to date and the status of the vocational training school and whether low-cost standards of design can be introduced over the objections of various GOE agencies.

III. INCOME DISTRIBUTION

The Project Paper based its affordability analysis on the cost of mortgage payments for the various dwelling solutions for the Helwan New Community and the cost of home improvement loans in the upgrading areas. Affordability was measured in terms of the percentage of household income that such payments represent. The data for household income came from Table 5, a graph which compared household income in dollars with percentage of population. This graph apparently is a replication of the one shown in the "Housing and Community Upgrading" prepared by CHF in August 1977. However, it may have been updated to take into account changes in income that occurred during the interval between the CHF report and the Project Paper. As a consequence, the Project Paper indicates a "Median Income 1978 (of) $812/Yr" as opposed to the statement in the CHF report that median income of households was about LE 550 per year. Assuming 0.7 was used as the exchange rate conversion, the Project Paper figures represent a 3 percent assumed increase in median household income.

The underlying CHF analysis that supports the Project Paper was taken from a household income and distribution study based on the family budget surveys carried out by the Central Agency for Public Mobilization and Statistics (CAPMAS) in 1974-75. The CHF team adjusted the CAPMAS survey report to take into account households with more than one wage earner, multiple job holdings, transfer payments, and unearned income. These adjustments resulted in raising household incomes in 1974 to a median level of LE 400. A further adjustment was made to increase the 1974 figures to 1977. CHF assumed that wage and salary increases during this interval kept up with the consumer price index and hence used an adjustment factor of 30 percent, implying an annual increase of slightly over 9 percent.

The Project Paper concludes that the cost of mortgage payments and home improvement loans for the various dwelling solutions envisioned will be affordable for all but the

lowest fortieth percentile level of household incomes for the more expensive dwelling units in the new community, assuming level mortgage payments. At the other extreme, the Project Paper estimates that affordability will reach down to all but the lowest 10 percentile level in the upgrading sites for home improvement loans. With graduated mortgage payments, the cheapest dwellings in the New Community would be affordable down to all but the lowest fortieth percentile level of household income.

During the four years since the Project Paper was prepared, numerous new studies or reports have been published on income distribution, including Employment Opportunities and Poverty in a Changing Economy by the ILO/UNDP, Employment Strategy Mission, June-October 1980. This report contains the results of a 1977 ILO survey of 1,000 households in 18 villages. It also contains Dr. A. Mohie-Eldin's report titled Urban Income Distribution. Reference is also made to a 1978 Princeton University-Cairo University Income Distribution Project in which expenditures on electricity by various households in Cairo were used as a proxy measure for income distribution.

Studies referred to in the ILO report include the 1979 study, Interconnections Between Income Distribution and Economic Growth in the Context of Egypt's Economic Development by Ibrahim El-Issawi. Also referred to is the study by John Waterbury, Patterns of Urban Growth and Income Distribution in Egypt, which was prepared as part of the Princeton-Cairo Income Distribution Project.

In addition, there were studies by R. El-Edel, Impact of Taxation on Income Distribution -- An Exploratory Attempt to Estimate Tax Incidence in Egypt, which was also part of the Cairo and Princeton Income Distribution Project in 1979, and R. Eckaus, D. MacCarthy and A. Mohie-Eldin, Multi-Sector General Equilibrium Models for Egypt, done as part of the Cairo University/MIT Technology Adaptation Program in 1978.

In addition to the works cited in the ILO report, a number of other studies, albeit less academic in nature, have been released since 1978 that contain information on income distribution. One of the most recent was an AID financial study on Informal Housing in Egypt prepared by ABT Associates. The draft report submitted to USAID in November 1981 was used by the EST; the final version was not available.

The ABT study conducted a sample survey of 500 households in Cairo and 250 households in Beni Suef. This sample

survey was conducted in May and June 1981. Based on this survey, the report found that:

> Median reported total household expenditures in 1981 were LE 86 per month (LE 1032 per year) in Cairo and LE 64 per month (LE 768 per year) in Beni Suef. By comparison, the national average annual household expenditures in 1974-1975 were LE 451 (Joint Housing and Community Upgrading Team, 1977). This suggests that household incomes (expenditures) have probably increased no more rapidly than urban costs of living during the past six to seven years.[1]

The figures in the ABT study for Cairo urban household expenditures appear low in comparison with other AID-financed studies. For example, the National Urban Policy Study (NUPS), by PADCO in its Working Paper on Urban Development Standards and Costs[2] cited composite estimates of annual income of urban households for the period 1975-79.[3] These data indicated a median household income of LE 1000. This figure was taken from a 1979 AID study which in turn appears to be based on the CAPMAS 1974-75 Household Expenditure Study, adjusted for 1979 prices.

The estimates given in the NUPS report are similar to those found in the CHF Financial Analysis and Evaluation of Urbanization Plan Alternatives report.[4] In addition, this report, and the subsequent one prepared by CHF, give the results of Helwan factory workers' total wages and bonuses for both October 1980 and May 1981. These latter estimates support both the level of household income and the growth rates given in the NUPS report.

Finally, CHF has collected data on Helwan factory workers' income. More use would have been made of these data but revisions to it were still being made while the EST was in Egypt. However, the CHF data appear to indicate that workers have lower household incomes than in Cairo as a whole.

Without a recent and fully documented or official government report similar to the 1974-75 CAPMAS report, it

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1. Op. cit., p. 150. (In a footnote the report indicates that the rate of increase for Cairo in cost of living was 10.2 percent).
2. October 30, 1980.
3. Op. cit., p. 11.
4. Dated October 26, 1980.

is probably unrealistic to base an estimate of household income for potential residents of the HNC on any one income distribution curve. Further, it must be recognized that even with agreement on median household income or expenditure levels, there is probably still significant disagreement on the overall distribution of income both above and below the median level.

However, some quantitative measure is necessary to determine which households can afford the different dwelling solutions offered by the Project.

Figure III-1 shows the upper and lower bounds of household expenditures for potential residents of the Helwan New Community. The lower bound is based on the 1981 ABT estimates that were increased by 14 percent per annum to obtain an estimate for 1983.[1] The upper bound represents the estimates reported in the NUPS report escalated to 1983 by the growth rates shown for the various percentile growths.[2]

In summary, the upper and lower bounds estimates for household expenditures shown in Figure III-1 are:

	LE/MO	
Percentile	Lower	Upper
20th	56	113
25th	71	127
50th	112	189
75th	162	225
80th	170	232

Linear estimates are established for values between these points.

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1. The figure of 14 percent was used to represent the GOE estimates of current and projected growth in nominal per capita income.
2. Comments were made that a confidence level approach rather than upper and lower bounds should be used. The EST feels such a approach would basically result in the same spread.

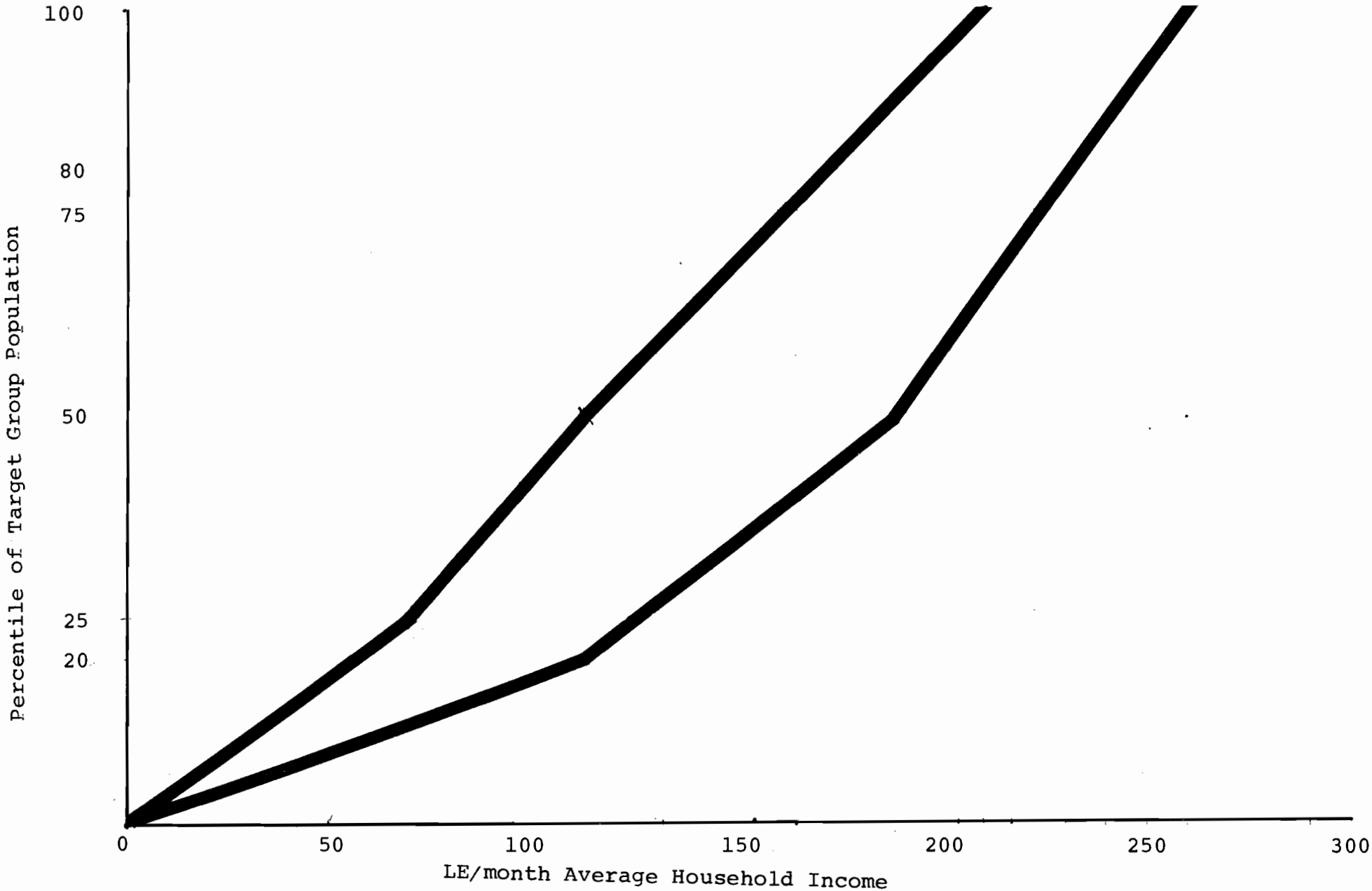

Figure III-1

Household Income Distribution

Assuming 25 percent of household expenditures can be allocated to financing dwelling costs,[1] the following represents decile estimates of potential monthly housing expenditures:

Percentile	LE/MO Lower	LE/MO Upper
20th	14	28
25th	18	32
50th	28	47
75th	41	56
80th	43	58

1. While the Project Paper relies primarily on 20 percent of household expenditures for dwelling costs, more typically a figure of 25 percent is used, particulaly in periods of relatively high inflation such as exists currently in Egypt.

IV. PROJECT COST AND AFFORDABILITY[a]

Review of Physical Designs

This section focuses primarily on the Helwan New Community and reviews the urbanization plan and its components, the utility infrastructure, and the dwellings. The upgrading program presently involving construction of schools and community facilities and of improved and new infrastructure was in a less advanced stage of detailed planning and therefore receives less emphasis in this review.[1]

Plans and documents available in January 1982 formed the primary basis for the review since little construction had taken place, limited to some foundation work in the Model Housing Estate (MHE) of the Helwan New Community and the start of some construction at two upgrading sites. The information on the HNC, however, was sufficient to make a preliminary evaluation of the urbanization layout and infrastructure design, particularly of those elements controllable by design and which establish cost parameters; actual versus anticipated use patterns and issues of construction obviously cannot be reviewed.

In regard to the HNC the following basic questions were addressed:

- Do the designs incorporate the cost efficiencies and social betterment goals specified in the Project Paper?

- How do the projects compare -- in terms of improvement in living standards over existing conditions -- to current and GOE supported housing?

The actual conditions as determined by the latest available plan are then measured against the standards set

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a. Footnotes for this chapter appear at the end of the chapter.

forth in the Project Paper's Scope of Work. When known, the evolution of the design will be reviewed, particularly when the design clearly varies from basic Project Paper goals. To provide a point of reference for these designs, the EST, after first obtaining concurrence from USAID, compared them with two other projects developed by the GOE and with a representative area from the informal sector, El Mounirah in Imbaba.[2] The projects included are the 15th of May Industrial Workers New Community, located adjacent to the Helwan project, and Medinet El Salam in El Berka, in the vicinity of the international airport, north of Heliopolis. Figure IV-1 depicts the basic layout of the HNC's typical neighborhood in comparison with the neighborhood patterns of these three other Egyptian projects.

In reviewing the plans for the HNC, it is recognized that few agree on what constitutes appropriate design; and to a large degree, many criteria are essentially subjective, particularly aesthetic judgments.[3] Therefore, this review emphasizes quantitative data, where possible, and develops comparative data from reference projects. Any design or planning is necessarily a compromise of site dictates, lot/dwelling characteristics, external/internal circulation, and public facilities. Standards and "ideals" can be only benchmarks for the design and invariably must be adjusted in the final product.

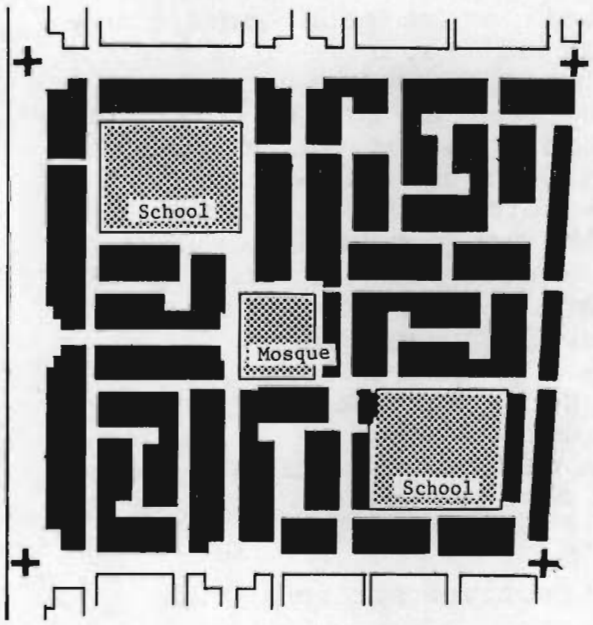
The Urbanization Plan

The distribution and quantity of community facilities and the pattern of land subdivision establish, to a large degree, the initial basic costs of a project and affect, as well, the continuing maintenance and operation costs. An inefficient layout (defined as a low private/public ratio and a high circulation length/area ratio) imposes a cost penalty which can rarely be overcome. Implementation and financing mechanisms can be, and are, very problematic in the development of a project, but occur only at the beginning and can more readily be adjusted. Construction of utilities is generally permanent and can be changed only at great cost and effort. In a site and services/core house project, particularly, land subdivision becomes a more critical element, because the small lots inevitably result in high circulation length/area ratios. Ironically, the larger the lot, the lower the length/area ratio, the higher the percentage of salable land (lots), and the lower is the urbanization cost.

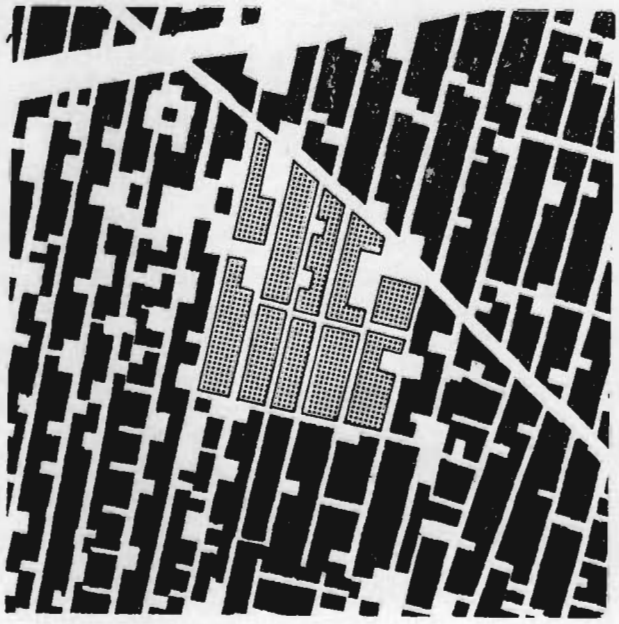
As guidance for the Helwan New Community (HNC), the Project Paper states that "[n]ew urbanized land...is to be

Figure IV-1

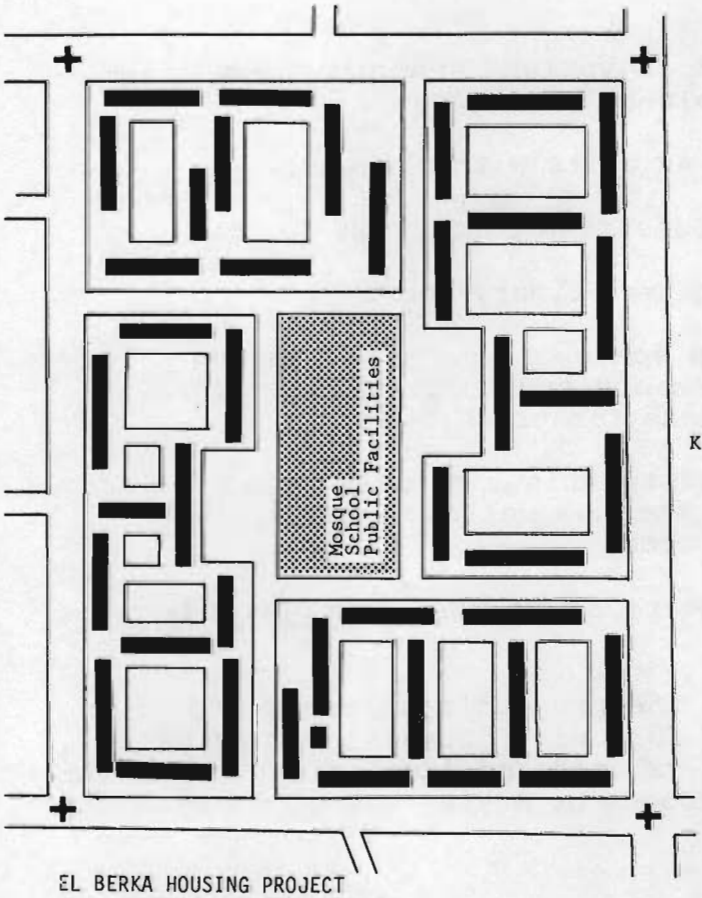
BASIC LAYOUT
REPRESENTATIVE NEIGHBORHOOD PLANS



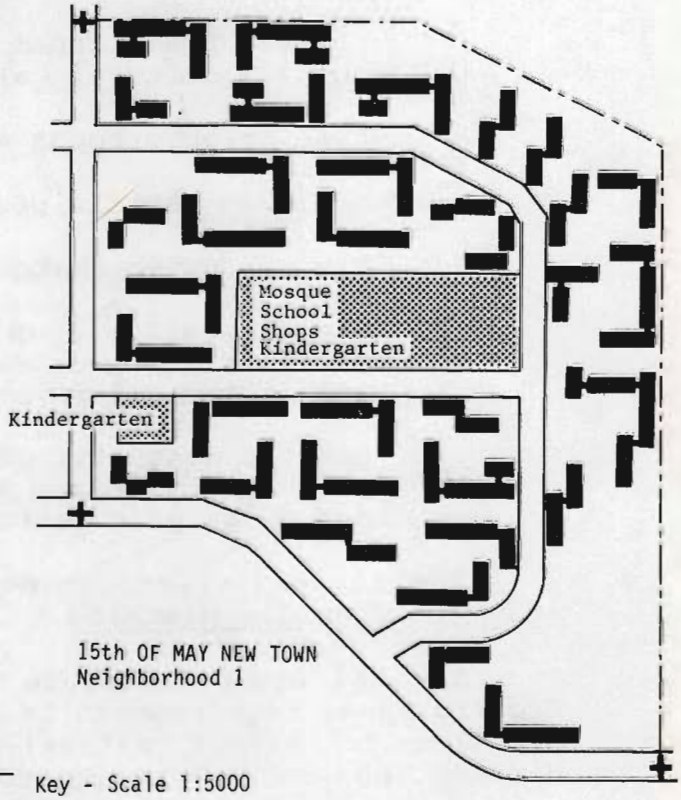
HELWAN NEW COMMUNITY
Neighborhood BN2



EL MOUNIRAH INFORMAL HOUSING
Imbaba sector
shaded portion equivalent semi-public area



EL BERKA HOUSING PROJECT
Representative Neighborhood



15th OF MAY NEW TOWN
Neighborhood 1

Key - Scale 1:5000

PUBLIC	streets, open spaces	(blank)
	schools, clinics, etc.	
PRIVATE	lots, dwellings	

developed utilizing appropriate 'cluster' site planning concepts to provide an individual lot to each beneficiary family."[4] Little else in the Project Paper relates specifically to the urbanization plan until Annex F, which contains a statement of the working objectives as agreed to by AID and MOH in 1977 to guide the preparation of the housing program. Here it states that subsidies should be reduced by utilizing "lower standards and more flexible planning." Furthermore, it indicates that the project will "involve the introduction of new and innovative site planning and physical design solutions which will substantially lower per capita costs of infrastructure...below current public sector practice...by reducing dwelling unit size...lowering infrastructure standards, increasing densities where appropriate, and utilizing less costly construction techniques" (Annex F, page 3-5). In Annex H, there is further specific discussion of the site design and dwelling design strategies (pages 3, 4, and 5).

In summary, the following directives are indicated:

- Use cluster site plan concepts;
- Use new, innovative site planning by increasing density;
- Follow traditional Egyptian practices to reflect cultural values;
- Plan neighborhoods as units with cluster;
- Minimize vehicle/pedestrian conflicts;
- Use narrow footpaths as primary access;
- Clearly define open spaces to promote responsibility and maintenance and to prevent their use as dumping grounds for trash; and
- Develop aesthetic distinctions between neighborhoods by making maximum use of topographic and geographic features.

The key criterion, however, is to use "<u>lower standards and more flexible planning</u>."

The EST did not measure the project's adherence to the Project Paper requirements of following "traditional Egyptian practices to reflect cultural values" and developing "aesthetic distinctions between neighborhoods by making use of topographic

and geographic features." More so than other goals, these two are so general and open to so much interpretation that the EST considered them outside the bounds of realistic evaluation in the time available.

The Site Issues

The Project Paper acknowledges the difficult site conditions and anticipates high excavation costs, noting that "extraordinary care" must be taken to adapt dwellings to the existing topography.[5] However, it further notes that most of the site provides optimal conditions for economical construction of foundations.

The site was initially authorized by decree 116 of 1978, by which 265 feddans were set aside for use in a low-cost housing project. Subsequently, a major portion of the site -- considered the best portion -- was lost to the 15th of May New Town, which was belatedly moved adjacent to the HNC.[6] The EST understood that a MOH team proposed several alternatives but that the selected site was considered the best. In fact, it was stated that "the site is in an excellent location, the best site in Helwan."[7] All parties were aware of the potential difficulties and cost penalties. It is understood that the CHF participated in the initial selection process, as well as the MOH.

In the later stages of design, concern again rose over the site, particularly for Zone D. Arab Bureau architects questioned whether the area should be developed at all. However, a BWN study foresaw no problems. Although this study in order to reduce costs did not recommend a balanced cut-and-fill solution, it still found costs to be prohibitive.[8]

It is still too early to determine whether predictions concerning the site will be realized. On the one hand, infrastructure costs have decreased appreciably, in part because the site proved easier to work with than anticipated, the Arab Bureau having assumed only the worst case for the footings of the dwellings. On the other hand, the Project Paper's intent of optimal economies for such items as the footings has not yet been realized.

Preparation of the Urbanization Plan

The architects apparently perceived development of the plan as a relatively routine assignment. They carried out preliminary studies in Cairo for two weeks, collecting all

the necessary data. Upon their return to home base (New York and Athens), they were to develop the designs. Subsequently, at a series of meetings to be held in June, they expected approval that would permit them to complete the final designs. Although the entire process was due to be completed in four months, it was only in December that the design was finally approved, approximately eight months later. However, some additional changes have since been made.

In any event the PIU indicated some dissatisfaction with the architects' initial presentation and responded with a detailed critique in a letter to BWN team leader Flanagan. The letter noted the omission of essential analytical studies and included a detailed list of questions and comments on the Preliminary Engineering Concepts.[9]

At a second series of presentations and reviews in August, the architects submitted a revised plan and supporting documents. The architects, though, offered only one solution -- a cluster layout in which roads were curved to the contours of the site -- instead of the variety of options expected by the PIU. The planners were thus directed to develop three alternative urbanization plans --"linear center, grid, and formal center" -- and attendant cost studies by October 25, 1980.

Although previous plans had been prepared in New York and Athens, the design team, realizing that this was not a routine assignment, moved to the project headquarters in Maadi to facilitate consultations with the PIU and with other agencies involved in site design issues.

In October, the team submitted three alternatives accompanied by detailed reports on the revised urbanization concepts, preliminary infrastructure plans, and cost estimates. The CHF prepared a detailed review that examined all aspects of the plans and raised critical questions about the high infrastructure costs and standards.

Modifications were suggested, and alternative I, "loop road scheme," was selected by the end of December 1980, and work began on preparation of the bid documents. Ironically, the BWN pointed out that the selected design was the same as initially presented in the meetings in June.[10]

The project was again modified in May 1981, to increase the number of market rate lots from 247 to 516, as requested by the JHP/PIU. Revisions still continue, and probably will go on through construction itself. For example, the tramway alignment was recently shifted from the middle to the side.[11]

Another issue still unresolved is a power line not intended to pass through the site to the relocated substation.

Throughout the design development process, two distinct, not strictly compatible, motivations were at work. On the one hand, the architect pressed for a quick decision that would provide him ample time to complete construction drawings by the given deadline. On the other hand, the CHF, PIU, and JHP, with no specific deadlines and no requirement for an immediate product, wanted to be shown alternatives and wanted time to examine them.

Basic Evaluation Indices

The three basic indicators of any layout are the percentage of land utilization, the ratio of circulation length/area, and the density. Individually and combined, each provides a benchmark for expected project costs. Inefficiencies at this level affect all aspects of the project and cannot be remedied later.

A poor pattern of land use (low percentage of private land) results in higher costs to each lot owner and increased maintenance costs in the project. The circulation length/area ratio indicates efficiency of the layout; high values result in high initial costs of utility networks and street paving and affect the provision of such services as mail delivery, garbage collection (if provided), water and electrical meter reading, etc. Density indicates the amount of land required to house a given population, and when coupled with percentage of land use, indicates the resultant unit size. A relatively low density wastes land and increases the per capita costs for land and infrastructure.

Land Use

Land use of the project was determined at two scales:

- The overall site, which includes the larger community requirements of high schools, the two community-wide centers, and police and fire stations;

- The neighborhoods, which include as public facilities two primary schools and an area set aside for a mosque, and in some neighborhoods a mini-park located in difficult terrain.

Tables IV-1 and IV-2 summarize the HNC land utilization and densities for these two scales. Figure IV-2 graphically

Table IV-1. Helwan New Community Land Utilization and Density: Community Scale[a]

Land Use	Hectares	Percent
Private		
Lots	54.77	39
Public		
Facilities park[b]	28.64	21
Circulation - open space[c]	55.78	40
	139.19	100

Density	Number	Gross density[d]	Net density[e]
Units			
Initial	6,901	50	126
Saturated	20,703	149	378
People			
Initial	34,505	248	630
Saturated	103,515	744	1,890

a. Based on land budget prepared by BWN updated to September 16, 1981.
b. Includes utilities, neighborhood facilities.
c. Includes open space; see footnote b, Table IV-2.
d. Based on total site area.
e. Based on lot area only.

Table IV-2. Helwan New Community Land Utilization and Density: Neighborhood Scale

Land use (for total of 10 neighborhoods)	Hectares	Percentage
Private		
Lots	54.77	42
Public		
Schools, mosques	17.41	14
Circulation,[a] open space[b]	55.78	44
Total	127.96	100

Each neighborhood = 12.796 hectares

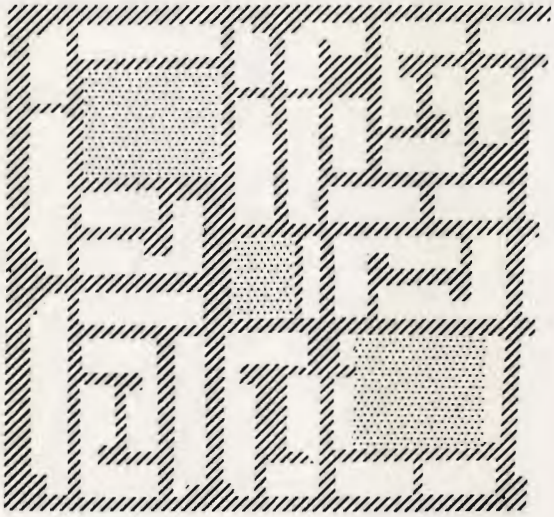
Density (for each neighborhood)	Number[c]	Gross density per ha.	Net density[d] per ha.
Units			
Initial	691	54	126
Saturated	2,070	162	378
People			
Initial	3,451	270	630
Saturated	10,352	809	1,890

Circulation length/area ratio:[e]
Total circulation length/total area = 379 m/ha

a. Total of neighborhood and community headings, Land Budget, September 1981. Perimeter streets are properly part of neighborhood land budget.
b. De facto circulation area, particularly in predominantly pedestrian communities.
c. Average of 10 neighborhoods; note that net density is the same for both community and neighborhood scales, by definition.
d. Private area only.
e. Determined by measurement of neighborhood BN2.

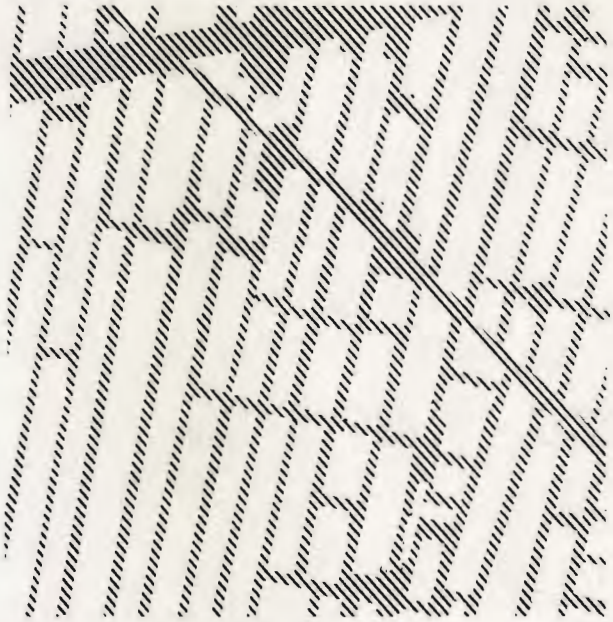
Figure IV-2. Representative Neighborhood Plan and Land Utilization Patterns

LAND UTILIZATION
REPRESENTATIVE NEIGHBORHOOD PLANS



HELWAN NEW COMMUNITY
Neighborhood BN2

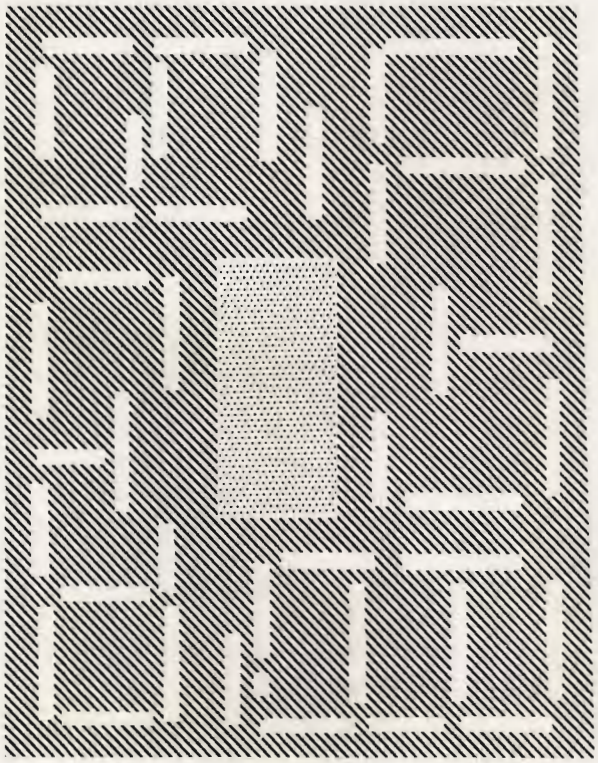
Lots	42%
Facilities	14%
Streets, open	44%



EL MOUNIRAH INFORMAL HOUSING
Imbaba sector

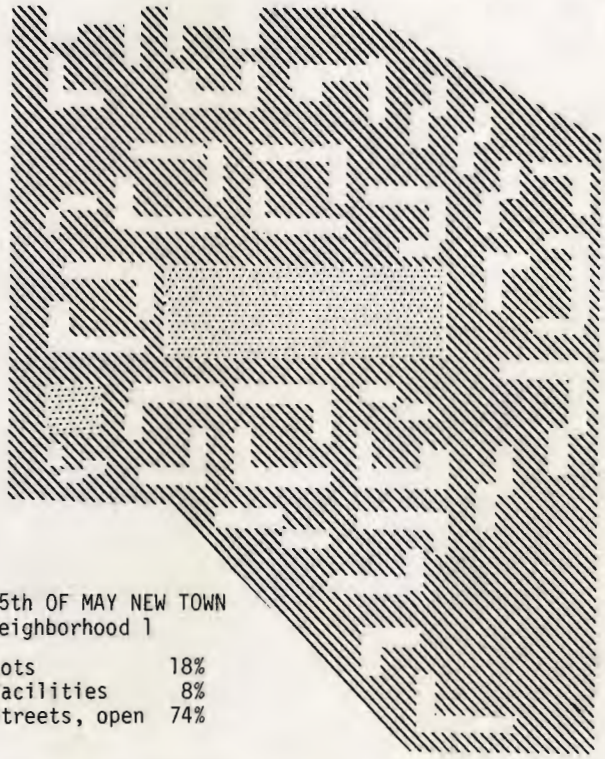
Lots	73%
Facilities*	-
Streets, open	27%

*With 14% facilities as HNC, lots become 62%.



EL BERKA HOUSING PROJECT
Representative Neighborhood

Lots	18%
Facilities	7%
Streets, open	75%



15th OF MAY NEW TOWN
Neighborhood 1

Lots	18%
Facilities	8%
Streets, open	74%

Key - Scale 1:5000

PRIVATE	lots, dwellings	(blank)
PUBLIC	streets, open spaces	
	schools, clinics, etc.	

depicts the land utilization of representative neighborhood plans for HNC in comparison with three other Egyptian neighborhood housing patterns.

The neighborhood scale more accurately compares land development efficiencies. The community scale incorporates facilities required to serve the larger population base and often includes specialized land uses that do not appear in smaller areas. Although all boundary determinations for the neighborhood scale require some individual judgment, decisions to eliminate selected areas from the community scales become more prone to error and often preclude common agreements.

As shown in Table IV-3, a comparison of three other case studies in Egypt with the HNC, AID, and Urbanization Primer standards for land utilization at the neighborhood scale reveals the following:

- The standard GOE walk-up apartment solutions provide the least amount of private land, with most of the land area remaining under public responsibility. Essentially, only the land with buildings is private.

- The HNC almost doubles the amount of private land over these GOE solutions.

- The informal sector offers the most private land, but at the expense of community facilities. When public facilities are included in an informal land subdivision pattern, this sector still provides the highest amount of private land, 62 percent.

The land utilization index classifies the land according to user, control, and responsibility. The index considered here is different from "land use," which considers the function of a parcel of land (commercial, residential, industrial, etc.). Land utilization assesses how land is actually used, regardless of legal tenure considerations.

In addition to the previous considerations, two other basic categories of use are examined in this review:

- Public: Land which is used essentially for circulation -- streets, walkways, paths -- and, at the larger scale, land which is used for public facilities -- schools, etc. Left-over spaces are also included as public. The users are anybody, and unlimited in

Table IV-3. Land Utilization: Neighborhood Scale

	Case studies					Standards		
		Informal[b]					Primer[e]	
	HNC[a]	(A)	(B)	El Berka[c]	15 May[c]	AID[d]	I	S
	----------percent----------							
Private								
Lots	42	73	63	(18)	(18)	50-60 5-10 (other)	59	40
Public								
Facilities	14	--	14	(8)	(8)	10-20	16	35
Circulation - Open space	44	27	22	(74)	(74)	20-30	25	25

a. From Table IV-2.
b. "A" values are derived by measurement of an area in Imbaba, p. 112, "Growth of an Informal Area over a Thirty Year Period," APT Report 80-13; "B" values refer to percentages derived by using this same informal pattern with the introduction of an area for public facilities as in the Helwan New Community, 14 percent.
c. By measurement of representative neighborhoods; see plans.
d. AID Proposed Minimum Standards, p. 23. Although developed in Latin America, similarities of lot sizes, etc., allow its use as a general benchmark.
e. Urbanization Primer, MIT Press, 1978. I = initial population; S = saturated population. The Primer was initially prepared for the World Bank as a guideline for the design of site and services projects.

number, with minimum controls (mostly legal) and the areas are the responsibility of a public agency.

- Private: Land which is used for residential, commercial, and industrial purposes; land that is sold, usually through freehold tenure. The users are very limited, usually owners or tenants; maximum physical, legal, and social controls precisely define the responsibilities of the users.

A coherent relationship among users and shared responsibility and controls are necessary in any development. Proper controls should define the extent of a territory, facilitate its specific function, and allow and encourage users to assume their responsibility in terms of maintenance and operation.

Excessive public land places an undue burden on the limited government resources for both initial capital costs and continuing maintenance costs, which could better be directed elsewhere.

Determination of public and private land was done by simple inspection: in most cases, the dwelling lots are private and the remainder is public. In public housing (15th May and El Berka), the buildings become the only private areas. Land for public facilities was included in the public category.

In summary, the HNC provides more land for potential cost recovery than current GOE projects but less than the informal sector.

Circulation Length/Area Ratio

The circulation length/area ratio provides an approximate indicator of the efficiency of the linear elements of the project, particularly for the utility networks and streets. The lengths are determined by measurement of both the planned, formal paved areas, and the de facto informal paths. (See Appendix D for a more detailed discussion of how this index is developed.)

The lengths are directly related to costs. Street and utility networks invariably follow the above-ground circulation, although a direct 1:1 relation does not exist. Too many streets (i.e., too many small, short blocks) are redundant and wasteful, but enhance pedestrian access; too few streets lower utility network costs, but make pedestrian

access less convenient. A precise index number is difficult to establish, but an approximate benchmark may be derived from a simple gridiron layout, using a similar lot size and proportion and a 75m-100m range of block lengths.

Table IV-4. Circulation Length/Area Ratio (m/ha)

	Case Studies[b]			
HNC	Informal	El Berka	15th May	Standard[c]
379-331[a]	471	405	449	329-306

a. The 379m/ha value was determined by measurement from neighborhood BN2. The 331m/ha value was calculated from the total street length indicated in the Land Budget for the complete site of September 16, 1981. Total circulation length (m)/total area (ha) = length per area index (m/ha).
b. Determined by measurement of representative neighborhoods; see plans.
c. Not comparable for El Berka and 15th of May; based on 60-80m^2 lot area 1:2 proportion. Urbanization Primer, p. 114.

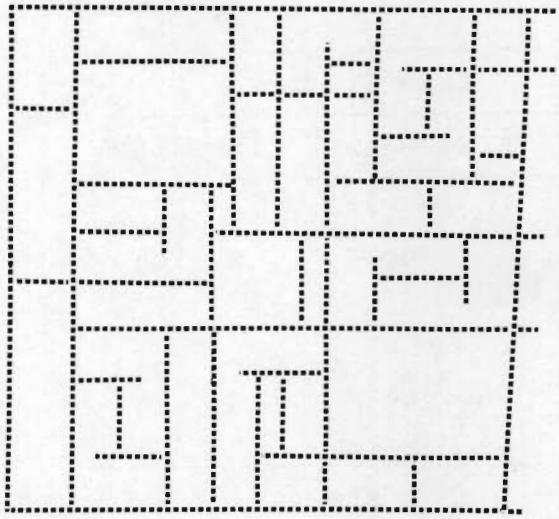
As shown in Table IV-4, and graphically illustrated in Figure IV-3 the HNC provides the lowest length/area ratio compared to the three case studies. However, compared to the standard model pattern of a neighborhood, the project has an extra 50-73 meters of circulation for each hectare. For the entire site, this amount would approximate 6,950-10,197 meters, a 13-19 percent increase. Use of cluster layouts as indicated in the Project Paper may have decreased this value considerably, particularly when semi-private shared courtyards are controlled by the cooperatives. The length/area ratios of cluster layouts are in the range of 150-230m/ha, a 60 percent drop.[12]

Density

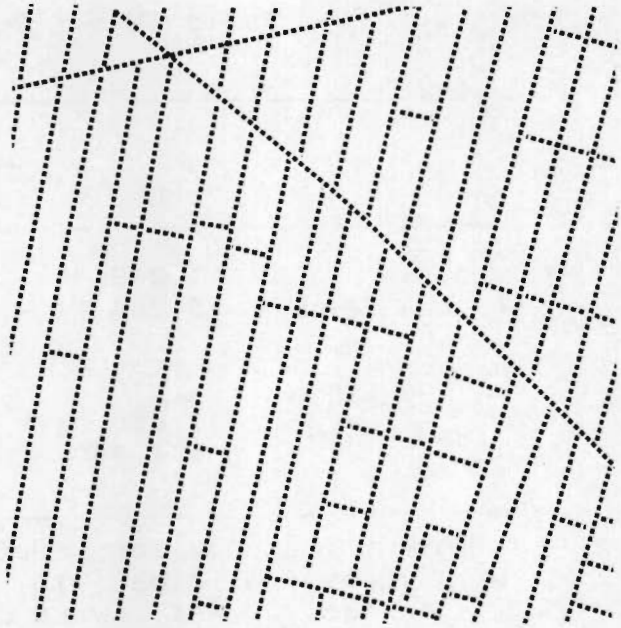
The density index is the ratio of the total number of lots or people in a given area to that area. This index is useful in determining the amount of utilities and services required and the amount of land needed to house a given population. Table IV-5 indicates the density for HNC and the three care studies.

Figure IV-3. Circulation Lengths for Representative Neighborhood Plans

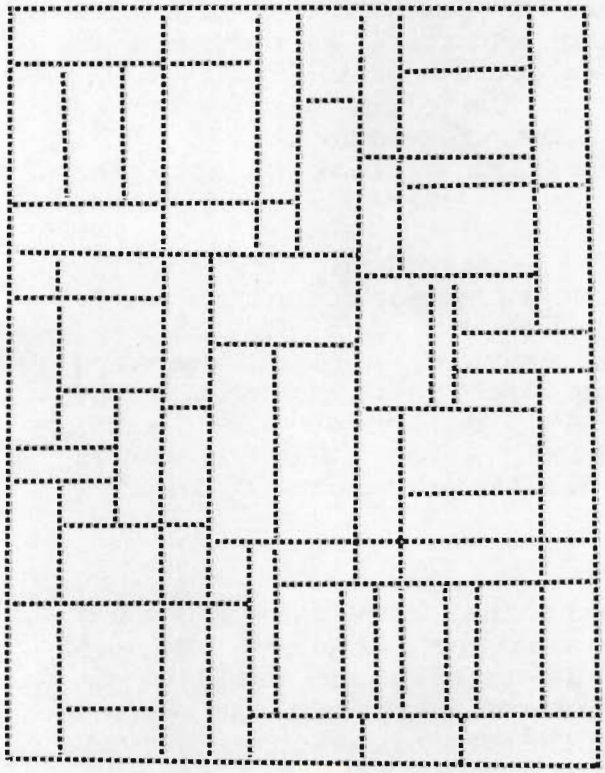
CIRCULATION LENGTHS
REPRESENTATIVE NEIGHBORHOOD PLANS



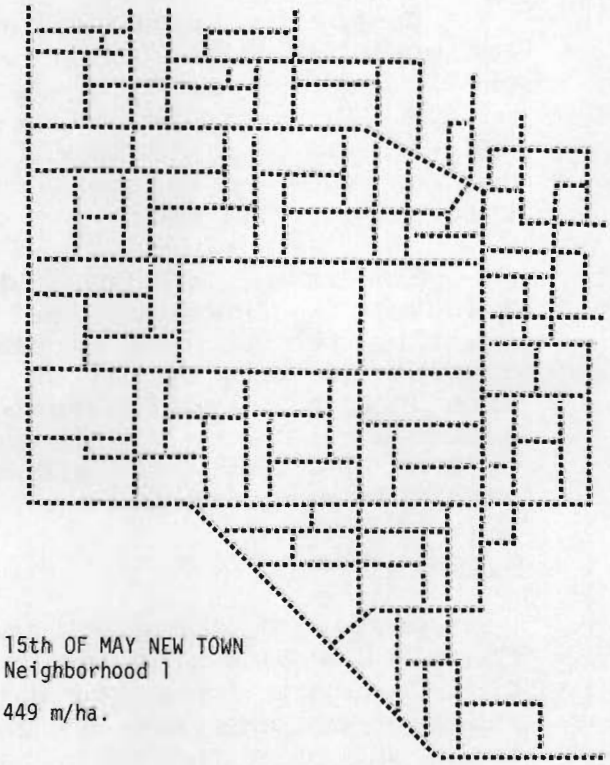
HELWAN NEW COMMUNITY 379 m/ha.
Neighborhood BN2



EL MOUNIRAH INFORMAL HOUSING 471 m/ha.
Imbaba sector
(427 m/ha. when subtracting area for schools)



EL BERKA HOUSING PROJECT 405 m/ha.
Representatative Neighborhood



15th OF MAY NEW TOWN
Neighborhood 1

449 m/ha.

Key - Scale 1:5000

····· Circulation lines, networks; formal and de facto

See Appendix D for an explaration of how the r/ha. Index is determined.

Table IV-5. Density: People/Hectare

Land	HNC	Case Studies: Informal[a]	El Berka[b]	15th May[b]
Gross (Total land)	I 248 S 744	1,292	500	I 160 S 145
Net (Residential land only)	I 630 S 1,890	1,770	750	I 572 S 613

Note: I stands for initial stage and S stands for saturation stage (anticipated).
a. Page 70, APT report 80-13; if subtracting the equivalent land for schools, etc., as in the HNC, gross density would drop to 954 p/ha and net density to 1,521 p/ha.
b. PADCO Report: "Urban Development Standards and Costs," p. 27.

Comparing the densities of the projects, clearly HNC achieves its goals of increasing densities as outlined in the Project Paper. It more than doubles the density found in the GOE examples. However, in the older generation of GOE walk-up apartments (Ain El Sira, for example),[13] which go to five stories, net densities are similar to both the informal and the HNC.

The issue of proper density stirred up much initial discussion. However, most comments were concerned with limiting the size of population and not with the abstract concept of density per se. For example, during a meeting with BWN, MOH had instructed the architects to reduce the number of lots to 5,000, from 744 p/ha to 540 p/ha, a 27 percent decrease. (USAID officials were not in agreement with this decision and the original target was maintained.)

Circulation

Review of the plans indicates that streets are predominantly 8 meters wide inside the neighborhood units. Streets of 6-7 meters are noted but these usually run parallel to parks or border open spaces. Limited 4-meter walkways are found and pass through blocks. The Urbanization Plan (Vol. I) prepared by the architects indicates that the intention was to provide a hierarchy of streets, from larger width

roads to 6-meter pedestrian walkways, with extensive 10-meter through streets and cul-de-sacs (page 4.2). It also was to include "narrow footpaths as primary access," as suggested in the Project Paper. The narrow widths were questioned, however, and in the initial review meetings, the PIU requested more justification for the 6-meter streets[14] and later limited footpaths to a minimum of 4 meters and suggested only limited use of dead-end streets.[15] An early plan showed curved roads following the contour of the land, but this plan was rejected because the GOE equates straight lines with order.[16]

Street Widths

A breakdown of the streets by area and length indicates that the 8 meter right-of-way is the most common, followed by the 10 meter and 6 meter, and then the 22 meter width. In comparison, the informal "ad hoc" developments have widths ranging from 3 meters to 7 meters and above. The most prevalent in the interior is 4-7 meters, with 5 meters as the most common. The primary streets are in the range of 10-25 meters,[17] generally following the pattern of filled-in irrigation canals. Surprisingly close concurrence exists between the HNC and the informal developments; however, the interior streets of the informal areas tend to have smaller dimensions, below 6 meters.

Project Paper Goals

Annex H, page 4, of the Project Paper refers particularly to circulation. Two primary mandates are given: (1) predestrian vehicle conflict should be minimized, and (2) most communication should be carried out on foot by narrow pathways and streets. The reference also indicates that the site design should adopt a strategy of "safety from vehicles."

Although much discussion has centered on an acceptable minimum width, no clear agreement prevails. Streets below 3 meters can create difficulties in excavation and in placement of the multiple network lines for utilities. The EST was told that a new Egyptian law has lowered minimum width from 10 meters to 8 meters. Minimum legal requirements can be overcome, however, following the example in the Ismailia Demonstration Project. Because wide streets were believed to invite debris and garbage and make control difficult, a 1.5 meter frontage was "loaned" to each lot owner for planting, leaving 5 meters for circulation.

Although the Project Paper mandates a pedestrian orientation and the beneficiaries will probably be largely carless,

as indicated in Table IV-6 about 41 percent of the streets by area and 28 percent of the streets by length are above the minimum legal width of 8 meters; this does not mean that the widths of the streets are excessive. In small lot residential areas, particularly, many activities spill over into the streets, which then must assume other functions besides circulation. Moreover, the small lots generally become completely built up (despite legal strictures) and the streets then provide a welcome expansion of the dwelling, especially in areas of small-scale industries and shops. "Proper" width depends on location and on whether the street is anticipated to serve both circulation and "spill-over" activities. (For example, the street could have a 2.50-3.0 meter circulation passage in the center and a 2.75-2.50 meter space on either side for "spill-over.") It is, however, unclear whether street activities are encouraged when streets are wide, or whether these activities occur primarily because of other factors, independent of width.[18]

Assuming an average width of 8 meters, the total area of streets would be reduced to 36.88 ha from the 42.18 ha now provided, a 5.30 ha (12 percent) reduction. These 5.30 ha could be translated into 671 additional lots, increasing the percentage of private salable land from 39 percent to 49 percent. Because infrastructure costs are 45 percent of the total, assuming roads and paving would represent approximately 39 percent of this cost (based on the MHE percentages), the savings would total about $2.0 million.[19] Indeed, if an average of 10 meters were dictated as in the previous planning law, an additional 3.92 ha would be needed, decreasing the number of lots by 496 and dropping the percent of private salable land from 39 percent to 36 percent.

Range of Widths

A community requires a hierarchy of street widths to define a hierarchy of functions and a focus for the site. Similar width streets with different intended functions cause ambiguity. In the neighborhoods of the Helwan New Community, the 8 and 10 meter streets are very similar and may provide a too uniform pattern of interior streets and boundary streets, particularly since the 10 meter streets are the organizing elements and spine of the neighborhoods. A clearer hierarchy would reinforce planned community-wide centers, retard through-traffic inside the residential neighborhoods, and reinforce and focus commercial activity.

Tramway Location

The location of the tramway has remained an issue until now, with the most recent decision placing the route along

Table IV-6. Helwan New Community Widths, Areas, and Lengths of Streets

Width Right of way	Area		Length	
meters	hectares	percent	meters	percent
22	5.42	13	2,264	5
16	2.54	6	1,588	4
15	1.34	3	893	2
12	1.88	4	893	2
10	6.33	15	7,027	15
8	19.68	47	24,600	53
6	4.12	10	6,667	14
4	0.87	2	2,175	5
Total	42.18	100	46,107	100

the eastern border of the site.[20] This decision releases land in the center of the site for other uses but could adversely affect the anticipated traffic pattern and the growth of the community center. Instead of reinforcing the center, the side route would encourage increased commercialization and higher land values in the proximity of the new tramway stops. Several centers -- both planned and unplanned -- would now compete, so that commercial concentration would be diluted and the community potentially harmed. Access road number three, coupled with the west boundary road, could easily become a major commercialized strip.

The tramway's previous central location facilitated and encouraged pedestrian access, whereas now, cross-site movement would be inevitable and the primary street networks may not be appropriately located to handle the increased movement. Should a central location for a stop again be selected, access road number three could readily accommodate the increased traffic load. However, a slight shift of the stop would result in uncontrollable through movements in the neighborhoods or secondary walkways.[21]

Annex H in the Project Paper indicates that public open space should have "well defined boundaries and functions such as sports ground, public assembly areas, gardens. Public use and access spaces should be clearly defined so as not to be used as open dumping grounds for trash. Dwelling building lines ... may be coterminous with the street lines so that responsibilities for land use and maintenance are clear" (p. 5).

Open Spaces

All parties involved in the planning and review agree that the upkeep of open areas is an important issue. Volume I of BWN's Urbanization Plan recognizes that "open space, as currently provided, is an utter failure." The same report further refers to landscaping and vegetation as "virtually non-existent in most informal communities whether squatter... or public housing sites" and to quasi-public spaces as littered with "dust, garbage, and debris."[22] The report proposes cooperatively owned courtyards and squares as a remedy to these problems. The Chairman of the PIU in the very early stages of project review also cautioned that "greenways seem likely to be unkept."[23] All parties apparently agreed on the importance of the issue of unkept open spaces.

Despite acute awareness of the problem, the layout includes a large number of small "left-over" spaces and courtyards with unclear control and responsibility. The rigid rectangular geometry of the lots results in irregularities which are taken up by left-over spaces designated as planted areas. Clearly, the desire for repetitive, non-varying lot sizes and simple, rectangular blocks with their presumed administrative simplicity are the overriding requirements.

Left-over spaces and very small open spaces left unmaintained degrade the appearance and hamper garbage collection efforts of a community. In other areas of Cairo and throughout Egypt, waste quickly accumulates in these spaces and efforts at collection are sporadic. Because the project entails progressive construction of the dwellings, the inevitable debris from these activities may well overwhelm any cooperative clean-up efforts, and the many small open areas will provide ready spaces for dumping.[24]

Review of the land budget and of the design indicates a high proportion of small planted areas (labelled "G and T, N.I.C." -- Grass and Trees, Not Included in Contract). The plants themselves were eliminated, at least in the MHE, due to economic measures. In terms of area, approximately 9.72 ha of land are devoted to these uses.[25] When allocated on a per lot basis, this is equivalent to $14m^2$ per lot, 25 percent of the area of Type A lots.

If the open spaces allocated for "mini parks, courtyards and public spaces/setbacks"[26] are used for additional lots, the residential area increases to 50 percent and the circulation/open space decreases to 36 percent (see Table IV-3). An additional 1,262 lots (+18 percent) could be provided, lowering the costs per lot.[27]

Lots/Blocks

The Project Paper incorporates a specific section on lots in Annex H, page 5. Primary guidelines include: a maximum size of $65m^2$, except for preferential lots, and a minimum size of $50m^2$, at an orientation determined by "the location to the west of the intense rays of the setting sun;...winds (Kamsin) from the south-west, and...cooler breezes from the north." Lots should be able to accommodate both the shops and the dwelling spaces of their owners. On page 4, a general mandate is given that "(n)ew urbanized land...is to be developed utilizing appropriate 'cluster' site planning concepts."

In the preparatory studies for the Project Paper, cluster layouts were also stressed, but in the consultant's view, their concept was more a romantic inclination than a realistic approach to urban land subdivision.[28] BWN has initially adapted the cluster concept, as outlined in the architect's conceptual goals: "open space owned and supported by the public sector should be minimized, (accordingly), semi-private open space, was to be provided in the form of cooperatively-owned courtyards and squares and 'cluster' lotting patterns, consisting of cul-de-sacs terminating in larger courts." After detailed analysis,[29] the architect proposed use of the cluster plan on the site as shown by the urbanization plan submitted in mid-August.

The final approved layout no longer incorporates the cul-de-sac courtyard patterns. Discussions with CHF and BWN indicated that subsequent difficulties in adjusting the clusters to the site arose and that the resultant densities were too low. However, variations of a cluster layout appear inside of the neighborhood units.

Block Sizes

Layouts are rectangular, with a standard block depth of 22.5 meters (2 x 11.25 meters). All of the lots are regular with no odd sizes intruding, a consistency which undoubtedly facilitates administration and incorporation of the dwelling designs. Use of individual lots is an improvement over the pattern found in GOE walk-up apartment projects.

By measurement of the lengths of the blocks in a representative neighborhood (BN2), an approximation was made of the average block length. Total block lengths divided by the number of blocks equals average block length:

$$\frac{2{,}568 \text{ meters}}{42} = 61 \text{ meters}$$

The PIU suggested that block lengths should be within 150 meters.[30] With the average block width in the same neighborhood, the following lengths/area ratios result: a 100-meter block is included for the blocks as reference.

Average block at 60 meters	Block at 150 meters	Block at 100 meters
470 m/ha	388 m/ha	418 m/ha
-	17 percent decrease	11 percent decrease

In a specific design, physical arrangement of the blocks may not be possible according to this 150 meter mandate. Also, other conflicting elements may preclude this change. However, the intent of this exercise is to focus on potential areas for future cost savings and to identify areas of possible trade-offs. In any case, for largely pedestrian societies, 100 meters seems more appropriate and provides a better benchmark.

Lot Sizes

The Project Paper indicated a maximum lot size of $65m^2$ and a minimum lot size of $50m^2$, with market lots at 100^2.[31] Initial Project Paper lot sizes were larger, but, because of the high cost estimates of building, they were reduced. However, the Minister of Housing favored $100m^2$ lots, while JHP Chairman Bendari favored $70m^2$.[32] The ES-Parsons feasibility study used the sizes $50m^2$, $65m^2$, and $100m^2$.

The final designs for the MHE and Zones A through D incorporate the following size lots:

			Number provided[33]	Percentage
A	5 x 11.25 =	$56.25m^2$	3,196	46
B	6 x 11.25 =	$67.5m^2$	1,607	23
C	7.5 x 11.25 =	$84.375m^2$	797	12
D	9 x 11.25 =	$101.25m^2$	776	11
E	13.5 x 15 =	$202.5m^2$	525	8
Market total			6,901	100

These final design figures for lot size may be compared to the conceptual goals that BWN had proposed:

A	6 x 10 =	$60m^2$
B	7.2 x 10 =	$70m^2$
C	7.2 x 11 =	$80m^2$
D	7.2 x 12.5 =	$90m^2$
E	8.4 x 12 =	$100m^2$
(market lots)	11 x 18 =	$200m^2$

The architect originally had proposed increasing the minimum lot areas to the 65-70m^2 range.[34] Later it was agreed with JHP to allow the sizes to vary from 65-200m^2, but with a recommended minimum facade of 7 meters, with stipulations that an attempt should be made to minimize the number of sizes and shapes.[35]

The process of the final lot size and numbers is not clear, but it appears there were considerable changes and many divergent points of view.

Lot Location

Location of lot sizes on the site generally follows a market pattern: larger sizes front larger roads, paralleling expected land values. The Project Paper indicates, however, that "solutions for higher income families will be dispersed in the site plan among those appropriate for lower income families so that a variety of building types will create visual harmony avoiding monotony and distinction of neighborhoods according to income."[36] The EST believes that this proposed aesthetic variety has little rationale. The progressive expansion of the HNC will result in a variety of building types. Placement of larger lots (assumed to be for higher income) on minor streets, and vice versa, would not achieve the desired effect. Poorer families in the small lots fronting major streets would be encouraged to sell, since the lots would rapidly appreciate in value. In addition, these very small lots are not large enough for commercial use and detract from the community.

Public Facilities

The final plan has 10 neighborhoods, with each focused on two primary schools and a site designated for a mosque. The Project Paper indicates five neighborhoods while the initial designs planned for eight. The Project Paper also favored the use of neighborhoods in the organization of the site: "Neighborhoods will be planned as units, containing clusters..." (page 4, Annex H).

The initial "median" approach for the community center, recommended by BWN, was replaced by a more linear center with two areas of public facilities, one in Zone C and one in Zone D. Minor facilities are located in the initial A and B zones. From a staging standpoint when Zones C and D are built out, sufficient population would warrant the public facilities and the staging/location choice works well. Should C and D not be constructed, this provision of facilities must still be contemplated, since the two initial zones (A and B) represent almost half the population.

Areas for mosques were also designated at the centers of the neighborhoods. "Friday" mosques are allocated in each of the two community centers, although the procedure for their provision is unclear to the EST.

The number of schools was developed following the guidelines of the Ministry. The initial BWN concept was two schools "twinned" into the eight neighborhoods, but the PIU believed that schools should be separated into the neighborhoods. Apparently the PIU did not feel that land savings gained by combining school playfields could be realized.[37] A previous directive of the Ministry indicated that 20 primary schools and two secondary schools are necessary.[38] In the final design of December, the location of the schools was shifted from the periphery -- intended as links with the Helwan residential areas surrounding -- to the center of each neighborhood.

Staging of the schools will probably be very problematic in future site development, because of the difficulty in predicting population growth and the long lead time required for constructing schools. This problem will require much careful thought in future implementation plans.[39]

The designs of community buildings were prepared by the Arab Bureau. Indications are that the first plans were over-designed, and after subsequent meeting with the CHF and PIU they were cut back to more modest forms.[40]

Summary of Urbanization Plan

The HNC exhibits better values in the critical basic indices over the GOE walk-ups, but only a marginally better circulation length/area ratio over the type of housing of the informal sector. Streets in the HNC are generally wide and neither clearly reflect nor reinforce a hierarchy in use. The change in the location of the tramway may have a deterimental effect by not reinforcing the community center and allowing the possibility for increased internal vehicle traffic. The many small scattered open/left-over spaces will probably allow debris to collect despite stated goals to the contrary. The block and lot layout follows a standard gridiron pattern and does not meet the Project Paper goals of providing cluster layouts. The relatively short average block length is the inevitable result of site dictates. Lot location on the site is generally appropriate, except for occasional deliberate placement of small lots fronting major streets and large lots in lower value interior areas, both of which are inappropriate. Schools, community centers, and mosques are centrally located in each neighborhood, and

their staging during the project development will be critical. The initial core design, whether "good" or "bad," only provides the basis for subsequent expansion, for the lot area, lot width, and lot proportion are the more critical elements. The key concept in core house design is flexibility. However, any element that is determined by the user as mislocated or inappropriate will be changed. The only inequity is that the beneficiaries essentially pay twice for the element: the first time as part of the basic mortgage and the second when the element is removed and relocated.

The Dwelling

Project Paper Goals

The Project Paper specifies that the goal is to provide "...a housing solution, utilizing lower area and building standards than previously prevailed" (page 4). In the Technical Feasibility section, guidelines for construction are outlined: "building techniques for core house and community facilities will be coupled with a program of development research to introduce appropriate materials and techniques for lower cost construction..." (page 12). Five dwelling solutions are to be developed, costing from $2,727 to $4,428. The area would vary from a $4m^2$ sanitary core to a $30m^2$ dwelling. The designs are to accommodate a maximum height of three floors and $100m^2$ of dwelling. Table IV-7 (which is a reproduction of Table III in the Project Paper) outlines the five types with the expected number of each to be built. An additional two types are suggested for testing in later pages (page 22a). In Annex L of the Project Paper, a dwelling construction cost table again outlines the five types, but specifications for Types II and IV do not concur with the initial descriptions.

The Scope of Work of the Arab Bureau, charged with design of the units, indicates eight different variations to be developed, but several deviations from the Project Paper are noted; for example, a bath toilet room of $4.5m^2$ was to be designed, whereas in the Project Paper, it mentions "Sanitary Core, $4m^2$." Also, "bath toilet room, with partially enclosed annex, $6m^2$," whereas in the Project Paper it indicates "type II, $10m^2$ solution, toilet plus one room partially enclosed." The Project Paper indicates a Type IV consisting of $30m^2$ with toilet, kitchen, two rooms, but the Scope of Work indicates a "three room dwelling of $30m^2$." It is unclear if the third room is the bath; if not, the area must be incorrect. The Arab Bureau architect, however, indicated that the Scope of Work was the clearest he had dealt with.[41]

Table IV-7. Summary Chart
Dwelling Solution Offered in the Helwan
New Community Program

Type	Description
I	4 M2 Sanitary Core-50-60 M2 lot (800 units)
II	10 M2 solution (toilet + 1 room partially enclosed) 50-60 M2 lot (1,300 units)
III	10 M2 solution (toilet, 1 room + footing addl. room) on 50-60 M2 lot (2,000 units)
IV	20 M2 solution (toilet, kitchen, 1 room, footing addl. room) 50-60 M2 lot (2,000 units)
V	30 M2 solution (toilet, kitchen, 2 rooms) 50-60 M2 lot (597 units)
VI	100 M2 lot (512 lots)

Note: This table is a reproduction of the first two columns in Table III of the Project Paper.

Determination
of Design

In small dwellings, the design becomes very critical: dimensions must be carefully determined both in area and size, and doors and windows must be carefully positioned. Rooms should be designed to allow for a bed module. The small dwelling does not have the space flexibility afforded by larger area dwellings. On a different level, since the unit is to be duplicated potentially thousands of times, even a minor savings in each unit can add up to major economies in the overall project.

The final designs as seen in the plans and in the MHE essentially agree in type with those suggested. Additionally, the MHE will provide full build-out versions of two floors and three floors. However, no units had been completed and only footings were visible at the time the EST was in Egypt.

There was some question about the high standard of the initial designs, and it is understood that several redesigns were undertaken.[42] Conversations with various people have indicated that the standards used are still too high.[43] For comparison, the dwellings proposed in the ES-Parsons Feasibility Study were of a more elementary level: no plaster work, minimum number of doors and windows, and no tile for flooring.[44] However, the approved design of the foundations of the skeleton frame structure for the MHE, which was believed to be too massive, stirred considerable controversy. Discussions with the architects indicated that the design was based on the "worst case" situation, 1 kg/cm. In hindsight, the average bearing condition, even on filled land, was 2 kg/cm^2.[45]

The pad foundations as built in the MHE are still too complicated. Discussions with the BWN site engineer indicated that the foundation required expensive hand labor, since they were too intricate to dig by machine. A simplified footing plan shown to the EST had taken eight months for approval. Should enforcement of the maximum three story build-out be lax and build-outs exceed three stories as common in informal developments, the massive footings would provide a margin of safety. According to the Socio-Economic Report (pp. 2-15), four, five, and six stories were the maximum height in the sample of informal areas in the "Metered Water Service Connections Program"; the maximum average, however, was only around 2.4, but this is a function of the age of the settlement.

A low-cost dwelling should minimize the number and variations of windows and doors. As a guideline, two window types ("standard" and high window) and two door types ("standard" and bathroom door) are recommended.

A review of window and door sizes indicated five different kinds with the variance among them very small. Widths included 0.88, 0.89, and 0.59, and heights varied from 0.58, 1.08 to 2.08, with glazing and louvered shutters. Three different widths of doors were noted, 0.68, 0.78, and 0.88, all the same height. In addition to these problems of standardization, the need for doors may be questioned: in the recent public housing project in Ismalia, the users removed all interior doors and replaced them with curtains to improve ventilation.

The dwelling units are all elevated approximately 0.50 cm, necessitating three steps to reach the ground floor level. Discussions with the architect[46] indicated that this design was to increase privacy; elevating the floor and thus elevating the windows prevented passers-by from looking in. The architect wanted to use the remaining soil from the footing excavations to raise the interior floor levels. However, the BWN field engineer indicated that the left-over fill was insufficient and of the wrong texture. Therefore, graded sand is being trucked to the site.[47] Room height is 2.60 meters, with the windows dropping down 50 centimeters from the ceiling to clear the beam/lintel combination. To prevent an average person of 1.80 meters from looking in, the floor only needs to be raised 28 centimeters, which is less than the 50 centimeters provided. This modification would save a stair step and considerable fill in raising the floor level. The beneficiaries will have two options in subsequent progressive expansion: (1) build to match the elevated core level, which requres added fill and extra brick foundation courses, and (2) not build up to the core, saving effort and money, but resulting in uneven interior floor levels.

Bearing Wall Versus Skeleton Frame

The type of construction system for the owner-expanded core is one of the critical areas of design in a site and service project. The units in the MHE will have both a bearing wall and a frame and infill type of construction system. Choice of a system in subsequent zones was to be made after monitoring the initial units. As outlined in the Project Paper, final selection will be determined by

"potential innovative practices, price and materials supply conditions as the project develops" (page 12).

In studies preceding the design of the MHE, conflicting results on lowest costs precluded a direct minimum cost decision. For example, an AID-sponsored study in 1978 estimated a 30 percent savings over frame construction in a $20m^2$ expandable core unit.[48] However, a consultant to CHF had previously concluded the reverse: LE 2,662.60 for load bearing versus LE 2133.10 and LE 1,658.10 for frame construction, dependent on quality, for a $50m^2$ unit.[49] This is equivalent to a 20-38 percent difference in favor of the frame technique.

Discussions with Arab Bureau architects indicated that their cost estimates for bearing walls were also lower and that their recommendation would be to build with bearing walls throughout.[50]

Based on the tender documents of the MHE, calculations were made comparing the bearing wall and frame structure as exhibited by the model units. A three floor, type D frame construction added 2.6 percent and types B and C, 9.3 percent and 9.2 percent, respectively.[51]

On a straight cost basis, it does appear that bearing wall construction is more economical based on BWN figures for the MHE. In part, this economy is due to the design of the foundations for the frame structures, which are very conservative and do not take advantage of the limestone substrata. In addition, a redesign of the core could probably eliminate the multiple floorings and achieve a simpler structure. Further, expensive and time-consuming formwork for the frame could be minimized by using the infill walls as partial forms. In short, a decision based on cost is not clearly supported when modifications in the design and construction procedure are made.

Perhaps the overriding issue is the system's potential for expansion by the lot purchaser. Use of the bearing wall demands continued bearing wall construction, but use of the frame system could also allow expansion by bearing wall techniques as indicated in the following:

	Type of construction	
	Bearing wall	Frame and infill
Expansion methods	Bearing wall only	Frame or bearing wall
Cost	Probably less	Probably more
Height potential	Maximum of four stories	Four stories, dependent on foundation
Construction techniques	Traditional	Traditional

Which system is preferable or more common? A Joint Housing Team in 1978 recommended bearing wall construction over the frame construction, which is used in Egypt today.[52] But the Arab Bureau architects preferred frame construction, probably because they believed that it was stronger and that it had the potential for increased height.[53] A Cairo University/MIT sample survey of informal housing in 1977 found that the informal areas in lower income neighborhoods typically had smaller lots and used bearing wall construction and that in the informal areas in higher income neighborhoods, the frame and infill system predominated. Of the areas surveyed, those areas north of Cairo (Matareyah, for example) were of lower income than those along Sharia Haram, where frame construction was predominant. Helwan, particularly with its factory workers, would tend to attract higher income groups and thus would potentially favor frames. Eighty-nine percent of the buildings in the study areas of the "Metered Water Service Connection Program" (Es-Parsons, Socio-Economic Report, pp. 2-13) were of skeleton frame construction.

The Project Paper agrees that "in most instances, higher quality standards favor concrete frame-building over bearing wall systems as the modern standard."[54] It goes on to say that bearing wall design is primitve and over-designed to compensate for the poor quality of materials, but does recommend using bearing walls as a demonstration.

A design flexible enough so that owners can make later changes is desirable. Experience in other countries suggests that a structure with a miniumum of fixed elements (walls, stairs, etc.) allows the most economical and practical modification.

A compromise system, perhaps, would be a load-bearing structure on the lot boundary and columns on the interior. However, it may be more important to give owners time to observe the expansion of the MHE units before construction of other units continues. Unfortunately, it is understood that Zones A and B will proceed before evaluation takes place. Thus, more than half of the units could be built before any modification or correction can be introduced.

Build-Out Options

Six progressive options are considered, from a bare lot to a complete one-story dwelling. The MHE also includes complete two and three story build-outs as models for the development. A preliminary distribution of the options has been made, with the intention of adjusting the options according to demand. The options are as follows:

Type Unit	Percentage of unit
Utility module and boundary wall	20 percent[55]
Module and bathroom	15 percent
Module and bathroom and kitchen	15 percent
Module and bathroom and kitchen and room	35 percent
Module and bathroom and kitchen and two rooms	5 percent
Lot only	10 percent

The Stage I build-out consists only of a front boundary wall and the connection module. Although the advantage of the wall may be unclear to the new owner, the social advantage is understandable: the wall screens both the lot and any construction on that lot from the view of passers-by. The Project Paper includes this type of privacy barrier as an afterthought (page 22a) and states that this should be tested in the MHE. For a comparison of sample dwelling build-out costs, see Table IV-8.

Location of the stages of build-out on the site is unclear. The lot types are clearly designated in Zones A and B, but the EST was not able to determine what stage of build-out would be located where. Discussions with the CHF team indicated that these locations were still to be determined, but that the total number of each stage to be built is established in the October 1981 Implementation Plan. Any

Table IV-8. Sample Dwelling Build-out Costs, MHE

Stage	Total cost LE	Cost/total built area LE/m^2	Added cost LE	Added area m^2	Cost/added area m^2
I M+BW	1018[a]	--	1154	5.25	220
II M+BW+B 5.25m^2	2172	414	480	3.55	135
III M+B+K 8.80m^2	2652	302	1079	12.00	90
IV M+B+K+R 20.80m^2	3731	179	1064	12.00	89
V M+B+K+2R 32.80m^2	4795	146	3686	41.32[b]	89
Two Floors (double V)[c] 74.12m^2	8481	114	(From Stage V)		
Three Floors (triple V)[d] 115.44m^2	13,081	113	(From Stage V)		

a. Bid costs from MHE, Type A, Bearing wall; areas from AB, December 1981.
b. Includes stairs as built area.
c. 2(32.8)+8.52 for stairs.
d. 3(32.8)+2(8.52) for stairs.

flexibility, though, is limited to the stage of build-out, and not size of lot. The pre-installed service modules effectively set the lot pattern.

Expansion of the units by building craftsmen selected from a prequalified list as suggested in the Project Paper (page 34) may adversely affect the elective nature of informal progressive construction. This addition of a bureaucratic layer has no advantage, and simply manifests overly paternalistic controls. First, the quality of informal construction tends to be better than in formal, large contractor projects.[56] Second, simple technical assistance may be just as effective should a clear case for this need to be made.

Giving credit priority to those using "prepared home expansion plans" (page 34, Project Paper) is another case of undue paternalism. Linking credit with use of the prepared plans is an unnecessary "stick."

Innovations

To date, in the opinion of the EST, the development of the HNC has made little use of innovative materials or techniques. Plans called for testing a new roof system, but no other new techniques were evident. Red brick continued to be used, because of availability, even though other brick materials were seen in the MHE.

Many of the practices suggested in Annex J, pp. 1-7, of the Project Paper have fortunately not been adopted.[57] The practice of experimenting on a captive clientele is questionable enough, but even more questionable is the use of new, innovative methods and materials. For example, such exotic techniques as using chopped glass fiber on surface bonded walls make it difficult to expand the unit by the traditional construction methods most frequently relied upon. It is also unclear how the new techniques are to be incorporated. Are special contracts to be let, with resultant higher prices? A specific program does not appear to be established.

The Vertical Core

The concept of a vertical core (VC) had repeatedly arisen in discussions with the various parties. This issue could not be addressed directly since no specific detailed proposal had been made, although the Vice-Chairman of the JHP did give the EST team his working papers. However, since the primary proponent appears to be the Vice-Chairman of the

JHP, who frequently outlined his support for its use, this issue cannot be ignored. Therefore, in general terms, several observations will be made based on the summary of vertical core issues found in Table IV-9.

The Project Paper addresses the issue of vertical core housing obliquely, stating on page 3 that the "new community program ... should present a viable public housing alternative to the five-story walk-ups," the implication being that dwellings other than walk-ups should be constructed. However, previously on the same page, the Project Paper "recognize(s) that under varying conditions and geographical locations other housing approaches, including a variant of the five-story walk-up may prove to be viable." Is this an invitation for a vertical core -- a "variant of five-story walk-up?"

USAID staff have been more direct. In a memo from C. Noren to General Manager Gamal, April 30, 1980, Noren stated that "USAID will not support construction of multi-story walk-up apartments on this site ... examples exist adjacent to the site and would serve no demonstration benefits over the adjacent projects."

Nevertheless, this issue has continued with renewed vigor. The key questions are these: first, what if, on closer inspection, the vertical core does prove to be "superior" to the current proposals in the HNC; and second, can the HNC be modified from the original intent of the Project Paper (although a vertical core, strictly speaking, is not unequivocally a walk-up, nor is it clearly a core unit as envisioned in the Project Paper)?

Rationale

The primary reason for the use of the vertical core appears to be costs, with the often-cited argument that the expensive infrastructure costs can be divided among three beneficiaries per lot rather than the one as currently planned in the HNC.

The EST, however, believes that an additional unstated reason is the reluctance to be the first to embark on a large-scale site and services project, particularly since the HNC would be the first in Cairo, and comparison of the project to its neighbor, the 15th of May New Town, might involve great risk.

Table IV-9. Summary of Vertical Core Issues

Advantages	Disadvantages
Quicker, time-saving construction, estimated at 50-80 percent less.	Must build entire structure initially, limiting cost savings and build-out options.
Better parallels standard construction practice of public sector housing companies.	Lack of expansion possibilities for family expansion or income generating purposes.
A relatively familiar product, except for omission of finishing.	If typical GOE walk-up plans are followed, requires redesign of layout and results in poor land utilization.
Possible to use existing designs with little modification.	Unclear who will be targeted beneficiaries; combination of relatively high cost and no finishing makes determination problematic, particularly in comparison to potentially higher standard informal dwellings.
Possible to build on existing lot layout.	
Parallels tenure practices found in Egypt.	
Can potentially use immediate population concentration to encourage and reinforce sense of community.	Requires large contractors in construction, omitting role of informal construction.
	With the MHE as the cost basis, no demonstration of lower cost, only possible perhaps through extensive redesign.
	Requires additional study and consequently delay and additional cost in project implementation.
	May require negotiation of USAID/GOE agreement.

What is a "vertical core"? From discussions with the JHP, the key points appear to be as follows:[58]

- Multi-story build-out; usually three to five floors.

- Some degree of unfinished units, usually the omission of finishes and few or no interior partitions. Mention was also made of building a full single room to a three-story height, with subsequent beneficiary expansion.

- Ownership of the individual unit, with one unit per floor usually mentioned.

Several issues must be clarified if the intent is to proceed with the vertical core.

Construction

Clearly, building a one-room core to three stories would raise insurmountable difficulties. For example, if the third floor tenant desires to expand, he cannot if first and second floor expansion lags. In addition, the ground floor tenant would be unfairly burdened by the cost of the footings and frame capable of supporting two additional floors to allow his neighbors to build. From a cost standpoint, mechanisms can be developed to lower costs to the first floor tenant (should one desire to do so, since there is already an inherent advantage of potential commercial uses on the ground floor), but still no assurance could be given that construction would be adequate and timely. Clearly, then, as a practical matter, the vertical core must include the complete structure initially.

It is assumed that exterior finishes would also be omitted, since they tend to be a low priority as noted from observation in the informal sectors. Subsequent finishing would most probably have a quilt-like pattern, in itself not objectionable and perhaps even vibrant, but definitely not the result envisioned by GOE planners. While adding additional bureaucratic involvement, the strict regulations would probably be unsuccessful, as seen in other attempts to control by regulations.

A clear advantage in a vertical core solution is the gain in construction time, for it has been tentatively estimated that finishing processes consume 50-80 percent of the total time to erect a building.[59] Leaving the finishing

to the beneficiaries allows the dual advantage of quicker effective occupancy of units and a lowered cost.

Planning/Design

If the vertical cores are constructed on the lots as now planned, in effect they would approximate the full three-story build-out as in the MHE. These could be built without redesign of the lot layout.

If, however, they follow the current walk-up pattern as found in 15th of May, El Berka, etc., rethinking of the subdivision plan would be necessary, requiring substantial redesign and added delay, and the result would be the same undesirable land use pattern as found in those projects.

In both cases, the variety of dwelling options from bare lot to complete units as now provided in the HNC would be lost. Variety would still be found, but it would be limited to size of unit and, perhaps, degree of finishing.

Tenure

Concerning tenure, the vertical core concept does not appear to offer any legal problems. Individual ownership of a unit in a structure and joint ownership of the ground (or even separate ownership of the ground/lot) is normal to Egyptian practice and would not be an impediment. Islamic law considers separation of building ownership from land ownership and accepts individual ownership of a unit in a building. (In informal areas, for example, even should the land be illegally held, it is still possible to be legal owner of the building.)

Social Factors

The vertical core does preclude two desirable options: first, the owner cannot expand his unit as his family expands; and second, the owner cannot expand to add rental space.

Costs

Dividing the basic infrastructure costs among three beneficiaries would lower costs and enable the project to reach lower income groups. However, it is less apparent what the savings would be if finishing items were included in the units. When only the basic structure is provided and the finishing is omitted, it has been estimated that 30 percent (in low-cost units) to 60 percent (in higher cost

units with higher finishing standards) could be saved.[60] Using the Type A build-out from the MHE, a three-story dwelling costs LE 13,080, LE 4,360 per unit. At a 30 percent savings (assuming a low standard of finishing) the per unit cost would still be LE 3,052. For costs to be comparable to informal dwellings (LE 2,000/ unit), a reduction of approximately 46 percent would need to be achieved. In straight cost terms, the vertical core would then be comparable, but in terms of finishing and other dwelling provisions, the vertical core would be a lower standard than in informal areas.

Market

What type of beneficiary would move into the vertical core? In other public walk-up apartments, the key enticement has been the low rents, rather than any other particular factor.[61] If the intent remains to increase cost recovery, it becomes very problematic to determine the probable beneficiaries.

The most ideal beneficiaries perhaps, at least in terms of meeting the most critical area of the housing shortage, are the young, middle-income families who are first entering the housing market. For a project of 20,703 units (6,901 x 3), however, it is inconceivable or even undesirable that it can be confined to this group only.

Clearly though, the population of a HNC with vertical core units would most likely be skewed toward higher income groups since all units are completed to some degree and the lower cost partially completed build-outs are no longer available. The lack of finishing, however, may detract from the units' acceptance, perhaps becoming even the primary issue in their acceptance.[62] The choice for the potential beneficiary could then lie between a larger unit in informal areas with the potential for expanding and for future utilities, and the vertical core, smaller unit, without expansion possibilities; costs for the units could be the same, assuming the HNC costs could be lowered sufficiently through redesign.

Community Upgrading

During the several field trips to the upgrading sites, the EST observed many houses in various states of expansion, funded through home improvement loans. The assumption was made that the funds were primarily used for expansion of the units.

Construction followed the standard pattern: red brick bearing wall or skeleton frame with brick infill. No difference in quality was noted between the initial construction and the expansion funded through the program.

The CHF staff accompanying the EST indicated that a mini-construction boom had taken place although we could not establish any effects on labor wages, rent levels, and material prices.

The issue was raised whether the expansion had proceeded too fast. Did people build just to take advantage of the low-interest loans, or to meet family demands? Studies (the ABT report, among others) indicate that the first priority of families is to build for their own needs, and only secondarily to increase income. What will happen to the units? Will they remain empty or unfinished until they can be used for the family? Or will the necessity of paying back the loan require rental of the units and thus remove the unit from future family use? (Existing legal strictures essentially prohibit eviction of tenants.) The result is a clear gain in the number of rental units in the market but a mixed benefit to the families.

Model Housing Estate (MHE)

Project Paper Goals

The Project Paper indicates under "monitoring" that "prior to construction of housing in the first neighborhood at Helwan, a block of sample model houses illustrating the range of housing solutions planned will be built for occupancy in one of the Helwan community upgrading areas" (page 35). The object of the MHE was to reveal design deficiencies and market response early in the project. Modifications were then to be made before more construction started. The Evaluation Plan indicates that the model home demonstration phase will be evaluated to establish base line data for new community residents and to test residential satisfaction with core house designs and financial arrangements. The EST felt that a block of houses was insufficient to determine the desired data. Although construction may be evaluated, user acceptance probably cannot; the expectations of the Project Paper are too high.

Issues

In discussing the MHE, the MOH suggested four units of each type being considered, for 36 units total, as in the Project Paper.[63]

At first, the MOH wanted to build the MHE in the upgrading areas, as suggested in the Project Paper. But apparently some subsequent decision prevailed so that the MHE is now being built in a section of the Helwan New Community. BWN recommended the HNC location in the early planning meetings, citing economy as the reason, but USAID indicated that the MHE would be off site and "not to worry."[64]

The final MHE plan has 186 lots, with 146 lots to have build-out options constructed.

Although views diverge, it is understood that Zones A and B will be built out before an evaluation of the MHE units or users, primarily because of time demands. If so, the Project Paper goal of providing a testing ground for the units will not be met, leaving it without a rationale for construction. However, the MHE has served as a catalyst for infrastructure trials. In a letter to BWN Program Manager John Flanagan, JHP Chairman Gammal wrote, "MHE must be a testing ground for cost savings and technology." However, no different technologies are noted; if anything, the MHE merely reaffirmed the commitment to traditional approaches.

Summary of Dwelling Design

Controversy continues on the question of high standards in the design of the units, particularly in the complicated and massive footings. The minor variations in a multiplicity of door and window types and sizes result in unclear, unnecessary, and ultimately expensive solutions and increase errors during construction. The limited use of innovative materials or techniques is in some ways perhaps fortunate for the users. A raised ground floor level of 50 centimeters has a questionable rationale and results in extra costs. The decision between bearing wall and skeleton frame construction is to be based on cost, but a more valid basis is flexibility in expansion. A composite system of bearing wall perimeter and frame interior is suggested as a possible approach. The current construction schedule precludes sufficient monitoring to allow effective decisions on construction and build out.

The Utility Infrastructure

Project Paper Goals

The infrastructure should presumably follow the general Project Paper goal of "lower and more flexible planning and

building standards." In addition, in the Engineering Requirements section, it is noted that "water and sewage and electric service will be brought to each lot."[65]

Infrastructure Standards

A review of the conceptual basis for the infrastructure design prepared by BWN reveals little, if any, lower standards.[66] A full, standard level of service is maintained throughout; only for roads is a lower standard deemed appropriate for a "site and services" type of project. By July 1980, the former Chief of Party of CHF, Jac Smit, had already noted that the standards were too high, and a formal statement was prepared in October in response to comments on alternative plans.[67] Comments by the PIU Chairman were more harsh: "In general, the Engineering Standards Report is not Egyptian, not low-income and not related to the site plan."[68]

Smit states that "BWN was not effective at the beginning."[69] However, in the process of further development of the urbanization plan, BWN placed more emphasis on the infrastructure design and took a more active part in lowering standards.

The issue of local standards as opposed to foreign standards continued to come up. In preparation of the MHE tender documents, the PIU again noted that the "documents, procedures and specifications are all based on American practice... and in great part not suitable for Egyptian practice."[70]

A consultant to CHF prepared a study for a very minimal infrastructure level in June 1981 as a reference for preparing the designs for the HNC.[71] In it, he maintains that costs could be reduced by one-third. The relationship of this study to the ongoing preparation of the detailed infrastructure drawings is unclear, particularly since bid documents for the MHE were already prepared and the detailed drawings for Zone A were to a large degree completed.[72]

Review of Utility
Networks for HNC

The issues of acceptable alternatives and new practices continue, despite the imminent start of the infrastructure construction of Zones A and B. A review of the components item by item shows that several innovations were incorporated, but that many are not.

As for water supply, the main question was whether to reduce the per capita consumption of water from 200 liters to 100 liters per day.[73] This reduction was initially approved, then denied. However, the installation of two meters in one box, shared by two lots, was incorporated in the plan. The proposal to install pressure-reducing valves instead of meters was denied, even though this alternative would have reduced initial cost, subsequent maintenance, and the cost of meter reading.[74]

In the sewer network, the traditional techniques are used, despite attempts to incorporate a simpler design. Elimination of cleanouts at each house, increase of manhold spacing to 75-100 meters instead of 30 meters, and use of "wye" connections to the sewer main have been suggested. However, maintenance reasons were cited as the basis for rejection of this approach.[75]

But the most controversy grew from approaches to the electrical network. The question was whether to follow the local practice of a multiple looped system using local materials or to install a simpler, less costly system using primarily imported elements. In its initial estimate, ES-Parsons priced a costly buried conduit network, which BWN later changed to a direct burial method.[76] Later, after repeated discussion and revision, the typical Egyptian system prevailed although the field engineer asserts that this system is much more costly and even unsafe.[77] An earlier proposal for overhead lines on poles was eliminated, on recommendation of the BWN electrical engineer, who stated that underground is safer and more tidy. It was felt that "bury and forget" was the better policy since maintenance is very poor. Furthermore, it was also claimed that overhead lines might be used for drying clothes. Moreover, since some of the cables were already underground (some of the high tension lines) the inclusion of the remainder would not be particularly costly.[78] Other alternatives were considered, including attachment to the houses. A decision was only just reached favoring the local technique, and modifications to the tender documents are being incorporated.

Street lighting also required a change in standards. BWN recommended changing the original spacing of poles from 25-30 meters to 60-meter spacing at much lower levels. BWN indicated that the Cairo Governorate's suggestions were vastly too expensive.[79] A compromise was reached at 40-meter spacing, with somewhat lower lighting levels.[80] The powerlines for the lights were changed to a more economical system used abroad, on the suggestion of BWN. A combined system was to be installed with photo-cell control as opposed

to a completely separate system with manual control.[81] It was proposed to replace the electrical meter with trip breakers and to charge users a flat fee, but this suggestion was denied.[82]

Incorporation of
New Techniques

Inherent to engineering practice is a conservatism born of long time horizons and high costs. A mistake in judgment can be expensive. The question becomes who pays when some serious repair or replacement is required and the innovation has failed. Moreover, because not all of the involved parties are local, restitution becomes even more problematic.

New practices also entail new maintenance procedures. Unfamiliarity with a technique may lead to failure when routine repairs are required. Stockpiles of parts are necessary, for even the simplest of repairs may require an imported element. However, in Egypt foreign companies are sufficiently active that familiarity with techniques and parts of imported design are becoming more widespread.

Summary

The HNC project does not exhibit lower standards. Relatively minor changes, as previously noted, are found; but Helwan is equal to the provision level in a standard GOE project. In some ways the Project Paper is contradictory, since it does specifically require individual service to each lot, thus limiting many possible lower standard alternatives. Even so, the project was formulated primarily as a demonstration, and existing standards were expressly set aside.

General Comments

The primary issue addressed in this review is the question of appropriate standards. No general agreement on what constitutes lower and flexible standards was reached; perceptions varied in each case and with each participating party. Apparently, no clear, overriding objectives can focus the many, sometimes competing, individual goals.

Low-income housing approaches have been often lumped together as "site and services" projects, which is, to a large degree, only an approach to housing issues and not a specific physical prescription. Only in the last 10 years or so have governments attempted these alternatives with definitive information still being developed. To complicate matters further, the physical products change from country

to country. An approach that is effective in Malaysia and responds to specific issues there may have only limited relevance in Egypt.

As a source of guidance, the Project Paper cannot specifically address all questions that arise. Conceptually, two approaches conflict in Project Paper mandates. On the one hand, they are too general and do not provide sufficient guidance and support, particularly in technical issues. The obvious result is that the techniques and designs often fail to go beyond those in traditional GOE projects. A clear example is the service level of the HNC, which for all practical purposes is a standard level.

On the other hand, too specific, detailed direction can lead to error and increased costs by hamstringing professional judgments. For example, the Project Paper indicates that "kitchen and bathrooms should be located toward the rear, or middle of lots."[83] An evaluation of the designs by Arab Bureau architects found that the rear arrangement more than doubled the plumbing cost. This solution (Type D) was found to be "expensive and...must be avoided."[84] In the MHE, Type D is one of the options offered, and it is still included in the other zones.

In the BWN Monthly Report of August 1980, the architects stated that "firm criteria did not exist in the Project Paper, only objectives and goals, which were not considered firm and binding by interested parties. As a result, criteria had to be evolved in consultation with the interested parties."

Left largely to individual interpretation, the regulations elicited so many divergent viewpoints from the various parties that the resulting tangle affected all levels of the design. As a result, the spirit of a demonstration project was often lost. Partly because of the few really clear ideas and the size of the project, the solutions tended to be safe and conservative.

In examples from other countries, initial site and services projects were often overdesigned (a high level of standards) and exhibited only minimal agreement with the informal process and its demands. Negotiations in design are frequently drawn-out and difficult, and invariably even intense efforts produce only limited results. The Helwan project has clearly followed this pattern.

Budget Review

The intent of this section is to:

- compare current estimates with the initial Project Paper costs; and
- indicate the general confidence level of the estimates and to point out areas where costs may still vary appreciably.

Calculations in Table IV-10 give the budget estimates for the HNC and use a conversion rate of LE 0.80 = $1.00, which reflects a more appropriate value for current comparison. Only a few of the items have already been charged to the dollar account, and the bulk of the funds will be expended under the more favorable rate. Ironically, the two-year delay in paying for services of the American A&E firm may have allowed this cost to fall under the new rate. The advantage to the project of this rate change is approximately 7 percent.

Helwan New Community Cost Estimates

The cost estimates for the Helwan New Community presented in Table IV-10 are discussed below.

Item 1: Land

Site costs are considered to be fixed, having already increased above the initially agreed upon amount of LE 5.7 million as stated in a memo by AID Director Brown to JHP Chairman Bendari, April 1979. The current cost of LE 10/m^2 was set by the Cairo Governorate's Appraisal Committee in 1980.[85] As a comparison, field interviews have indicated that market rates are between LE 20-60/m^2.[86]

It is unclear to the EST why the price of land was revised upward after the grant agreement was reached, but it is assumed that the price will now stay at this level. Therefore, confidence in this estimate is high.

Escalation is not considered to be an issue. Neither the Project Paper nor ES-Parsons has included escalation for land in its calculations.

Item 2: Urbanization Costs

Costs include both on-site and off-site items. Estimates have been updated to reflect the total cost to complete the

Table IV-10. HNC Budget Summary

	Current Estimates	ES-Parsons Estimates[a]	Difference	Confidence level
Land	$ 17,398,750	$ 5,760,000	+11,638,750	High
Urbanization (on and off site)	44,593,932	59,601,000	-15,007,068	Medium
House construction	19,121,749	18,367,000	+754,749	High
Community facilities	6,808,500	9,858,000	-3,049,500	Low
Design, supervision	11,052,500	5,271,000	+5,781,500	Medium
Subtotal	$ 98,975,431	$ 98,857,000	+118,431	
Home improvement loans	4,000,000	4,000,000		
Total	$102,975,431	$102,857,000		

Note: High confidence level anticipates no increase in cost; change, if any, should result in savings. Medium confidence level acknowledges some doubt in costs, but within a known range of possible increase. Low confidence level implies expected changes in cost, probably higher, with an unpredictable magnitude of change.

a. Comparable value including escalation and contingencies; ESParsons Feasibility Study, page 16.

project.[87] Actual tender costs are included for the MHE and Zones A and B, which comprise roughly one-half of the total area of the site. In August 1981, BWN indicated that the escalation factor and contingency provided by ES-Parsons "may not be required" if construction contracts for Zones C and D are awarded within six to eight months (by February to April 1982).[88] Bids are under review for Zones A and B, with signed contracts expected in one to two months. Escalation may become a factor if delays occur. A one-year delay before starting on Zones C and D implies an additional 15-24 percent to be added to the cost of the project. Because approximately half of the total HNC project costs are in on- and off-site urbanization (infrastructure), this item is the most critical in determining total project costs.

Costs have progressively declined from the original estimates as each subsequent refinement has lowered the total expected costs. The urbanization costs for Zones A and B are 30 percent lower than in the MHE, probably because of the scale of the work.[89] The costs are 25 percent less than the ES-Parsons estimates because inflation was less than anticipated, and original ES-Parsons electrical cost estimates included expensive electrical conduits.

The annual rate of inflation of construction costs for average housing from 1978 to 1981 was 19.3 percent,[90] and both the ES-Parsons Study and the Project Paper based their projections on 2 percent per month, 24 percent per year. Thus, the lower than anticipated inflation rate contributed to lower than expected costs.

The electrical costs decreased from the previously still higher costs in the Feasibility Study which specified conduits. In percentage terms, power distribution represented 55 percent of the infrastructure cost[91] in the Project Paper (annex L, page 1) and 56 percentage in the ES-Parsons Feasibility Study. However, in the MHE, it decreased to 26 percent, with site grading and roads representing the highest costs.

Other factors have contributed to the lower infrastructure costs but are difficult to verify precisely. The realization that excavation could be done largely through ripping as opposed to blasting led to lower costs. Ripping is 2-1/2 times cheaper, based on BWN estimates.

Another factor is that the present design of the HNC is more efficient than the design on which the feasibility study estimates were based. The inefficiency is apparent

through examination of basic indices and the average block length. For a typical block module in the feasibility study (approximately 110 meters x 140 meters), the network length per area is 656m/ha, with 46 percent of the area public. An approximate comparable area would be the HNC neighborhood (BN2) used in the physical evaluation; when removing the area for schools and mosque, the comparable indices for the HNC are 44 percent for public areas, and 446m/ha. a reduction of 32 percent. The average block length is 61 meters in the HNC, versus 36 meters in the feasibility study. These factors are more difficult to separate in cost terms, but they also contributed to lower urbanization costs.

The final cost of the HNC may, however, be adversely affected by the difficult terrain conditions of Zone D, which are still to be addressed and will perhaps necessitate unanticipated modifications. Also, the possibility of delays in construction, which will increase the impact of inflation, can never be ruled out.

Item 3: House Construction

Costs were derived from the estimates of the Arab Bureau, September 1981, and updated to reflect the contract bids of the MHE. The contract bid values were higher than expected since the number of units in the MHE was too small to attract large contractors. Also, standards of the MHE are higher than found in the revised ES-Parsons Feasibility Study estimates, which eliminated exterior shutters and the concrete ground slab in the utility cores.[92] Cost escalation that may occur if Zones C and D are delayed could be balanced by these economies of scale and future revised designs.

The accuracy of this estimate depends largely on when construction begins. Assuming no delays, our confidence level for housing construction cost estimates is high.

Item 4: Community Facilities

No actual experience has been gained at the HNC from construction of the community facilities, since only the upgrading programs have resulted in construction. Designs by the Arab Bureau have not been tested, and it remains to be seen how the actual bids range. Therefore, confidence in this cost estimate is low. Delay in construction of community facilities would also increase their cost.

Item 5: Design and Supervision

Present costs estimates are probably low, although BWN figures include supervision time past its initial contract

to allow for completion of construction in mid-1984. But continued design modifications may not end until all construction begins. Arab Bureau design costs could also overrun if a redesign of the HNC units is necessary, after the results of the MHE or Zones A and B are reevaluated. However, because of time constraints, construction of units in Zones A and B may proceed as planned before any modification in dwelling design is possible.[93] Therefore any increased redesign efforts of the Arab Bureau may have only a minor impact on overall design and supervision costs. Thus our confidence level is in the medium range.

Item 6: Home Improvement Loan

The cost estimate for this item is maintained as specified in the Project Paper. This amount, however, appears low, $580 per lot, and may need to be increased. If the demand experience in the community upgrading program were used for the HNC, extra resources could certainly be directed into this area.

In aggregate terms, the total amount of additional home loan improvement funds required to complete all of the HNC lots to a full three-story build-out is estimated at $30,648,930 (see Table IV-11) or $4,441 per lot -- each lot to include B + K + 2R (32.8m^2) per floor as in Type A. Alternatively to reach a "must build" level including only B + K + R on the ground floor, total amount required would be $3,744,168. A third alternative, which would be a 1-story build-out for all lots for a B + K + 2R, would require $7,836,984.

These alternatives are based on the following assumptions:

1. Only servicing the lots categorized as "must build": those lacking a full B + K + R dwelling. In this case, a total of $3,369,751, or $488 per lot, is needed.

2. Only servicing the lots to achieve a complete one story build-out of B + K + 2R. In this case, a total of $7,053,285, or $1,022 per lot, is needed.

3. Providing loans to all lots, at all stages. In this case, a total of $30,648,930, or $4,441 per lot, is needed.

Table IV-11. Summary Table of Loan Demand Alternatives

Alternative[d]	Total amount of investment required[e]	Potential loan demand at 42% (less 10% downpayment)
I. To reach "Must Build" category only (B + K + R)	$3,744,168[a]	$1,415,295
II. To complete one-story build-out for all lots (B + K + 2R)	$4,092,816[b]	$1,547,084
(Cumulative I and II)	$7,836,984	$2,962,380
III. Full three-story build-out for all lots (B + K + 2R per floor)	$22,811,945[c]	$11,585,295
(Cumulative I, II and III)	$30,648,930	

a. Funds necessary for all units to reach minimum level of B + K + R "Must Build" units

- Stage I build-out - need B + K + R ($20.8m^2$)
  1373 lots Cost each = $1,082 $1,485,037
- Stage II build-out - need K + R ($15.55m^2$)
  1031 lots Cost each = $809 $833,667
- Stage III build-out - need R ($12m^2$)
  1029 lots Cost each = $624 $642,096

(Continued)

Table IV-11. (Continued)

.	Lot only - need B + K + R ($20.8m^2$) 724 lots Cost each = $1,082	$783,368
.	Stage IV build-out - not critical	-
.	Stage V build-out - not critical	-
	4,157 lots involved, total:	$3,744,168

b. Additional funds needed to reach full one-story build-out of B + K + 2R at 65 LE/m^2 (stairs deferred till later build-out).

.	Stage I	need R ($12m^2$),	1,373 lots
.	Stage II	need R,	1,031 lots
.	Stage III	need R,	1,029 lots
.	Stage IV	need R,	2,402 lots
.	Stage V	--	---
.	Lot only	need R,	724 lots
			6,559 lots $4,092,816

c. Additional funds needed for full three-story build-out of B + K + 2R, at 50 LE/m^2.

Each unit: $32.8m^2$/floor x 2 floors = $65.60m^2$
$8.52m^2$/stair x 2 stairs = $17.04m^2$
$82.64m^2$

6,901 lots x $82.64m^2$ x 50 LE/1.25*
*Conversion to dollars. $22,811,945

d. AREAS AND COSTS USED IN CALCULATIONS (from Type A unit): Bath $5.25m^2$; Kitchen $3.55m^2$; Room $12m^2$; Stairs $8.52m^2$.

e. UNIT COSTS USED IN CALCULATIONS: a) Initial build-out, including foundations 65 LE/m^2; b) Subsequent build-out, no foundations 50 LE/m^2. (Approximate costs taken from discussion with Gamal, PIU, January 27, 1982. Gable, CHF, February 1982, indicated that costs range from 65-70 LE/m^2 for build-out of room through informal construction. The Abt Report indicates a general range of 30-50 LE/m^2, page 95.)

4. Based on the survey done by the Abt study (page 152), dwellers would seek approximately 42 percent of these costs in loans. Assuming a 10 percent downpayment, Table IV-12 also indicates the potential loan amount.

These options indicate that in order to complete the full three-story build-out, the loan amount must either be increased or the loans must be restricted to selected categories.

Several factors, however, may result in a higher demand for loans than indicated in the Abt survey:

- A decision to provide less complete build-out than indicated in the Project Paper, either because of costs or market demand.

- A stronger than anticipated demand for loans, which may exceed the crude approximations developed here. From the experience gained in the few upgrading sites where loans are already offered, 50 percent of the loan funds were already allocated in the first six months.

- A strong incentive to complete an extra floor since the loan payments would approximately balance the rent. In other words, there is little incentive to defer construction because of loan repayments.

- An increase of construction costs in the popular sectors (estimated at 50-65 LE/m^2 in these calculations).

- A lower downpayment that the 10 percent assumed in the calculations.

Community Upgrading Cost Estimates

The current costs of the community upgrading portion of the project are shown in Table IV-12 and are considered to reflect relatively firm figures. Construction has already commenced on several of the public facilities, home improvement loans have been initiated, and some infrastructure has been constructed. Feedback on the costs has occurred. Discussion with CHF personnel confirmed this assessment after reviewing the detailed costs with them.[94]

Table IV-12. Community Upgrading
Program Budget Summary

	Current Estimate	Original Estimate[a]	Difference
Land[b]	781,250		
Infrastructure[c] (on and off site)	21,580,000		
Community facilities[d]	6,215,000	(Not comparable item by item)	
Home improvement loans[e]	4,280,000		
Design/supervision[f]	2,530,900		
	$35,387,150	$36,784,000	-$1,396,850

a. Derived from Project Paper, page 2; escalation factor from ES-Parsons.
b. Implementation Plan, page 38; includes escalation, no contingency.
c. Idem, p. 38; includes escalation, not contingency.
d. Idem; LE 4,972,000; includes escalation, no contingency.
e. Idem; page 42; LE 3,424,000.
f. 10 percent of infrastructure costs, plus 6 percent of community facilities, page 42, Implementation Plan.

Estimates in the budget are taken from the October 1981 Implementation Plan, updated to December. Funds saved by the elimination of the vocational center appear in "reserve." Because of the many changes in the upgrading program since the Project Paper (e.g., only three communities have been affected versus six in the Project Paper), it is not possible to make a detailed cost comparison item by item. In aggregate terms, however, the total costs of this program are about $1.4 million less than the original estimate.

Summary

Table IV-13 gives the current combined estimates of both the HNC and the community upgrading portion of the project in aggregate terms that agree closely with the initial ES-Parsons estimates. Individual items vary, however, with the primary change in the price of land associated with the HNC.

Added Costs of HNC Due to Infrastructure

The best estimate of the total infrastructure cost is based on figures updated to January, provided by BWN.[95] Total costs include the actual contract costs for the MHE and Zones A and B, with initial estimates updated in Zones C and D reflecting the latest tender prices. Other costs now added include: (1) additional electrical work for modifications to reflect local practice; (2) redesigned dwelling foundations incorporating water meter and sewage collection box, together with the street curbs; (3) the cost increase of supplied materials; and (4) off-site infrastructure including sewage treatment plant, elevated water tank, and the relocated 66-11KV substation on the site. In summary, the added cost amounts to the following:

Basic infrastructure, Zones A,B,C,D, MHE	$23,639,556
Added electrical costs	5,700,592
Foundation/collection box/curb modification	2,479,784
Supplied materials cost increase[96]	5,674,000
Added infrastructure, normally off-site	7,100,000
Total	$44,593,932

Table IV-13. HNC and Upgrading Program
Aggregate Budget Summary

	Current Estimate	Initial Estimate	Difference
HNC	$102,975,431	$102,857,000[a]	+$118,433
Upgrading	35,387,150	36,784,000[b]	-1,396,850
Administration, management	7,000,000	7,000,000	--
	145,362,581	146,641,000	-1,278,417
Unallocated	14,637,419	13,359,000	
	$160,000,000	$160,000,000	

a. Compiled from ES-Parsons, page 1-6, and Project Paper, page 27.
b. Derived from Project Paper, page 2, Annex L; escalation factor from ES-Parsons.

Base Costs

Dividing the total cost by the number of lot-units a base cost per lot, without subsidiary, is established.[97] For comparison purposes, a lot-unit cost derived from the same ratio of subsidization of infrastructure costs, as used in the Project Paper (74 percent), is developed in Table IV-14.[98] This lot-unit cost is comparable to item number 3, page 27 of the Project Paper.

Table IV-14. Base Costs

	Full cost	Subsidized cost (74% subsidy)
	----------dollars----------	
Per square meter[a]	81	21
Per lot-unit	4,621	1,197
Total	44,593,932	11,549,828

a. Cost/total lot area.

Analysis of Added Costs

Some added costs stem from site conditions. (See Table IV-15 for costs without site penalty.) A cost penalty has been imposed on the project by difficulties relating to topography and substrata. BWN indicated that a study had been made early in the project to determine this amount, but it was not available during the review period.[99] However, another approach that BWN considered was to add one meter of fill over the site and thus eliminate much of the excavation in limestone. This plan was abandoned because of cost, estimated at $7.9 million.[100]

Table IV-15. Costs Without Site Penalty

	Full cost	Subsidized cost (74 percent subsidy)
	----------dollars----------	
Per square meter	73	19
Per lot-unit (10 percent less)	4,161	1,078
Total	40,154,054	10,399,899

Estimates by the field engineer indicated a cost penalty of 20 percent in those utilities requiring trenching: water, sewer, and electrical networks.[101] This estimate was tempered by experience in construction of the MHE, where it was found that the limestone could be ripped by machine, instead of having to be blasted. Zone D, the most difficult in topography, had an escalated price factor of 30 percent.[102] After adjustment for this added difficulty and for the lower trenching costs, a crude approximation of the savings in infrastructure cost is $4,439,878, as shown in Table IV-18.

Some added costs stem from high standards. Determination of what constitutes "high standards" (thus costly and unacceptable) is difficult to assess. Several issues are evident:

- Local versus foreign imported practices: do different materials and practices, although lower in cost, justify incorporation, if future maintenance difficulties are certain to arise because of unfamiliarity and lack of spare parts?

- Lower initial costs and standards (deferred costs) versus full initial provision.

Because each case is unique, it must be individually evaluated. The issues of dwelling collection boxes and 30-meter spacing of manholes versus no collection box, "wye" connections directly into the sewer, and 75-100 meter spacing of manholes, are examples. Because of maintenance considerations and the necessity of connecting directly into the manhole, these ideas were not incorporated.[103]

Furthermore, each competing alternative has its own merits, and many reasonable variations exist. The resolution of these issues, however, lies outside the scope of the review. Nonetheless, for illustrative purposes, one of the alternative techniques proposed during the design of the project has been calculated. The EST has selected the example of added electrical cost for several reasons: this issue has been controversial throughout the design; it is a local product versus a foreign product trade-off; and the data were readily available.

Some of added electrical costs could be eliminated. According to BWN calculations of January 28, 1982, $5,700,592 was added for a network design that was, in its opinion, redundant and unsafe.[104] Without these costs, $591 per lot-unit would be saved at full cost, and $153 at the

subsidized cost, a 13 percent savings. (See Table IV-16 for costs without high electrical standards.)

Table IV-16. Costs Without High Standards: Electrical

	Full costs	Subsidized cost (74 percent subsidy)
	----------dollars----------	
Per square meter	71	18
Per lot-unit (-13 percent less)	4,030	1,048
Total	38,893,340	10,112,268

Another hypothetical cost reduction possibility results as a function of more efficient design. (See Table IV-17.)

Table IV-17. Costs with Improved Design

	Full cost	Subsidized cost (74 percent subsidy)
	----------dollars----------	
Per square meter	75	19
Per lot-unit (-8.5 percent less)	4,229	1,095
Total	40,811,724	10,570,236

Using the decreased length/area ratio resulting from the increased block length as suggested by the PIU (from 61 meters to 150 meters),[105] a 17 percent drop in the linear elements occurs. Assuming a 1:1 relationship, and with 70 percent of the basic infrastructure costs relating to linear elements,[106] the savings would be $3,782,208 or 8.5 percent of total as indicated in Table IV-18.

Table IV-18. Summary of Reductions from Base Cost

Cost elements	Potential savings	
	--dollars--	--percent--
Site costs	-4,439,878	-10
High standards: electrical	-5,700,592	-13
Design costs: block length	-3,782,208	- 8.5
Total	-$13,922,678	-31.5

If the areas devoted to "open space" inside the neighborhoods (the "miniparks, the courtyards, the public spaces/setbacks") are removed and these are sold, additional savings may be realized. However, the additional infrastructure required may negate any advantages from increased lots.

Summary

Combining the cost savings discussed above in comparison with the base cost shown in Table IV-14 gives a potential savings in the cost for the HNC of 31.5 percent as shown in Table IV-18.

It should be reiterated that cost savings developed here illustrate only a range and indicate areas that could be studied in future projects. A different site may well have its unique problems, which may balance any savings resulting from better substrata conditions.

Affordability Analysis

The Project Paper affordability analysis for the HNC indicated that the percentage of households qualifying by income levels ranges from the 30th to the 57th percentile (and above).[107] The analysis in the Project Paper was based on an estimate of 1978 urban houshold income (actual expenditures) and unescalated construction cost (i.e., the analysis was made in 1978 dollars). The EST estimate of affordability is based on actual or relatively firm estimates of costs and estimates of urban household incomes for 1983, the first year in which mortgage payments may be made.

The Project Paper assumed that mortgage financing would have 30-year terms at 8 percent interest, with either conventional, level annual payments, or with graduated mortgage

payments (GMP). For the latter, the Project Paper assumed that the GMP would increase each year by 10 percent of the first annual payment. "For a 30 year loan, the actual rate of growth is 4.7% per annum."[108]

The Project Paper's use of a step increase rather than a constant annual percentage payment growth rate makes it difficult to develop an algorithm which will duplicate the first year's required monthly payment under the GMP approach. A heuristically derived factor of .6 times the first year's level mortgage payment, therefore, was used as a proxy value for the GMP to update the affordability analysis made in the Project Paper.

Another conceptual issue encountered by the EST concerned the conversion factor or rate of exchange between U.S. dollars and Egyptian pounds. A glaring omission in the Project Paper is that it fails to indicate what factor was used; probably it was taken from the ES-Parsons study, on which AID's cost estimates were based, where the conversion factor was .7 LE = $1.00. The LE exchange has since changed to .8 LE = $1.00. However, the present shadow exchange rate is around 1:1, so that any forecast of what mortgage payments will provide in terms of equivalent dollars would probably reduce further any present premium of LE's relative to U.S. dollars. In view of these factors, the affordability analysis was based on a conversion factor of .8 LE = $1.00.

Another problem in making an affordability assessment comparable to the original Project Paper analysis concerns items that are included in the plot/mortgage cost. In the Project Paper (Table IV), "Total Investments" for the HNC were given as $54.4 million and plot/mortgage cost as $25.1 million. In other words, the affordability analysis in the Project Paper based mortgage payments on an average recovery factor on total investments of 46 percent. The costs associated with "plot/mortgage" were derived by excluding all "urbanization (off-site)" and total investment costs and portions of "community facilities"; all other remaining "total investment" costs included "land," "urbanization (on-site)," and "design/supervision" except for "housing" which was presumed to be fully recoverable. The problem with making a comparable breakdown between total investments and plot/mortgage costs is that the Project Paper did not give sufficient back-up details to indicate exactly how the initial breakdown was made. In addition, some of the parameters assumed in the Project Paper may have changed.

Based on the approximations assumed in relation to the above-mentioned problems, the EST made an affordability

analysis similiar to that shown in the Project Paper (i.e., Table III, page 26). This comparable analysis is shown in Table IV-21. It uses data on the total estimated costs of the HNC shown in Table IV-19 and the division of total costs into plot/mortgage or recoverable costs as shown in Table IV-20.

It should be emphasized again that the replication of Table III from the Project Paper, however, is not exact for reasons stated previously. In addition, it was not possible to determine mathematically how the Project Paper arrived at its values for the anti-speculation discount. Language in the Project Paper states the difference between "the 7% MOH suggested subsidy rate and the 8% market rate, which will be changed by CHF on loans."[109] Since the EST calculations following this methodology yielded values considerably different from those shown in the Project Paper, the team used instead a discount factor of 10 percent, which is approximately the same level as shown in Table III in the Project Paper.

Based on the calculations shown in Table IV-21, the EST concludes that the HNC project still is reaching its intended target groups. This conclusion is the consequence of two factors:

1. Current costs estimates for HNC indicate that the total investment required is only marginally higher than the level used in the Project Paper.

2. Current estimates of urban household incomes (expenditures) are equal to or greater than the estimates used in the Project Paper.

These two factors would lead one to expect that if the same schedule for mortgage payments as given in the Project Paper were used, the same or lower target income levels would be reached.

This affordability analysis, however, must acknowledge some problems. The first is that the cost estimates for housing units may change for reasons discussed in the cost analysis section of this report. The same is true for land costs although it could be argued that "plot/mortgage cost" should not be charged with land costs at a level any higher than the level indicated in the initial Project Paper. The final factor, obviously, is accuracy of the estimates of household income or expenditures.

Table IV-19. Total Costs, Helwan New Community (HNC)

(LE 0.800 = $1.00)	Current cost estimate
Land [a]	$17,398,750
Urbanization[b] Site work and utilities	44,593,932
Community facilities[c]	6,808,500
Housing	19,121,749
Design/Supervision[d]	11,052,500
Total Costs	$98,975,431

a. Total usable area 139.19 ha. (September 16, 1981) @ LE 10/m^2 = LE 13,919,000.
b. Costs updated to January 28, 1982, by BWN. Includes $5.0 million for 66-11KV substation.
c. Arab Bureau estimates, September 1981: LE 5,446,800, unescalated.
d. Arab Bureau LE 330,000; BWN $8,600,000 till July 1983 + $2,040,000 for additional eight months.

Table IV-20. Costs Attributed to Plot and Mortgage Charges in the Helwan New Community

	Total investment	Plot/mortgage cost	
Land	$17,398,750	$14,614,950	84%[a]
Urbanization (off-site and on-site)	44,593,932	11,549,828	25.9%
Community facilities	6,808,500	-	
Housing	19,121,749	19,121,749	100%
Design/ supervision	11,052,500	6,963,075	63
Total	$98,975,431	$52,249,602	
		Lot Unit[b]	Core House
1. Land cost: $14,614,950/9651 lot units		1514	
2. Urbanization cost: $11,549,828/9651 lot units		1197	
3. Dwelling solutions: $121,749/7153 dwelling solutions			2673
4. Design/supervision: $6,963,075/9651 lot units		721	
		3,432	2,673
5. Average recuperation per beneficiary:			
Solutions I - V:		6,105	
Solution VI: (2 lot units)		6,864	
(4 lot units)		13,728	
Average for 6901 beneficiaries		$ 6,707	

a. Prorate factor, derived from Project Paper figures, page 27.

(Continued)

Table IV-20 (continued)

b. Determination of lot units and dwelling solutions:

Type	M^2	No.	factor		Lot unit	
A	56.25	3196	X 1	=	3196	
B	67.50	1607	X 1	=	1607	
C	84.375	797	X 1.5	=	1196	
D	101.25	577	X 2	=	1154	
		199	X 2	=	398	(lot only)
E	202.50	525	X 4	=	2100	(lot only)
		6901	Lots		9651	total lot units

Dwelling solutions = 9651 lot units - lot only solutions
(398 - 2100)

= 7153 dwelling solutions

Table IV-21. Summary of Affordability for HNC Units

Type	Description	Land Urban Cost	Solution Cons't Cost	Total Cost	Minimum Down Pay-Ment (at %)	Base Amount	Less Anti-Spec Discount (a)	Mortgage Amount	Required Monthly Payment A-level B-GPM (b)	Annual Income of Beneficiaries (at 20% income)
I	M+Boundary Wall	3432	1220	4652	930(20%)	3721	372	3349	A) 24.79	1487
	(1373)				233(5%)	4418	442	3976	B) 14.87	892.2
II	B	3432	2452	5884	1177(20%)	4706	471	4235	31.35	1881
	(1031)				294(5%)	5589	559	5030	18.81	1129
III	B+K	3432	2984	6416	1283(20%)	5134	513	4621	34.21	2053
	(1029)				321(5%)	6096	610	5486	20.53	1232
IV	B+K+R	3432	4127	7559	1511(20%)	6045	606	5439	40.26	2416
	(2402)				379(5%)	7177	718	6459	24.16	1450
V	B+K+2R	3432	5660	9092	1818(20%)	7274	727	6547	48.46	2908
	(343)				455(5%)	8637	864	7773	25.08	1745
VI	Lot Only									
	101.25m^2(199)	6,864		6,864						No limit
	202.5m^2(525)	13,728		13,728						No limit

(a) Anti speculation discount based on 10% of Base Amount

(b) Graduate Payment Mortgage based on .6 times level payment mortgage

Information available to the EST on target income levels, however, is as good as or better than the data on income when the Project Paper was prepared. Since the affordability analysis in the Project Paper was credible to support a U.S. $80 million grant, the conclusion from the present affordability analysis should also be credible.

The EST has also prepared detailed affordability analysis for specific types of dwellings and for estimates of different levels of recoverable costs. These calculations are contained in Appendix A of this report. Because lot sizes have changed since the affordability analysis was made in the Project Paper, the calculations in the Appendix may be more pertinent.

FOOTNOTES TO CHAPTER IV.

1. The evaluation study team has been criticized by USAID for not devoting more attention to the upgrading program. In retrospect such criticism may be valid. However, during the 20 work days that the EST spent in Egypt, it appeared that both the size and scope of the HNC in comparison with the upgrading program warranted the greater emphasis by the team. Also GOE representative that the team met appeared far more interested and involved in the activities associated with the HNC. The emphasis given to HNC by the EST also may be reflective of the fact that the original Project as supported by the PP allocated two-thirds of its costs estimates to the HNC.

2. From "Growth of an Informal Area over a Thirty Year Period," The Housing and Construction Industry in Egypt: Interim Report Working Papers 1979/80. Technological Planning Program, Cairo University/MIT, PAT Report 80-13. Fall 1980.

3. The preparation of the HNC, particularly in the design of the infrastructure, clearly illustrated this observation.

4. Project Paper, p. 4.

5. Page 4, Annex H, Project Paper.

6. Bendari meeting, February 1982.

7. G. Hazel meeting, January, 1982.

8. Canino to Flanagan, 23 November, 1980; Flanagan to Gamal, 24 November 1980.

9. See Appendix C, for BWN's comment on the PIU's review process.

10. Discussions with Flanagan, February 1982.

11. The issue concerning the tramway location is noted in BWN comment IV-18 in Appendix C.

12. Urbanization Primer, p. 15.

13. "Comparison of Block Layouts in Site and Services/ Core Housing Projects in Egypt," p. 64, CU/MIT Report, TAP 80-13.

14. Memo from El Gammal to Bendari, June 1980.

15. Memo from Wakeel to Flanagan, December 1980.

16. Discussions with Flanagan, February 1, 1982.

17. "Metered Water Connections Program," ES-Parsons.

18. The intent of this hypothetical exercise is to indicate the critical role that design plays in the costs. In the actual design, however, it may not be possible to achieve a 8 meters average because of topography and other priorities in the design.

19. Twelve percent of 39 percent of 45 percent of $98,975,431.

20. Discussions with Flanagan, concerning meeting with PIU, February 4, 1982.

21. As indicated previously, BWN's comment on the tramway issue takes exception to the EST criticism.

22. Prepared June 1980, Sections 2.9.1.2-3.
23. Memo, Gammal to Bendari, June 19, 1980.
24. According to BWN, left-over space was required by PIU/JHP (see Appendix C, comment IV-21).
25. Composed of mini-parks, courtyards, public spaces, setbacks; it does not include the escarpment, parking, and unbuildable land. Data derived from Land Budget, updated to September 16, 1981; from BWN.
26. 9.72 ha., Land Budget, September 16, 1981.
27. It is strongly cautioned that these values should be viewed only as an exercise. In the actual design, it may not be possible to arrange the lots/blocks to take full advantage of the open space area.
28. "Housing and Community Upgrading for Low-Income Egyptians," page 59.
29. BWN report, Vol. I, August 1980, p. 2.9.2., note, for example, "lotting analysis."
30. Letter, Wakeel to Flanagan, December 2, 1980.
31. Annex H, p. 5.
32. Memor, Noren to Applegate, February 22, 1978.
33. From updated lot totals by BWN, February 1982.
34. Joint meeting, Minutes, April 10. Note that the $14m^2$ per lot allocated for planted areas could readily have been incorporated with the lots, allowing larger lots and resulting in less area for public or community maintenance.
35. Letter, Bendari to Flanagan, August 30, 1980.
36. Project Paper, Annex H, p. 5.
37. Letter, Gammal to Bendari, June 19, 1980.
38. April 24, 1980.
39. The recently approved Project Implementation Plan includes only seven schools.
40. Discussions with Smit, January 1982.
41. Meeting with Arab Bureau architect, February 1982.
42. Discussions with original head of CHF field team, January 21, 1982.
43. Smit and Bolton, among others.
44. Es-Parsons, p. 4-1A.
45. Discussions with BWN field engineer, February 9, 1982.
46. Arab Bureau, February 1982.
47. Discussions with site engineer, February 1982.
48. Building Materials Study: "Housing for Low-Income Egyptians," prepared by CHF, International.
49. Dr. Mona Serageldin; Annex C, p. 33 of preceding study.
50. Meeting, February 8, 1982, with Dr. Ramsis Sedra and Architect Ibrahim Enan.
51. Preliminary calculations by field engineer, February 1982.
52. AID file, approximately January 13, 1978, memo prepared by Joint Team, with U.S. and Egyptian members.

53. Discussion with Dr. Ramsis Sedra and Architect Ibrahim Enan, February 1982.
54. Project Paper, Annex J, page 1.
55. Distribution from Implementation Plan, October 1981
56. Unpublished report "Improvement of Interior Finishing"; prepared by the Joint Research Team on the Housing and Construction Industry, Cairo University/MIT, Technological Planning Program, Cairo; Summer 1981.
57. "Building System Design and Materials Supply Strategy."
58. The "vertical core" type of housing had previously been proposed in the Port Said Demonstration Project. A three-story structure of skeleton frame construction with a simple platform for each floor was designed, with four units of $36m^2$ on each floor. Nine square meters would be covered, which includes a bathroom and kitchen core, and $27m^2$ would be uncovered (at least for the third floor unit). The reasons for building all three floors were the difficult and expensive foundations required in the poor soil conditions of the site, and the lower costs per unit when dividing these costs among three stories.
59. Unpublished CU/MIT PAT REPORT "Improvement of Interior Finishing," Summer 1981, PAT Report 81-3, page 11.
60. See Table IV-8.
61. ABT report, page 136.
62. Unpublished CU/MIT PAT Report "Improvement of Interior Finishing," Summer 1981, PAT Report 81-3, page 11.
63. Minutes, 10 April 1980, BWN, AID, PIU.
64. March 1981.
65. Project Paper, p. 12.
66. Preliminary Engineering Reports (Vol. II - Infrastructure).
67. Discussions, January 21, 1982.
68. Letter, Gammal to Bendari, June 19, 1980.
69 Discussion, January 21, 1982.
70. Letter, Gammal to Flanagan, March 31, 1981.
71. Chris Banes, report dated June 25, 1981.
72. BWN comments on this section of the draft report indicate how they attempted to make significant reductions in utility standards, but which were for the most part rejected by various GOE entities (see Appendix C, comment IV-38).
73. BWN file, December 22, 1980.
74. This was referred to in a letter by Flanagan to Hazel, May 20, 1981. It is not known if the idea was initiated by CHF, Banes, or BWN.
75. Minutes of meeting, GOSSD, AID, PIU, BWN; February 9, 1981.
76. Discussions with Bolton, February 1982.
77. Ibid.
78. Letter, Abbott to Flanagan.

79. Letter, Flanagan to Gammal, November 23, 1981.
80. Letter, Flanagan to Gammal, March 15, 1981.
81. Letter, Flanagan to Wakeel, July 12, 1981.
82. Letter, Flanagan to Hazel, May 20, 1981. The use of trip breakers may have come from CHF suggestions; see file memorandum of Smit, March 28, 1981.
83. Project Paper, Annex H, p. 6.
84. Arab Bureau, "Case Study of the MHE Dwellings," p. 21.
85. "Financial Analysis and Education of Urbanization Costs Plan Alternatives," CHF, October 26, 1980, page 14.
86. Ibid.
87. BWN Worksheet, January 28, 1982.
88. Memo, Flanagan to Gammal, August 25, 1981.
89. Discussions with Bolton, January 1982.
90. ABT report, page 141, 142, based on their interviews, but data paralleled official rates.
91. Site preparation, roads, water, sewage electrical, street lighting.
92. Feasibility Study, 1978, Appendix I, page 4-Ia.
93. Discussions with CHF, January 21, 1982.
94. Meeting, February 1982.
95. Work Sheet, 28 January 1982, from Flanagan.
96. By GOE.
97. Based on 9,651 lot units (see Table IV-20).
98. Subsidy at 26 percent of total infrastructure costs. EST was not able to determine from Project Paper how the subsidy factor was derived.
99. Discussion with Flanagan, February 1982.
100. Discussion with Flanagan, February 1982.
101. Discussion with Bolton, February 1, 1982.
102. Letter, Flanagan to Gammal, August 25, 1981.
103. Memo.
104. Discussions with Bolton, Flanagan, February 1982.
105. Letter, Wakeel to Flanagan, December 2, 1980.
106. Derived for utility cost breakdown, October 25, 1980, including roads, water, sewer, power, street lighting, and telephone networks.
107. Op. cit., Table III, p. 26.
108. Ibid., p. 22.
109. Ibid., p. 2.

V. MANAGEMENT AND WORKFLOW PROCESS

In this chapter, the EST examines and analyzes how project tasks and functions are being performed, the staffing patterns involved, management practices, the relationship among participating agencies, and interorganizational linkages. The examination focuses first on the implementation machinery organized by the Ministry of Housing, followed by a review of the involvement of the CFE, the other major Egyptian institutional participants in the project, of the technical assistance provided by CHF and finally, of the performance of the two principal design and construction contractors, BWN and the Arab Bureau. The chapter also addresses the role of USAID as project monitor.

GOE Implementational Machinery

The Project Paper clearly identifies the need for GOE involvement in the project because of its complex design. In the section on administrative feasibility, the Project Paper recommends establishing a Steering Committee comprised of representatives of the MOH and various participating GOE agencies both to serve as a policymaking body and to assist in coordinating the participation of various governmental entities involved in the project. In addition, it recognizes the need for the MOH to create an Implementation Unit headed by a director to manage, supervise, and evaluate the project.

Steering Committee

Annex O of the Project Paper spells out the role of the Steering Committee in detail; Annex N emphasizes its importance to the organizational framework of the project. The Steering Committee would plan policy coordination of the various government agencies involved in the project. Created soon after the signing of the Grant Agreement by Ministerial Decree 250 in 1978, the Steering Committee assumed responsibilities generally conforming to those suggested in the Project Paper.

Although expected to meet monthly, the Steering Committee has apparently met only once, on November 24, 1979, soon after its formation. USAID pressed the MOH regularly to convene the Committee; and as late as September 16, 1981, CHF team leader J. Smit wrote to JHP Chairman Wakeel to recommend its composition and its responsibilities and to suggest that it meet 5-10 times a year. The Chairman thereafter issued an order reorganizing the Steering Committee, which reduced the number of its members, limited a full convocation to 1-2 times per year, and formed an Executive Committee to meet 5-10 times annually.[1]

Although USAID and the CHF technical advisors continue to consider the active involvement of the Steering Committee as an important component of administrative feasibility and the JHP Chairman appears willing to revive it, failure of such a committee to function has, in fact, had no measurable impact on project implementation.[2] According to the Chairman of the JHP, the Steering Committee concept is neither workable nor necessary. In his judgment, representatives from governmental agencies with no direct concern are reluctant to attend meetings to discuss another agency's projects. Moreover, the Chairman does not find coordination with other agencies to be a problem. Whenever a particular project activity intersects the sphere of authority of another agency, necessary approvals are obtained directly from that agency. In this manner, concerned agencies have the opportunity to fit project activities into their own broader plans.[3]

Nonetheless, it can be argued that overall project implementation could have been and could still be considerably facilitated if the Steering Committee were functioning and regularly performing its planning, coordination, and directive role. At a minimum, the failure to convene the Steering Committee regularly represents a lost opportunity to engage the active interest and support of other agencies in the new approaches the project is attempting to demonstrate and promote. More specifically, the Steering Committee could have been the forum in which to sort out the many issues on design standards that the project has faced.[4]

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1. Interview with Chairman Wakeel on February 11, 1982.
2. The EST discussion of the Steering Committee's lack of active participation has elicited comments that it also may have some bearing on the controversy over appropriate design standards.
3. The Chairman expressed his views during an interview on February 11, 1982.
4. Under the leadership of the JHP, the concerned government agencies could have been more fully enlightened on the experimental nature of the project.

Project Implementation Agency

As indicated, the Project Paper and Grant Agreement call for a project implementation agency to be responsible for the execution of the project. In justifying the administrative feasibility of the project, the Project Paper states:

> In general, in terms of professional level education and training, the technical and administrative capability required to carry out various facets of the project exists.
>
> The primary administrative deficiency is the lack of experience in the planning and implementation within an acceptable time frame of a project of this magnitude and complexity. To assist the MOH in overcoming this deficiency, an Implementation Unit staffed wth qualified architects, engineers, managers, community developers, evaluators and monitors will be established in the MOH to provide assistance, training and other consultant assistance as required to assure timely implementation, monitoring and evaluation of the project.[1]

Detailed directions were laid out in the Project Paper regarding the necessary organization, functions, and staff required of the project implementation agency. In accordance with the Project Paper and Grant Agreement, such an organization was created by Ministerial Decree No. 49 of 1979, issued on February 13, 1979. It was not, however, established solely for the purpose of implementing the USAID/Helwan project as the Project Paper and Grant Agreement had foreseen.

Called the Joint Housing Projects (JHP), this agency was created by the MOH in the expectation that the Ministry would have more than one internationally assisted housing project to manage and coordinate. It was to be headed by a Chairman who would report directly to the Minister, and its mandate was quite specific: "to implement agreements with foreign governments and international organizations to finance projects for low-income families." The proposed organizational format for the JHP is shown in Figure V-1. A Ministerial Order named 19 persons as the initial staff of the JHP, 16 of whom were designated for the Project Implementation Unit, which is called the PIU.

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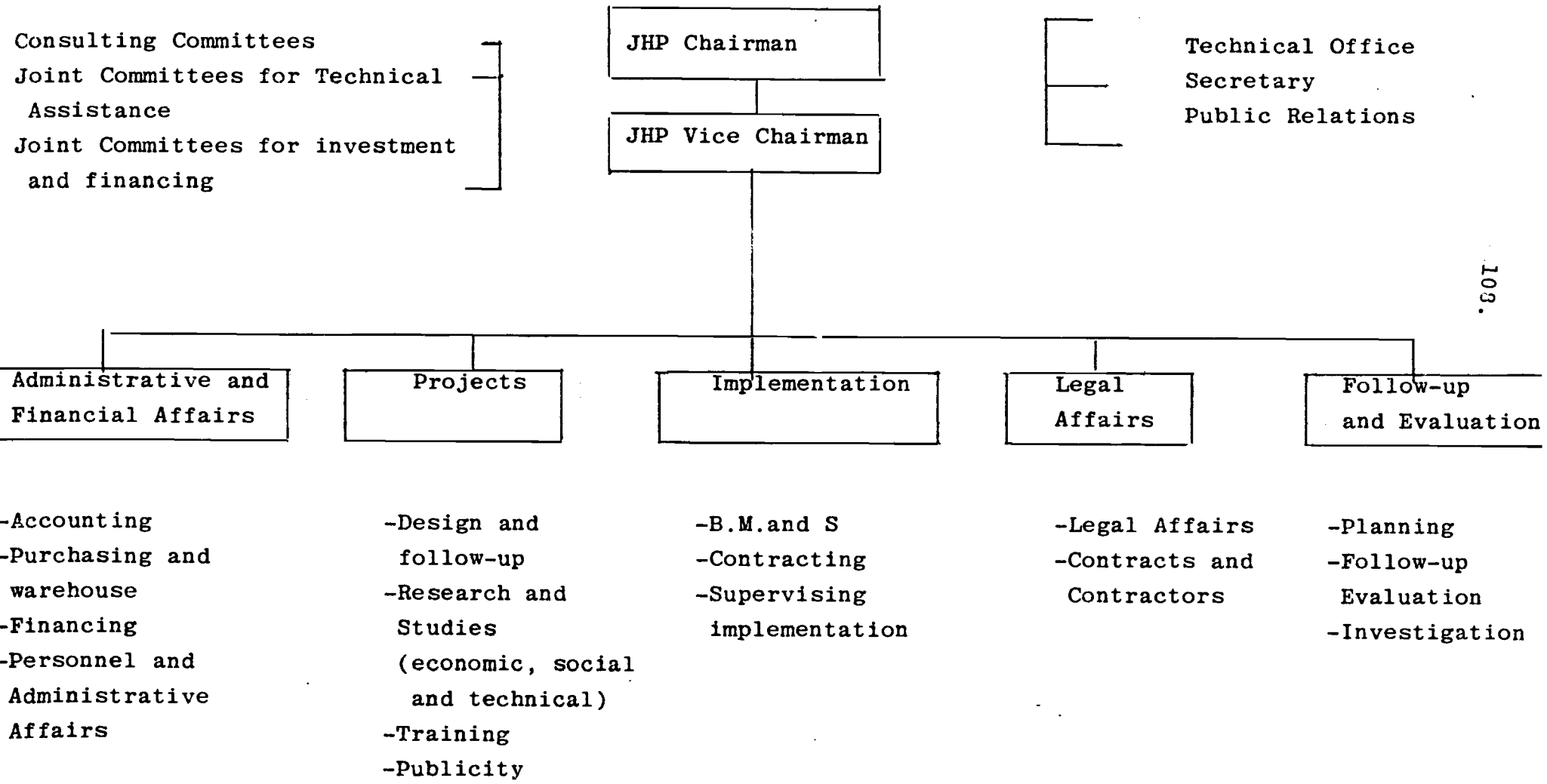
1. Project Paper, p. 16.

Figure V-1. JHP Organization Chart in Decree #48

MINISTRY OF HOUSING
ORGANIZATIONAL CHART
JOINT HOUISNG PROJECTS



In reviewing the development of the JHP, the EST focused upon three paramount issues: institutional organization, project organization and management, and staff development.

Institutional Organization

Since the outset, the JHP has gone through a series of transformations apparently to rationalize and reconcile its internal structure with the organizational requirements of the USAID/Helwan project. Thus, the first JHP organizational chart varied significantly from the project organization suggested in the Project Paper (see Figure V-2), which is understandable since the JHP was created to serve a broader function than implementing the Helwan project. It is not clear from the chart, however, precisely where individual projects would have fit in the initially proposed structure. Moreover, there was no organizational format provided for the project itself.

The second organizational chart prepared by the JHP was adopted in December 1980 and showed a Project Implementation Unit (PIU) at the tail end of a quite well-developed JHP superstructure (see Figure V-3). Again, however, no organizational details were charted for the PIU. The current organizational format is shown in Figure V-4 and demonstrates the matrix format in which the JHP is currently organized.

Under the matrix system, JHP staff are assigned either to staff departments serving the Chairman's office or to one of two broad line departments, the Department of Technical Affairs and the Department of Economic, Administrative and Cooperative Affairs. Projects such as the USAID/Helwan project are then organized across this matrix, with individuals assigned from their sectoral subdepartments to work on specific projects. According to discussions with the JHP, the general manager of a project has full responsibility over all the individuals assigned to his project, reporting to the Vice Chairman and Chairman on project activities.

As explained by the JHP,[1] the matrix organizational form is, owing to GOE regulations, the only one possible for the JHP given its mandate to manage more than one project. According to the Central Agency for Organization and Administration, all permanent employees of the GOE must be assigned to permanent, approved governmental departments. Individuals assigned on a project basis are considered

1. Interview held on February 11, 1982.

Figure V-2. Organizational Framework - MOH Implementation Units (per Project Paper)

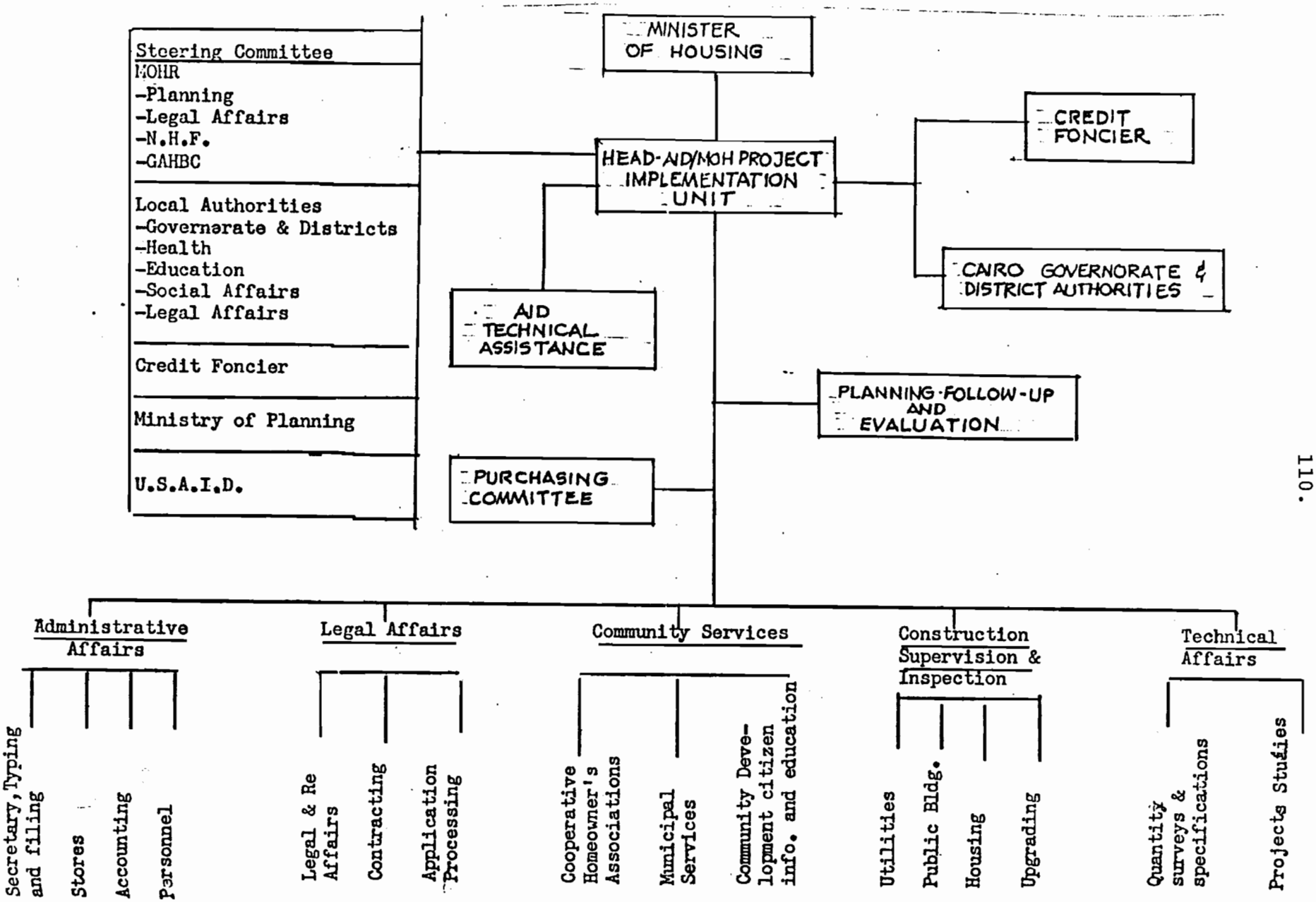


Figure V-3. JHP Organization Chart of December, 1980

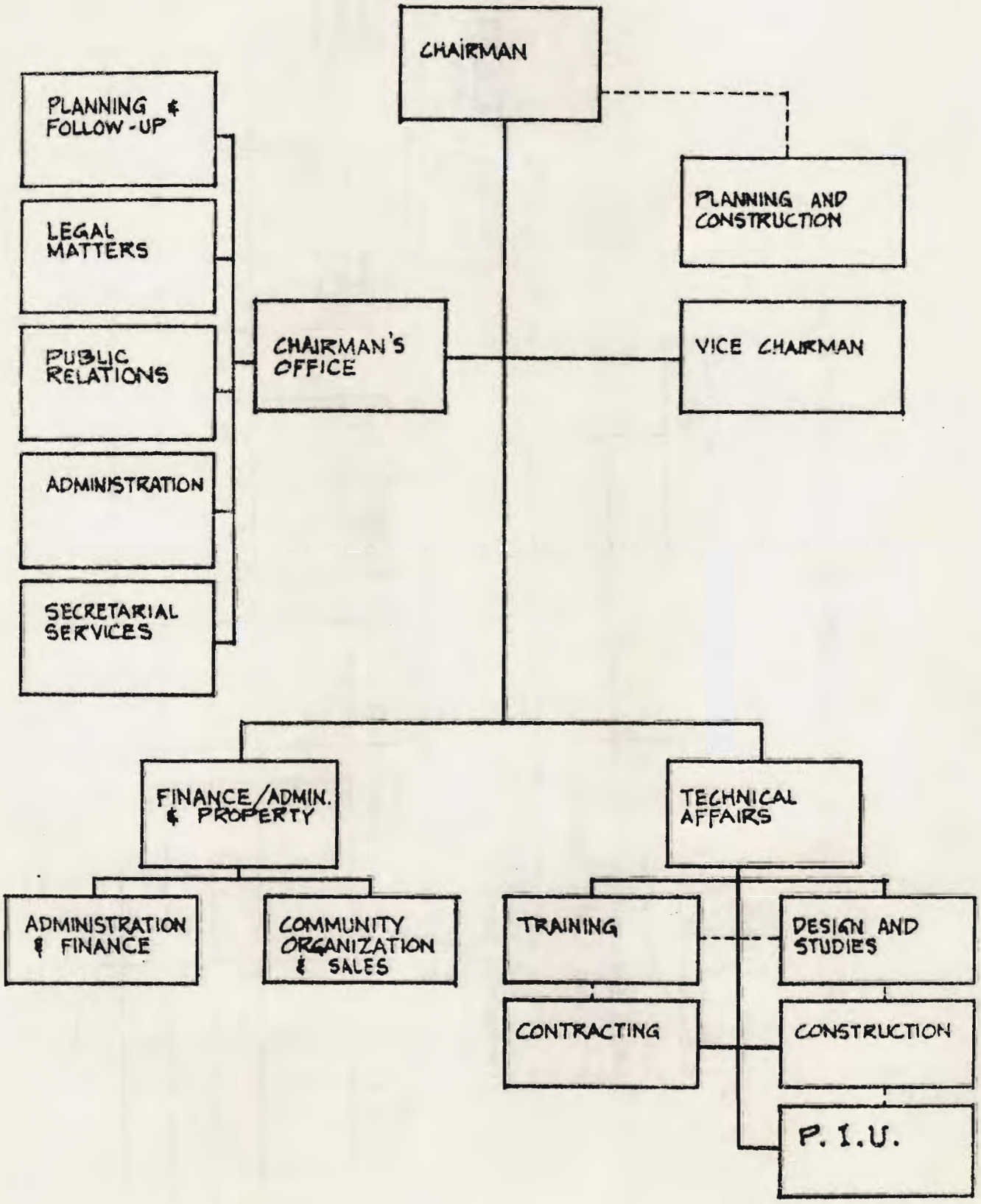
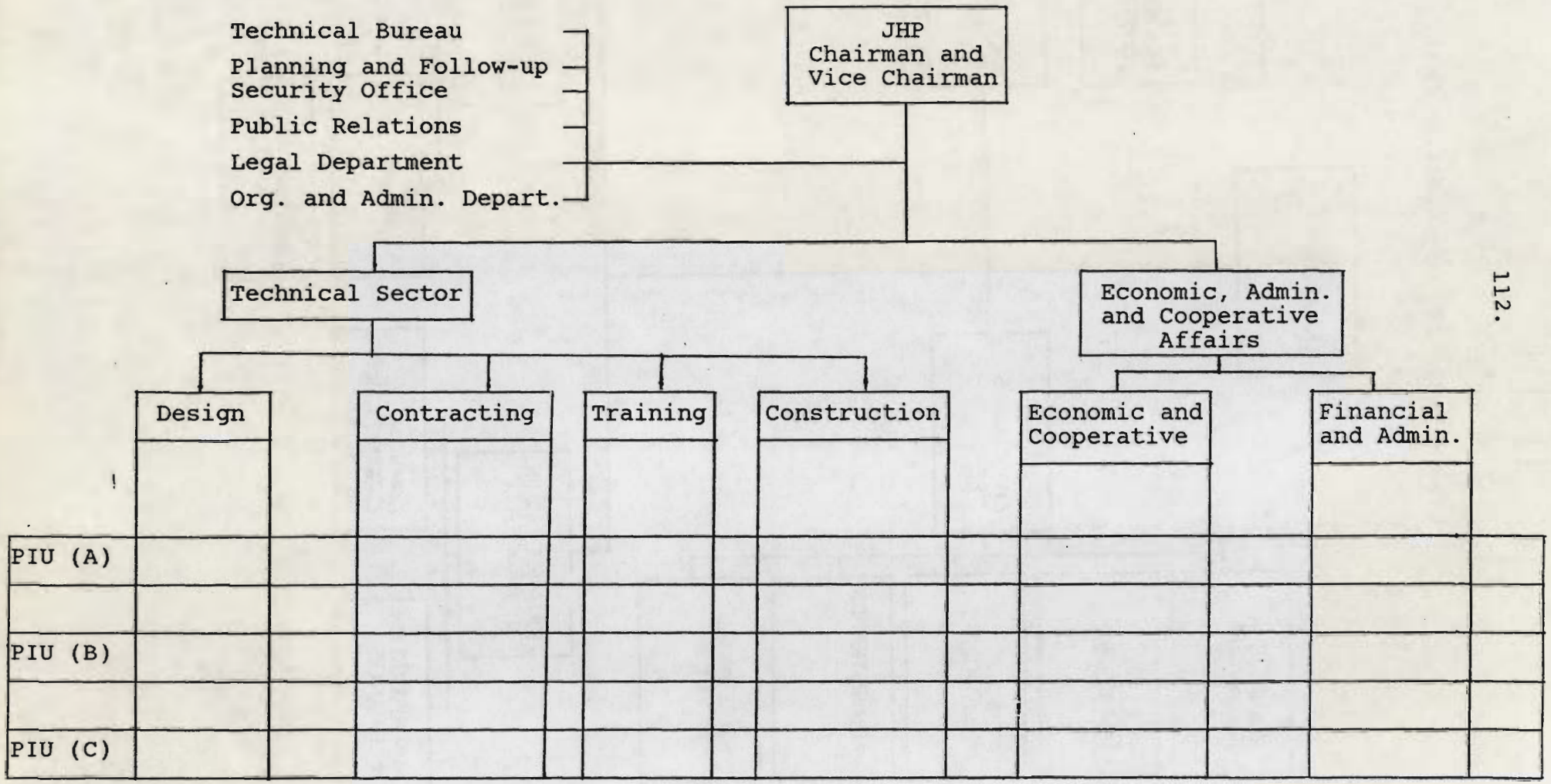


Figure V-4. Current JHP Organization Chart



temporary employees and have no career position and, therefore, no job security. For this reason, the JHP cannot formally, in its words, "projectize" the organization of the USAID/Helwan project or any other project.

Whatever the reason, management considers the JHP to be organized now and for the future on a matrix system. The merits of that organizational form are not, therefore, subject to further discussion. What may be legitimately reviewed, however, is how the system currently works, whether it is widely understood, and whether its operation might be more effective. Such questions focus inevitably on the PIU for the USAID/Helwan project because that project is the JHP's primary activity and occupies the time of the bulk of its staff of 150 people.

Project Organization and Management

The USAID/Helwan project at this point has taken the form of a field operation, reporting to the General Manager of its Project Implementation Unit. The General Manager in headquarters is supported only by a few engineers and assisted by a team of CHF advisors. There are no project departments under the PIU at headquarters, although under the matrix system, the General Manager could form project staff into special subproject "units" with the approval of the Chairman.[1] In the view of the Chairman, however, such subproject "units" are not needed at headquarters because the work is now primarily being done in the field. Also, the difficulty of recruiting qualified senior individuals to head such units poses problems.

By contrast, CHF consultant Terzo, in his March 1981 Implementation Plan draft, devoted a whole section specifically to the need for headquarters departments headed by qualified senior professionals to plan, develop, and manage principal project activities. In his suggested plan (see Figure V-5), the PIU would comprise three principal headquarters departments -- construction management, community services, and finance and administration -- supported by three staff support groups -- strategic planning, housing demand analysis, and legal services. All activities in the HNC would be under the direction of a single project manager, and activities in upgrading areas under one or two such managers. For example, as indicated in Figures V-6 and V-7, the Construction Management Department would be further broken down into project management and staff functions. A

1. Discussions at JHP, February 11, 1982.

Figure V-5. Terzo PIU Organization Chart

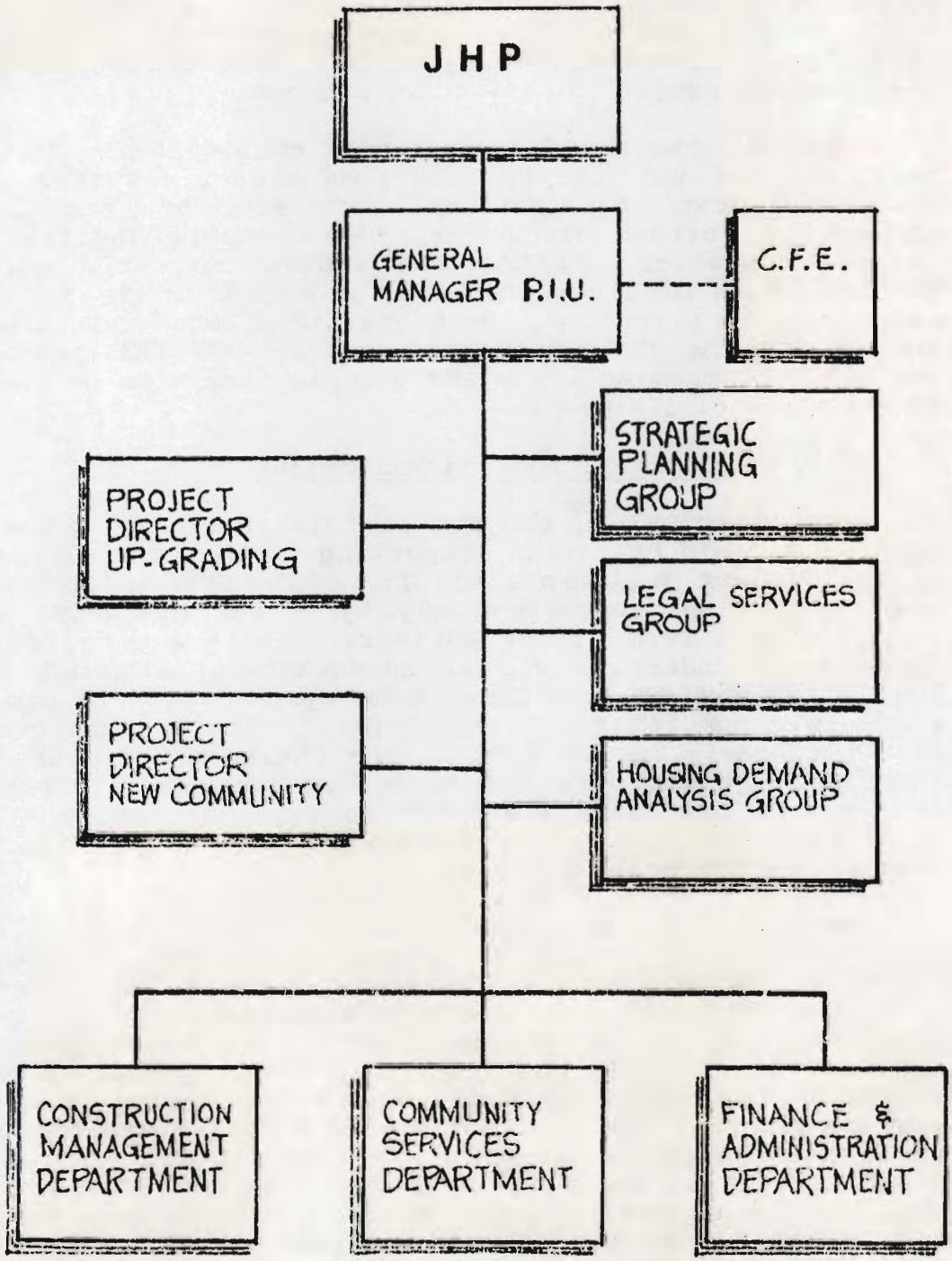


Figure V-6. Terzo PIU Organization Chart
for Construction Management Department

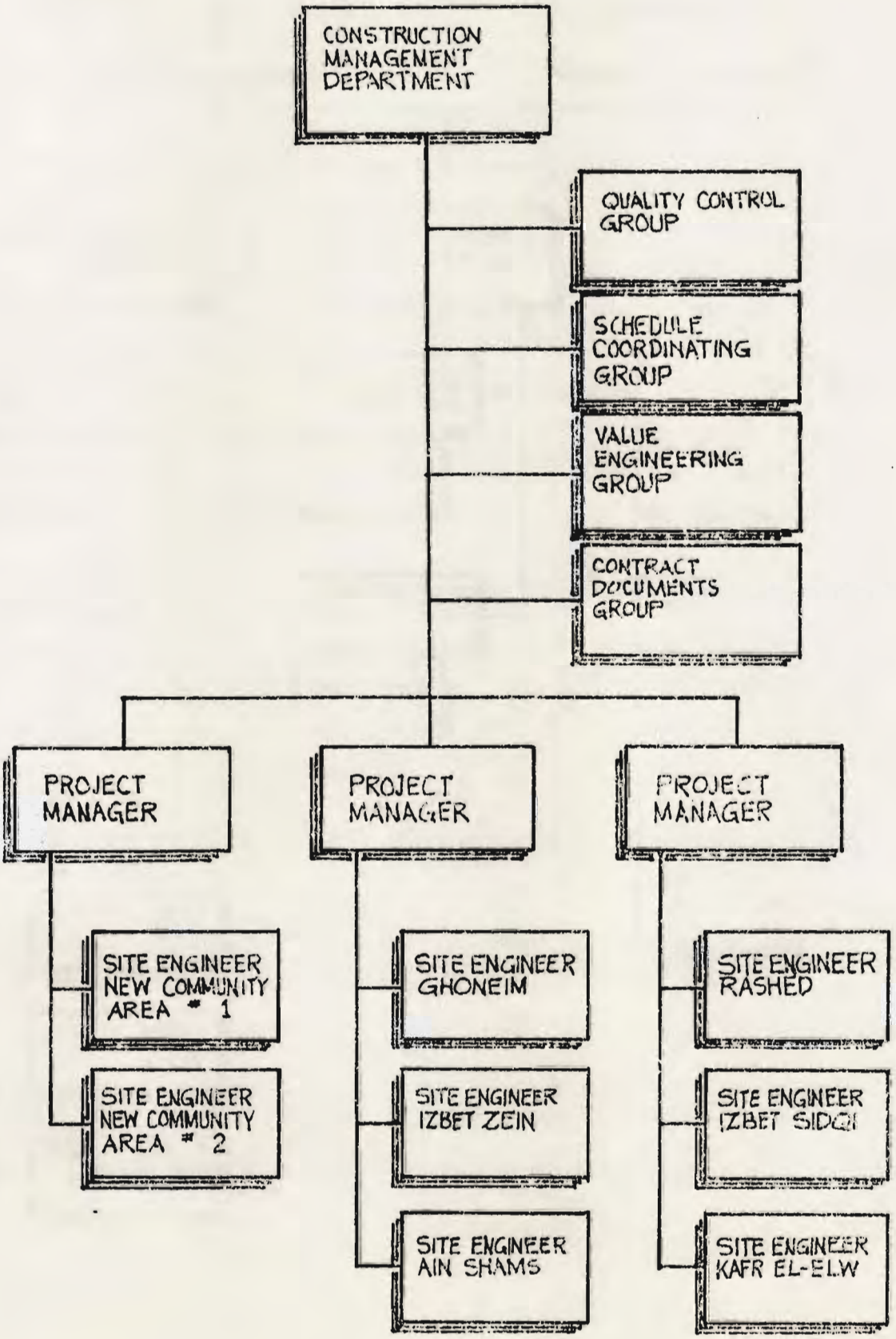
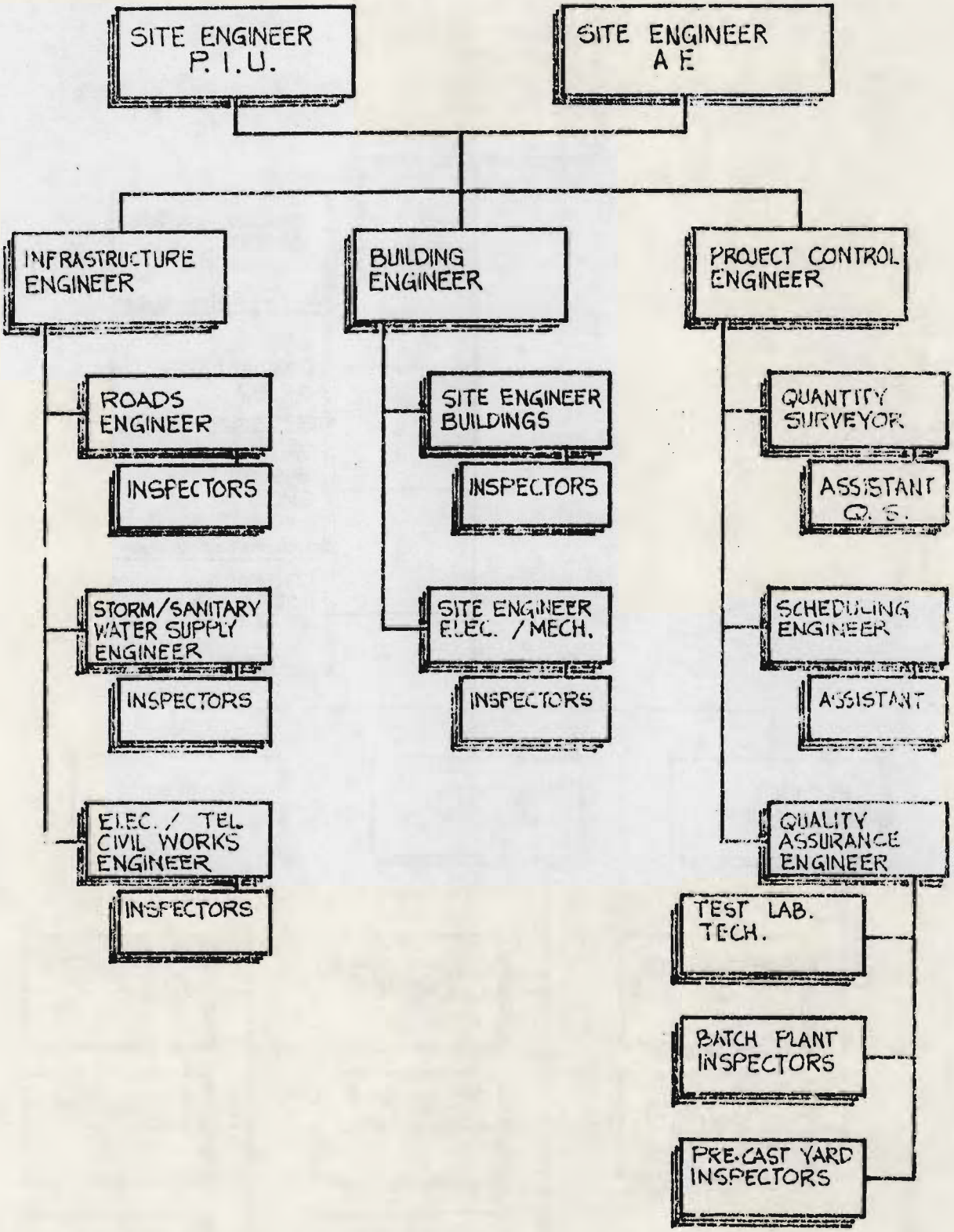


Figure V-7. Terzo PIU Organization Chart for Construction Management Department Field Operations



staff of 122 professionals and paraprofessionals was recommended to fulfill the requirements of such an organization.

An omission in the Terzo plan is the need for a functioning evaluation department, as neither the JHP nor the PIU now has such capability. There may be provision for such an activity in the JHP in the planning and follow-up department, which is a staff function associated with the Chairman's office. However, despite the importance attached to this subject in the Project Paper, no apparent effort is yet underway to establish a functioning evaluation department.

In addition, the CHF team supports the Terzo view that further development of the Helwan project's PIU headquarters staff and organization is required to carry out project requirements effectively. Without senior counterparts at headquarters with whom they can consult freely on all project activities, they feel that both their usefulness and their effectiveness are limited. This situation leads the CHF team to a more direct role in planning and, to a lesser extent, in implementation than is called for in their contract.[1] Also, team members report directly to the General Manager, who cannot be a specialist in all the matters to which the team is assigned. Apart from the obvious burden on the General Manager, the situation raises a critical issue: without counterparts for the CHF team, how can the goal of replicability be served?

Clearly, JHP management on the one hand and PIU staff and the CHF team on the other cannot agree upon the organizational and staffing requirements of project implementation. Moreover, both groups appear rather far apart in their respective views. All parties should address this matter promptly, rather than let the issue drift unresolved. In any event, the issue will apparently be addressed during a forthcoming visit by CHF President Dean, as the CHF team believes strongly that more manpower, both Egyptian and expatriate, is required to carry the project successfully through to completion.

Questions of authority and responsibility, some of which have their roots in the early experience of the project, also appear to have hindered project implementation. Thus, at the time the JHP was established, USAID was

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1. By decree 21 of 1982 issued by Chairman Wakeel, social development and evaluation advisor Dr. Sawsan El-Messiri has been assigned to supervise implementation of the small enterprise loan program.

concerned that only three to four of those assigned were really available full-time to work on the project, especially the Chairman and Vice Chairman, as the ministerial order indicated that these two individuals would hold such positions in addition to their present jobs.[1] An internal memo indicated that USAID would request the Minister to appoint a full-time General Manager "with full management responsibility and complete authority to approve all actions necessary for the daily operation of the PIU."[2]

On October 3, 1979, Minister Hifnawi wrote to USAID, referring to Decree No. 48 establishing the JHP, and stated that "effective today" Engineer Kamal El Gammal was assigned as full-time manager for the USAID project. No ministerial orders apparently recognized or defined exactly how this organizational change would affect the structure of the JHP. On February 14, 1980, however, USAID communicated to the MOH through Project Implementation Letter No. 6, that the condition precedent relative to the establishment of an implementation agency was satisfied.

Following his appointment as General Manager of the PIU, Engineer El Gammal apparently was given full scope to implement the project, at least according to his understanding.[3] However, the General Manager now believes that his responsibility and authority have been substantially circumscribed. His more limited role seems to have evolved under one of the reorganizations that occurred under the current Chairman and Vice Chairman, perhaps as a consequence of the final rationalization of the matrix system. In any event, both the General Manager and the CHF team believe that the responsibilities of the PIU are now limited to implementation of programs in the field and construction supervision. They also feel that the PIU has lost control of the design aspects of the project, which if true, splits off an obviously integral component of project development.[4]

Further complicated by the lack of staff development, this situation has even led the Vice Chairman to assume direction of the Technical Affairs Department. In this position, the Vice Chairman deals directly with the design sector and also concludes contracts independently, which are

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1. USAID internal memorandum of Hazel to Brown, March 29, 1979.
2. Ibid.
3. Interview on January 27, 1982.
4. Based on various interviews held with the General Manager and the CHF team.

then turned over to the PIU General Manager for administration and supervision.

The result of this fragmentation of responsibility and authority is that in practice the JHP/PIU do not speak with a single voice for the project and that no single individual appears to be fully accountable for its implementation. As seen by the CHF team, the General Manager has responsibility withouth the requisite authority to carry it out. In the words of former team leader Smit, "the PIU has no control over budget or personnel, therefore does not really have the capacity to carry out its mandate."[1]

Staff Development

No information is available to the EST on the projected overall staff complement of the JHP up to this point. Line and staff functions are only partly filled, despite an overall strength of 150, of which a large number are apparently clerical and other staff. Nonetheless, given the lack of projects to manage, the management structure of the JHP appears somewhat top heavy, perhaps accounting for some of the confusion in the lines of authority which seems to prevail. With only one project to implement, the JHP is searching for a role for itself, leading senior management to focus much of its attention on whatever activity the organization possesses.

According to the Project Paper, the PIU was originally intended to have a minimum professional staff of 60. It had, however, only reached five or six staff members by the time the CHF team arrived in February 1980. Up until quite recently, the PIU staff only numbered around 30, although a recruitment effort in November and December 1981 has added some additional staff. According to the General Manager of the Department of Finance and Administration, Mr. El Essawi, PIU's staff currently stands somewhere between 40 to 50. Nonetheless, the PIU staff complement is short of the level envisioned in the Project Paper and far short of the 122 man team of professionals and paraprofessionals considered by CHF consultant Terzo necessary to fulfill its assigned functions.[2] Thus, according to the CHF, the lack of staff has been the primary reason that the PIU has not been able to expand its work on upgrading beyond three areas.[3]

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1. Interview on January 24, 1982.
2. March 1981 Implementation Plan. The first CHF team leader Smit suggested a need for a staff of 130, excluding evaluation personnel and support staff.
3. Interview with CHF staff on February 7, 1982.

The staffing problem seems particularly acute with regard to the need for experienced senior staff. As already noted, there are no headquarters' section chiefs to assume responsibility for implementation of the project's essential functions.[1] There are no sanitary or water engineers and no senior specialists responsible for planning, developing, and executing the small enterprise loan program and the various community organization programs.[2] Recent university graduates seem to be the only easily accessible group with which the JHP/PIU can staff this project.

At present, JHP/PIU appears to be dealing with the particular staff resource problem of construction management, the largest PIU activity, according to suggestions made by consultant Terzo. Terzo recommended that the PIU make the maximum use of consultant firms to obtain necessary construction management manpower resources, recruiting only key staff such as project managers and staff group leaders. He cited the difficulty JHP/PIU faces in competing with the private sector both in Egypt and in neighboring oil producing countries and the difficulty of reaching necessary staffing levels within existing project timetables. In response, the JHP/PIU has hired a well-known engineering company, Sabbour, for services in Rashed upgrading and expects to make increasing use of such resources. A combination of this approach and continued vigorous recruiting could resolve the staff development problems.

Various forms of training could also contribute to the staff development effort. However, there has been little use of the $400,000 in budgetary funds allocated to staff training in the original project authorization. There have been some visits to the United States and Latin America, attendance at AID housing conferences in Tunisia and in West Africa, and some seminar programs in Egypt, but the bulk of training funds appears to be unspent. Moreover, there appears to be no effort underway to systematically develop a program of training opportunities for the JHP/PIU, partly because no organization appears to have been assigned such responsibility. This oversight appears tied to the Project Paper's vagueness of language on training:

> The training done in Egypt will be in existing facilities or will be designed and run by short-term consultants. Training outside of Egypt will

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1. Ibid., also CHF internal memorandum of September 17, 1981.

2. The Credit Foncier Egyptien has recently agreed to provide a program coordinator for the small enterprise loan program.

> be done under the guidance of contractors. Specific job description for technical assistance and course content for training will be developed on the basis of mutual agreement between AID and the MOH Implementation Unit.[1]

From this description, it is not clear who is meant to take the initiative to develop training programs. Since the Grant Agreement and the contracts with CHF and BWN are equally vague on this point, it is not surprising that initiative should be lacking.

Although the JHP/PIU has experienced difficulties in staffing middle management levels, the quality of individuals appointed to its top management staff has been quite good. The EST has been uniformly impressed with the high professional caliber and dedication of this management team.

Summary

To undertake the USAID/Helwan project, the MOH set up a special housing development agency (JHP) specifically to implement housing projects for low-income families. The JHP was to be financed jointly by international agencies and the MOH. Although established by decree soon after the signing of the Grant Agreement, the JHP has not yet developed into a fully functioning organization. Although the JHP has received strong GOE support, represented by budgetary allocations and the appointment of a quite senior and experienced top management, it has had considerable difficulty in obtaining senior personnel to manage both its line and staff support functions.

In addition, the JHP has experienced difficulty in rationalizing the organization and management of the USAID/Helwan project within the format dictated to it by the civil service regulations of the Egyptian government. Project management has also been complicated by some apparent fragmentation in the lines of authority and responsibility for various aspects of project development and implementation and by a lack of agreement over the organizational requirements of the project.

The JHP/PIU has also faced difficulties in attracting senior project staff to plan, develop, and manage principal program activities. Staff development has been further complicated by a failure to make full use of the training

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1. Project Paper, Annex T, p. 3.

funds available in the grant. Because the CHF team has no counterparts in the MOH, the CHF team must not only take initiative in program planning, but also must become involved in implementation to some degree. Under such circumstances, the likelihood of replicating certain important aspects of the project, such as community organization, is greatly reduced.

Despite these many remaining difficulties, the organizational development of the JHP/PIU has not been atypical by Egyptian experience. Moreover, the challenges that it has faced are common to many newly formed institutions. Its level of development at this point must therefore be considered commendatory in the judgment of the EST. The EST also judges JHP/PIU's performance in managing and implementing the project to be essentially positive, given the pressures of project timetables, the complex institutional arrangements of the project, and the challenge of adapting to unaccustomed and often complicated USAID regulations and procedures.

Credit Foncier Egyptien

According to the Project Paper and the Grant Agreement, the Credit Foncier Egyptien (CFE) was to play an important and innovative role in the implementation of the project. This role was defined as follows:

- To establish a branch bank operation in Helwan and Ain Shams;
- To provide services in the sales program of the New Community program;
- To accept savings deposits of beneficiaries and administer the home expansion and improvement credit program in the New Community and upgrading areas; and
- To serve as the financial administrator-controller for the project, extend interim credit, and receive funds from the GOE and AID for disbursement to contractors, participating government agencies, service organizations, and nongovernment institutions as required.

To assume the additional administrative burdens such tasks implied, the CFE was to receive technical assistance for branch bank operations, project financial management,

and electronic data processing methods. In support of the latter, AID agreed to procure EDP equipment from other funding sources.

Contract negotiations between the PIU and the CFE were concluded on March 18, 1980. A reading of the contract indicates a set of contractual responsibilities clearly defined and nearly identical to the CFE role envisioned in the PP and the Grant Agreement. Actual start-up of the CFE program, however, was delayed by the return of the CFE branch banking and financial advisor to the United States for health reasons.

According to CHF and the JHP, the CFE has generally been quite cooperative and has fulfilled the terms of its contract satisfactorily. Currently, it administers the three home improvement loan programs now established in the upgrading areas, operating out of space provided in PIU field offices. It is also preparing a mortgage loan agreement and model sales contract. The CFE is effectively performing its role of financial administrator for the Project and provider of bridge finance. Finally, it has recently agreed to provide a staff person as program coordinator for the forthcoming small enterprise loan program, according to the CHF Monthly Report for January 1982.

Some problems remain to be resolved, however. The home improvement loan programs, for example, lack sufficient qualified personnel, and the process of loan acquisition is cumbersome and excessively time consuming, according to a study done by the CHF social development and evaluation advisor.[1] In addition, loan program staff have recently been temporarily assigned to training and inspection of public facilities construction, a reallocation which further complicates the staff development issue.[2] Also, although the CFE is operating programs out of PIU field offices, it has not established a full-service branch bank in Helwan as called for in its contract.

Another troublesome problem relates to the preparation of a mortgage loan agreement for the home improvement loans. Although the CFE appears to prefer the use of a factory income guarantee, the CHF believes the JHP is obligated by the terms of the PP to establish a mortgage loan program for lower income Egyptians.[3]

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1. CHF Monthly Report for October 1981.
2. CHF Monthly Report for January 1982.
3. CHF Monthly Report for January 1982.

A further difficulty is the implementation of the graduated mortgage payment (GMP), which CFE is obligated by its contract to offer to borrowers. CHF reports that up to this point, CFE has not actively promoted the GMP. Chairman Ali Sabri, for his part, indicated some reservations about the use of the GMP.[1] The issue will surface, however, as the MHE sales program is developed because the GMP is an integral element.[2]

Despite the documentable progress made by the CFE, assisted by CHF advisors, in satisfying the terms of the CFE contract, the CFE may not be entirely satisfied with its relationship with the project. In a meeting with the CFE, Chairman Sabri indicated considerable dissatisfaction with CFE's experience to date on the project.[3] In fact, he stated candidly that "One hundred percent he would not do such a project again." The reasons he gave were that the CFE: (1) loses money, or at least does not earn any money; (2) has to respond to too many bosses (AID, PIU, and CHF); and (3) is not really allowed to offer advice on the implementation of the financial aspects of the project, but must follow the dictates of established project design. Sabri also complained about CHF consultants, claiming that some had not been up to standard and had even made "big mistakes."

A final criticism was that the CFE believed that while it was fulfilling all the terms of its contract, it was getting nothing in return. In addition to the issue of fees, this remark apparently referred to the purchase of EDP equipment promised in the Project Paper, at least partly in return for CFE participation. This situation will, however, soon be rectified as the computer bids are in, a selection has been made, and the entire process of computerization, according to Chairman Sabri, is expected to be complete within four months.[4]

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1. Interview with Chairman Ali Sabri on January 28, 1982.
2. An important underlying issue that has recently come to light according to CHF is whether a long-term GMP is legal under existing Egyptian law. The law prohibits the charging of interest in any amount beyond the total principal of a loan, a limit which all 30-year loans and all GMP loans beyond a certain number of years would surpass.
3. Interview with Sabri, January 28, 1982.
4. There still is an outstanding issue concerning CFE staff training in usage of the computer. AID and CHF feel strongly that there should be extensive training from the start but CFE wants to "get to know the computer" before it begins intensive staff training.

The question of relations between the CFE and the project has not escaped the attention of USAID. In a memorandum dated November 23, 1981, from Mission Director Brown to O'Riordan, Brown felt that USAID tended to use Credit Foncier too much as a contractor, rather than participant. He suggested that AID needed to repair relations with the Chairman of Credit Foncier and try to bring him into more a partnership kind of role.

This comment points up another aspect of the critical issue of replicability. If the CFE loses interest in low-income housing finance as a result of its experience on this project, a major long-term objective of the project will be undermined.

Up to now, the CFE has performed the tasks defined in its contract satisfactorily. Some difficulties in program staffing and planning remain, although these have been identified and apparently are being resolved. The CFE is not, however, entirely happy with its experience on the project, a position which undercuts the expectation in the Project Paper and the CFE contract that the project would form the basis of an expanded program of housing finance for low-income families.

Cooperative Housing Foundation (CHF)

As specified in the Project Paper, the consultant to the Implementation Agency would provide advisory assistance and training. Such assistance was considered necessary for the following reasons:

- To introduce several unfamiliar demonstration elements to the conventional practice of the MOH and CFE;[1]
- To help with "the success of project execution;"[2]
- To increase the MOH's and CFE's "capacity to replicate the project on a larger scale;"[3]
- To maintain close coordination of activities with the special requirements of AID.[4]

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1. Project Paper, Annex O, p. 6.
2. Project Paper, Annex T, p. 1.
3. Project Paper, Annex T, p. 1
4. Project Paper, Annex O, p. 6.

Except for U.S. commodity procurement in the BWN contract, the last expectation has not been formalized in any contractual documentation. As a result, friction has occurred between host country contractors on the one hand and USAID on the other, a subject to be addressed in more detail in another section.

Role and Function

The tasks and activities to which CHF is obligated to provide technical assistance are defined in two different sections of its contract.

The categories of tasks described in the two sections do not, however, completely conform to each other, either in number or description. Thus, in Article II, Scope of Project and Services, the CHF is given responsibility for eight "specific project tasks."[1] Appendix A, however, states that advisory services are "applicable to all five main tasks."[2] One of the five principal tasks listed in the Scope of Work in Appendix A requires the CHF team to assist in "Design and Evaluation of Building Methods and Building Products for Low-Cost Housing". This task is not cited in the Scope of the Project and Services in the schedule. However, the Scope of Project cites the following three tasks, which cannot be subsumed under the five tasks indicated in the Scope of Work:

- Technical assistance to the PIU toward development of an integrated institutional framework to ensure coordination of the physical, financial, and social components of the project and to help develop a social evaluation system;

- Technical assistance to the PIU in the development of an integrated administrative/accounting system which would accurately reflect the final status of the project; and

- Technical assistance to the PIU in the review of inputs received from Third Parties, consultants to the MOH or others.

To have assisted in the development of an integrated institutional framework would seem to have required, at

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1. CHF/PIU contract, p. S-1.
2. CHF/PIU contract, Appendix A, p. 1.

least on short-term assignment, the services of a specialist in organizational development. Similarly, to have assisted in the development of an integrated administrative/accounting system might well have required two different specialists. Yet no provision was made for such services in the CHF contract.

Other inconsistencies also appear. For example, in Appendix A, it states that "each of the five resident FCH advisors has responsibility for one of the major tasks identified in the Scope of Services..."[1] Because of the imprecise language, it is impossible to determine whether this statement refers to the eight tasks listed in the Scope of Project and Services or to the five tasks listed in the Scope of Work in Appendix A (see Table V-1). If to the former, then the proposed staffing plan clearly lacks the capability to deal with at least two, and perhaps three, of the eight tasks (see Table V-2). If to the latter, then the plan lacks the capacity to undertake one of the five primary tasks.[2]

This confusion over the priority tasks of the CHF team and the staffing requirements to carry them out is difficult to understand since the CHF, which drafted the contract, was familiar with project requirements, having been involved in the design and development of the project from its earliest stage. The problem may have its origin in negotiations over the contract which, owing to GOE objections over its initial cost, reduced the proposed eight-man CHF team to five and the stay of long-term field staff from a maximum of 60 months to a maximum of 36 months.

Indeed, there apparently never has been a clear agreement on the number and types of activity the CHF team is obligated to support. This situation -- combined with lack of staff at JHP/PIU, project pressures, and the Chairman's apparent view that consulting expertise is broadly fungible (i.e., that consultants can be assigned to any task needing attention) -- seems very early on to have created a situation in which the CHF team members have found themselves requested to undertake tasks not specifically within CHF's scope of services.[3]

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1. Appendix A, p. 21.
2. From a Salmen to Smit letter of December 10, 1980, it seems clear that the CHF believes its technical assistance is restricted to five fields.
3. The Chairman's view on consultants was expressed in a meeting on February 11, 1982.

Table V-1. Comparison of Scope of Project and Services with Appendix A Scope of Work in CHF Contract

Scope of Project and Service	Scope of Work
Technical assistance to the PIU for projects in the new community and upgrading areas in Helwan and Ain Shams and the promotion and organization of housing cooperatives and homeowners' associations.	Organization of Community Improvement Associations and Housing Cooperatives
Technical assistance to the PIU and its collaborating local agencies in the establishment of a home improvement/home expansion program for the new community and upgrading areas.	Organization of Home Improvement Program
Technical assistance to PIU and the Credit Foncier Egyptien in the promotion, organizations, and operations of a branch banking system to serve low-income families.	Organization of Housing Consumer Banking Services
Technical assistance to the CFE in its change-over to mechanized and electronic processing systems in the Bank's operations.	Project Evaluation and New Project Development
Technical assistance to the PIU in the development of a resource file of current data, plans, and programs of the A.R.E. in the field of urban development, and systems for analysis of the above data for future projects.	Design and Evaluation of Building Methods and Building Products for Low-Cost Housing
Technical assistance to the PIU toward development of an integrated institutional framework to ensure coordination of the physical, financial, and social components of the project and to help develop a social evaluation system within the PIU.	
Technical assistance to the PIU in the development of an integrated administrative/accounting system which would accurately reflect the final status of the project.	
Technical assistance to the PIU in the review of inputs received from Third Parties, Consultants to the MOH or others.	

Table V-2. CHF Contract Staffing Plan for Resident Advisory Team

1. Team Leader-Community Development Cooperative Housing Specialist
2. Home Improvement Advisor
3. Social Development Evaluation Specialist
4. Branch Bank Systems Advisor
5. Urban Economist Planner

Thus, Jac Smit, the CHF's initial team leader, could report at the end of the first year of CHF participation that the CHF had at JHP/PIU's request found itself undertaking a range of tasks which the contract had either underestimated or failed to anticipate. These tasks included:

- Preparation of plans for upgrading infrastructure and facilities;
- Preparation of technical reviews of consultants' work in sites and services planning, and the architecture of dwellings and public buildings;
- Development of cost-effective standards;
- Collection of data on low-income families;
- Preparation of implementation plans for individual upgrading areas and the entire project; and
- Project coordination.[1]

The CHF undertook most of this work directly and not in its role as advisors to PIU staff.

Smit also reports that during the first year he requested short-term engineering and economic advisors to help respond to certain of these needs. His requests were, however, turned down both by USAID and CHF headquarters. On December 10, 1980, Project Manager Salmen wrote to Smith:

> The PIU is the implementer, FCH the provider of technical assistance. I stay by my point No. 2 in memo of November 13 to you re: hiring of an engineer. On this point we agree with George Hazel. FCH's efforts should be in helping the PIU locate additional expertise in the needed fields of competence, engineering or other, either as additions to its own staff, consultants or through contractual relationships.

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1. J. Smit, First Year Report, p. 14. Responding to such requests was not without risks. Various sources have indicated that Smit's involvement in the technical review of early design work for the HNC was seen by CHF headquarters, BWN, and USAID as outside the scope of CHF's services and as diverting attention from its primary duties in the upgrading areas.

> While we agreed that the PIU has been laboring under difficulties, we do not feel that it helps them or us to gloss over their weaknesses. Rather, we need to identify short-comings and attempt to correct them wherever possible.

In the same letter, however, Salmen stated that "we share your feelings that a review is necessary at this time. The contract re-negotiations should include adjustment of scope of work to conform to present nature of services provided."

Despite CHF attempts to sort out issues of scope of work and manpower, the problem remains unresolved. The present CHF team leader does intend, however, to raise the question of both the nature and the degree of technical support the project requires at the time of contract re-negotiation anticipated to begin in March of this year.[1] According to Billand, the demands of the project simply require more advisory inputs than the CHF contract can provide. It should also be noted that consultant Terzo previously recommended the addition of three CHF resident advisors[2] and Smit, at the end of his first year, recommended a doubling of the CHF advisory package.[3]

It is easy to understand the rationale for such recommendations: the structure of the CHF advisory team stemmed from expectations regarding the development of the Implementation Agency, which have proved unrealistic. The project was in motion and timetables had to be met. Under such pressures, development goals such as replicability and technology transfer tend to yield to the demands of project execution.

The requests by the CHF team for additional manpower point up existing realities: that, in fact, the CHF has functioned much of the time as a PIU staff unit rather than an advisory service. As nothing on the horizon suggests that this role will change substantially, a major goal of the project, "to increase the capacity of the MOH to replicate the project on a larger scale," will therefore be difficult to achieve under existing project timetables.

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1. Discussions with Billand, who cites among other things the same need for engineering/technical expertise Smit sought two years ago. Moreover, the newly arrived economist, Stubbs, has been given as his first priority the task of preparing a project finance plan, an extremely important project component which has been lacking, but which CHF believes is not within its specific scope of services.
2. Salmen to Smit letter of April 13, 1981.
3. Smit, First Year Report, April 1980, p. 24.

CHF Performance

As previously indicated, the CHF initially experienced difficulty in fielding the team it had contracted to provide. In fact, the CHF contract was signed without naming a full complement of resident project staff, and CHF then found it impossible to provide the only two resident advisors who had been designated in the contract.

These recruitment difficulties continued to plague CHF for the first two years of the project. It took five months to field a replacement for the first branch bank advisor, and it was nearly five months into the contract before the home improvement advisor was mobilized. Owing to the difficulty of recruiting an American social development advisor, CHF recruited an Egyptian, but not until nearly 11 months into the project. During the initial year of the project, CHF only provided two-thirds of the man-months contracted.[1] Following the departure of the second branch advisor in August 1981, CHF took another six months to field a replacement.

In sum, the CHF's record in the past in providing the resident manpower it agreed to produce seems spotty. But that record is partly mitigated by the fact that the first two banking and finance advisors were obliged to leave for personal and health reasons. The CHF was more fortunate with its short-term advisors, with some 12 such advisors participating in a wide range of activities since project start-up. As of this writing, the CHF team is up to full-strength and appears to have its contractual obligations well covered, at least in terms of what it believes those obligations to be.[2]

The CHF has been primarily active in four of its principal task areas, as evidenced by progress to date recorded elsewhere in this report. These include: (1) organization of community improvement associations in Arab Ghonein, Rashed, and Izbet Zein; (2) organization of home improvement programs in the same three communities; (3) organization of housing consumer banking services in these three areas; and (4) project evaluation and new project development. Activity in the latter has, however, been limited to project evaluation.

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1. J. Smit, First Year Report.
2. Part of the CHF problem in providing staff could be attributed to CHF complaints over lack of timeliness of payments from USAID. This problem would tend to reduce any incentives to increasing manpower, the costs for which may not be recouped for five to six months.

The CHF has also made only modest headway with the last of its five major tasks: advice and training on design and evaluation of building methods and building products for low-cost housing. Although concept papers have been written and a seminar held on the subject, the program is not yet in process because, according to the CHF, JHP/PIU lack the staff designated to develop this phase of the project.

More generally, the CHF has experienced difficulty in fulfilling the full range of its obligations in the area of training. Under the terms of its contract, the CHF is obligated to engage in four types of training: on-the-job training, training of staff employed in all aspects of project implementation, a series of workshops and seminars for PIU and CFE staff and employees of other Egyptian institutions involved in the project, and training visits abroad for eight staff members of the Implementation Agency.

Some on-the-job training has taken place. Chairman Wakeel and General Manager Shiri of the Department of Economics, Administration and Cooperative Affairs have undertaken one-month study tours to the United States and Latin America, and CFE Chairman Sabri has visited the United States under CHF auspices. CHF staff have taken groups of 25 JHP/PIU staff on two to three day site visits to low-income housing projects in Port Said and Ismailia, and some U.N. films have been shown and used as a basis for discussions.

JHP/PIU institutional training may have stalled for two reasons: first, too few appropriate staff members are available to plan and conduct training; and, second, the contract does not specifically assign CHF manpower to organize such activities.

CHF has also had some difficulties in its relationship with the JHP/PIU. For example, it antagonized JHP at the outset when it attempted to obtain reimbursement for the services of advisors Mills and Silcox for two months of work in Washington prior to taking up their duties in Egypt.[1] Moreover, the dismissal of first team leader Smit was clearly not well-received by the JHP.

In addition, in meetings with top management at JHP, other issues were raised regarding CHF performance. It has

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1. El Gammal letter to Salmen of March 11, 1980.

been said, for example, that monthly reports are not prepared regularly in a timely manner and that work programs are also not always conveyed to the Chairman expeditiously.[1] As an example of the latter, the Chairman stated that several weeks ago he had asked for a work program for the newly arrived economist/financial advisor Stubbs and had yet to receive one. Also, the Vice Chairman complained strenuously to the evaluation team about a statement in a recent CHF Monthly Report that an activity which he had initiated in Helwan should be "strictly controlled." In his view, it is not the perogative of CHF to recommend that "the Vice Chairman be controlled."[2]

Criticism was also directed at the many changes in personnel made by CHF. JHP noted that much time is lost in such changes because individuals require lengthy orientation to the program before they can contribute effectively. Chairman Wakeel also complained that CHF used too many short-term advisors, apparently believing that the resident team ought to be able to handle a wider range of tasks on its own.[3] This comment points up again a problem which has plagued CHF participation from the outset -- project demands are greater than the combined capability of PIU/CHF to respond to.

Despite the various criticisms cited, top JHP management indicated general satisfaction with CHF's technical capability and performance. What problems exist between JHP and CHF appear to derive from a lack of communication as much as anything and can presumably be expected to sort themselves out over time now that a firm team appears in place. The current CHF team impressed the EST as a group of competent and dedicated individuals, whose only complaints focus on impediments to the successful execution of the project. They work under somewhat marginal office standards and struggle with what in their view is a problem of serving two masters, JHP and USAID.

Summary

Although the CHF contract called for inputs of technical assistance and training, the CHF team has functioned

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1. According to team leader Billand, JHP also has complained that recent monthly progress reports prepared by CHF are too negative in pointing out problems.
2. The activity referred to was the distribution of a questionnaire to as many as 16,000 workers in Helwan. The CHF team was concerned the questionnaire might be construed as granting legal rights.
3. Discussions with JHP management on February 11, 1982.

more as direct-hire JHP/PIU staff because of the lack of adequate staff development within the JHP/PIU. As the lack of JHP/PIU staff has affected specific project demands, the JHP/PIU has requested the CHF team to fill the gaps. The CHF has consequently found itself working in many areas outside the direct scope of services in its contract. This situation has led the CHF to request either a redefinition of its scope of work or an expansion of its advisory team, or both.

The issue facing JHP and USAID seems relatively clear: to either strengthen the CHF team or face inadequately supervised or unfinished project activities. Also, to the extent that JHP fails to provide counterpart staff for the CHF team, that team's advisory role will continue to dwindle and the goal of project replicability become more difficult to achieve.

Although the CHF has experienced some problems in meeting the terms and conditions of its contract (problems mainly related to recruitment), it has played a significant, perhaps decisive, role in some instances, in initiating program activities on the project. However, it has yet to execute its responsibilities for JHP/PIU institutional training.

American A/E

The essential role and broad scope of services foreseen for the BWN Joint Venture is defined quite clearly in the Project Paper and in the Grant Agreement. It is limited to the Helwan New Community. As defined in the Grant Agreement, the scope of services includes:

- Design services for urbanization;
- Construction management services for urbanization and building construction;
- U.S. commodity procurement services; and
- Training in construction management.

The BWN contract, which is a clearly presented and detailed document, closely parallels the scope of services foreseen in project documentation. Apart from training, the BWN contractual role differs fundamentally in nature from that envisaged for the CHF team. While the CHF was contracted to provide an undefined range of advisory assistance, BWN's contract calls for a specific set of clearly identifiable and measurable "deliverables," such as drawings and the schedule for producing them.

Nonetheless, in addition to training, one aspect of the BWN scope of services with a "development" orientation merits special mention; i.e., the requirement that BWN assist in carrying out "the intent of this Project to explore and demonstrate practical solutions to provide housing at the lowest possible cost to very low income beneficiaries and Egyptian Government."[1] The requirement is defined as follows:

> Urbanization design configurations, components, assemblies, and materials which contribute significantly to construction costs are to be individually justified on their merit in relation to alternate configurations, components, and assemblies. This will facilitate the critique of present standards and develop innovative recommendations concerning urbanization standards in Egypt that are particularly appropriate for very low income families.[2]

This aspect of the BWN scope was considered critical to the success of the project, as USAID had determined that Egyptian engineering and construction practice was uneconomical and not at all geared to the needs of low-income families.[3]

Role and Function

For the most part, BWN's role in providing design, construction management, and procurement services appears to have developed along the lines foreseen in the project documentation and the BWN contract. A considerable expansion has occurred, however, in the scope and level of services that BWN has been asked to provide, for which it has

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1. BWN contract, Annex I, p. 1-7.
2. Ibid., also in the Project Paper, Annex F, p. 5 which indicates the project will:

> Involve the introduction of new, innovative, site planning and physical design solutions which will substantially lower the per capita costs of infrastructure and housing below current public sector practice in Egypt, by reducing dwelling unit sizes on the average, lowering infrastructure standards, increasing densities where appropriate, and utilizing less costly construction techniques.

3. Interview with C. Noren on February 4, 1982.

been negotiating amendments to its contract. The reason for this expansion according to BWN can be traced to the original contract negotiations. Beginning with a proposed contract of 52 months' duration and 2,400 man-months of effort, BWN's participation was reduced to 40 months and 1,122 man-months, respectively, during the course of initial contract negotiations.

In the BWN view, contract negotiations were more in the nature of an accounting exercise, aiming for a particular budgetary range, rather than an engineering or planning effort based on a realistic assessment of the time and manpower required to undertake the tasks involved. BWN cites two reasons to explain this situation. First, according to BWN, the GOE never really believed that an American A/E firm was necessary for this project and for this reason tried to reduce the number of expatriate positions in the contract.[1] Second, the cost of BWN's services was considered too high for the project budget by both GOE and USAID, and further reductions in both scope and level of effort were effected on cost grounds alone. Discussions with USAID essentially confirm BWN's understanding of the negotiation process. These sources noted that AID for its part was attempting to reach budgetary guidelines provided by an independent consultant, Fayette Latam, who had in April 1979 estimated costs for the A/E job for the USAID Housing Office.[2]

In any event, however, BWN's scope and level of effort have been gradually rising toward specifications in the original BWN contract proposal. Project demands have led to an agreement to reinstate expatriate positions deleted during negotiations, such as Deputy Project Manager and a position in procurement. Other positions which, for example, had been cut during negotiations from 30 to 20 man-months have now been increased in acceptance and recognition of the need for the additional time to complete the tasks involved. Also the JHP/PIU has frequently requested additional design work beyond that contracted for, which has pushed up the man-month figure.[3] Such work has been generated by such

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1. Interview with former Chairman Bendari confirmed that the JHP was against the use of the American A/E firm even after they had agreed to accept it by signing the Grant Agreement.

2. Interview with C. Noren February 4, 1982. Further, an AID internal memorandum of December 4, 1979, from Applegate to Brown, indicates on p. 4 that the final contract cost was 28 percent below that estimated for the PP by ES-Parsons.

3. Manager of BWN notes that the number of drawings has gone from 198 contracted for to 384 as of July 1981 with 200 or more additional expected before project completion date of July 1983.

things as changes in the tramway line and expansion of the number of units in the Model Housing Estates.

According to BWN's proposed Amendment No. 3C, the total man-months required to completion of contract in July 1983 is now projected at 1,827. BWN further foresees a probable need for additional manpower beyond the end of the contract period for supervision of construction work expected to be still underway. Should such additional time and level of effort be required, the final BWN contract may resemble its original submission very closely.

BWN Performance

Although BWN has had to mobilize a very large team of engineers, draftsmen, architects, planners, and others, it seems to have managed this task well. There have been some expatriate employees who have left the project for one reason or another. In particular, the cost estimator has recently resigned and needs to be replaced. In general, however, BWN seems to have mobilized its staff well and maintained adequate strength to execute its contractual responsibilities in a timely fashion. Chairman Wakeel in any case indicated his satisfaction with BWN's performance, while at the same observing that the project did not really need an American A/E firm and would generally have moved forward more easily with an Egyptian company.

One major delay occurred, however, at the outset of the BWN contract. It took nine months instead of the four months stated in the contract to complete the urbanization plan. Although the parties concerned have differing views regarding the reasons for the delay, there is agreement that the delay originated in the issue of whether BWN had provided alternative conceptual site development designs, study models, and sketches as required by the contract.

The disagreement, which led to an exchange of formal communications, apparently grew out of differing interpretations of what the language of the contract called for, or perhaps out of practices prevalent in Egypt that differed from BWN's understanding of conventionally accepted practice internationally. The manner in which this issue was handled and the question of whether the matter might have been more quickly resolved are discussed elsewhere in this report. Once the issue was engaged, however, it became the hostage of a long process of review and approval, which was apparently complicated by more than one change in the personnel involved in the review.[1]

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1. Interview with J. Flanagan, February 4, 1982.

One gap in BWN's performance to date lies in the area of training. The BWN contract, at least by implication, requires the contractor to develop a training plan providing for use of BWN's library of reference materials, a limited seminar program, and on-the-job training in engineering, design and planning, preparation of contract documents, and work plans and schedules. Even though these responsibilities were given a prominent position in its contract, BWN has so far been unable to deliver on this contractual obligation much beyond some on-the-job activity.[1] According to Program Manager Flanagan, BWN is prepared to carry out its responsibility in this regard, but the JHP/PIU has not shown much interest in taking advantage of the opportunities available. As with the CHF contract, the opportunity for JHP/PIU staff to benefit from BWN's experience in its particular spheres of capability appears to be gradually slipping away, with obvious implications for the replicability of the project.

BWN has also encountered difficulties in fulfilling the requirement that it develop innovative recommendations for the development of more economical urbanization standards. For example, BWN designed a sewerage connection system following U.S. standards which BWN considered more economical than Egyptian ones. According to BWN, USAID sided with the Egyptian position and a chance was lost to lower costs.[2] A similar issue arose over the design of the electrical distribution system for HMC. The difficulties encountered on this issue thus appear to threaten the development of more economical building standards for low-income family dwellings, an important project goal.

Summary

BWN has performed its contractual responsibilities satisfactorily and in general accordance with the terms and conditions of its contract. However, to satisfy these contractual responsibilities, BWN has had to have its level of effort increased. By the end of the project, it is estimated that cost will be around U.S. $10 million. In addition to these estimated cost increases, major problems in the execution of the contract relate to the issue of developing and gaining acceptance of more economical urbanization standards and the fulfillment of obligations in training.

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1. See BWN Contract, Annex I, p. 19. BWN arranged a short site visit to the El Hekkar project in Ismailia for the benefit of Chairman Wakeel and USAID officials.
2. Flanagan interview, February 2, 1982.

Arab Bureau

By the terms of the Project Paper and the Grant Agreement, all design work for housing and community facilities in the Helwan New Community is to be prepared by an Egyptian A/E firm. The group selected to do this work was the Arab Bureau (AB), a public sector firm. As with the other major contracts (CHF and BWN), to negotiate the AB contract took appreciably longer than envisioned in the PP.

Role and Function

The role of the Arab Bureau is quite specific and well defined in its contract. In outline, its responsibility is to design housing and community buildings in the new community as indicated below:

- Dwellings;
- Prototype combined school and community room;
- Secondary school, boys;
- Secondary school, girls;
- Social center;
- Vocational center;
- Government services center;
- Cooperative; and
- Open market plaza.

In addition, the Arab Bureau was assigned responsibility for housing to be erected in the Model House Estate. Apart from some minor deviations in specifications outlined in the Project Paper and the deletion of the planned vocational training center, the role and function of the Arab Bureau have remained as defined in its contract.

Arab Bureau Performance

Some questions have been raised about the Arab Bureau's tendency to design higher, less cost-effective standards than are appropriate or necessary for low-cost housing. (This issue is discussed elsewhere in this report.) However, there seems to be general agreement at least within the JHP that the Arab Bureau has performed its assigned contractual functions satisfactorily.[1] The AB finished design work on the basic dwelling units and community buildings some six months ago. It then adapted these designs for the MHE. Yet

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1. In any event, its work was facilitated by the fact that JHP Chairman Wakeel had previously been the head of the Arab Bureau for a five-year period.

remaining for the Arab Bureau is to follow up the application of its designs in the MHE constuction phase and provide designs for dwellings in the rest of the new community. This latter work awaits a mandate from the JHP subject to USAID approval. Alternatively, JHP could request the AB to design a vertical core dwelling, although representatives of the Arab Bureau do not feel this would be a desirable approach.[1]

Summary

The Arab Bureau had a precisely defined contractual commitment to design dwellings and community buildings in the Helwan New Community. By all accounts, it has satisfactorily performed its assigned tasks, most of which are now complete.

USAID

USAID has the role of monitoring this project. This role is defined in the Grant Agreement as follows:

> USAID/Cairo will have primary responsibility to monitor the project through its Housing office assisted by assigned USAID engineering officers. USAID will maintain a close working relationship with the Ministry of Housing, the Implementation Unit, the CFE and all construction service contractors, technical advisors and related personnel and will require written reports in English in a regular reporting schedule to assure effective monitoring of project activities and progress.[2]

Role and Function

Although the description of the AID role cited above indicates that the Mission will maintain close working relationships with parties involved in the project, it does not define what form the monitoring will take. It indicates nothing about the USAID review and approval process, nor about USAID's veto power over the expenditure of all monies under the grant; indeed, USAID can decide if a particular project for which grant funds are being requested is appropriate to the objective of the grant.[3] The activist role

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1. Interview with AB representative Dr. Ramsis Sedra Henein and Architect Ibrahim Enan on February 8, 1982.
2. Grant Agreement, Annex 1, p. 24.
3. Although AID has stated that more information regarding the review and approval process is contained in Annex 3 to the Grant Agreement (Standard Provisions), EST did not have the opportunity to review this document.

that USAID has assumed on this project may have caused some difficulties in its relationships with the other parties to the project, difficulties which have accompanied the project in varying degrees up to now.

Many examples of complaints and queries about USAID's monitoring appear in the files:

May 11, 1980	In the minutes of the second Project Coordination Meeting, Chairman Bindary reportedly commented that USAID was interfering in the day-to-day management of the project.
June 5, 1980	In a report on a meeting at USAID, both Chairman Bendari and Engineer El Gammal are said to have stated that USAID Housing had been interfering too much in the running of the project.
June 27, 1980	In a letter from CHF team leader to USAID, J. Smit requests a definitive statement of AID approval criteria and approvals.
Sept. 13, 1980	For one of the Coordination Meetings, Mr. Mahmoud Zaki Ali, Vice Chairman of JHP, proposed a discussion of the following questions: "Project success requires team work. What role does AID play in the team? Policy? Technical Advice? Monitoring? When does AID have a 'right' to participate? And when should it wait for an invitation? Which subjects should our consultants discuss with AID? And which only with permission from JHP?"

From the foregoing examples, the USAID monitoring role was apparently neither very clearly explained nor described to participants in the project nor very well understood. From discussions with the new CHF team leader, it appears that the USAID monitoring role is still not entirely clarified. Thus, Billand informed the EST that AID informally requests the CHF to share work plans and program concept papers with AID for its review and comment prior to submission to the JHP/PIU. Typically, such requests when granted are followed by instructions on how work should proceed or

in what form a program component should be structured. The rationale offered is that such prior review will help to accelerate the ultimate timely approval of a program.

This use of the CHF as a kind of intermediary in USAID's relations with the JHP has put the CHF into an awkward situation with its client, according to Billand. As a consequence, at the direction of Chairman Wakeel, CHF will respond only to AID's written requests.

In discussions with USAID officials on this subject of monitoring, it was explained that AID reserves the right to veto the expenditure of any AID funds to finance proposed program plans or activities that AID staff judges will not adequately meet the objectives of the Grant Agreement. Moreover, AID considers within its prerogative the right to recommend and even require the incorporation of AID-conceived improvements. Thus, AID will undertake its own technical review of the appropriateness of a sewage treatment plant, for example, in terms of size, cost, specifications, and location, of mortgage loan programs, community organization plans and so forth. It may then make recommendations regarding design and, further, make AID's approval contingent on the acceptance of those recommendations.

However, the exercise of this review and approval role has been difficult. In some instances, issues have been raised by USAID that are not germane to the purpose of the Project. According to former CHF team leader Smit, USAID initially refused to approve the purchase of a second project vehicle until the actual arrival of the third CHF advisor, even though his arrival was scheduled two weeks hence. USAID also has the authority to approve all travel under the project, which Smit claimed was used sometimes as a means of rejecting a particular consultant or consulting visit planned by CHF and considered appropriate under its contract.

The issue of AID monitoring was brought to a head at least once early in the project in a meeting between Deputy Mission Director Cylke and Chairman Bendari.[1] When Bendari complained about AID interference, Cylke was reported as saying that USAID approvals were for management purposes only: they should not be concerned with, for instance, the size, location, or enrollment of a school or health center. USAID should be concerned only that the necessary actions are undertaken to implement the project successfully and

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1. Vice Chairman Salah Zaki, El Gammal, and Smit were also in attendance. See report dated June 5, 1980.

that records are being kept so that progress can be monitored and audited.

As a result of a further meeting on the subject between Cylke and Bendari, according to the June 28, 1980, minutes of the fourth Coordination Meeting, Chairman Bendari stated his understanding that USAID's involvement in the project would be reduced as the workload of projects increases and would largely be limited to administrative approvals, monitoring progress, and technical assistance on request. This report, if accurate, suggests that AID's role was at least partly being defined by the manpower available rather than by any well-formulated concept of what its appropriate role should be.

USAID has taken some steps to try to reduce its administrative involvement, in particular by instituting the Fixed Amount Reimbursement (FAR) system which limits the review and approval process to a single program action, such as the construction of a school. Under this system, unlike that for U.S. procurement, AID waives the right to review and approve the procurement of every commodity purchased locally. Also, the FAR system works under a set of GOE regulations previously approved by AID. The only condition to the operation of the FAR system is that the GOE must be able to demonstrate that it has followed the regulations already approved by AID.

AID Performance

It is not the role of the EST to evaluate the USAID administrative system, which is subject to congressional mandate. The EST's only responsibility is to review AID's application of the system to this particular project.

In comparing AID's monitoring activities with its own requirements as represented in various project documents, no obvious shortcomings appear. To the contrary, AID has a system, which its staff appears to apply diligently and rigorously. The only area of questionable activity involves AID's relationship with American host country contractors. This area appears to lack internal guidelines and to need further examination and policy development.

However, all parties involved in the project do not understand the AID monitoring function, and USAID must take a large degree of responsibility for this confusion. Relationships with the GOE and contractors could be improved if these parties were provided with a well-defined statement of AID's method for applying its review and approval procedures

to principal areas of Project activity. Areas of conflict could then be examined and compromises, if required, presumably worked out.

As the Project reaches its crucial implementation stage, when many important project components will be underway simultaneously, with ever-increasing expenditures, AID review and approval must be expedited to avoid delays. The JHP in particular has voiced very serious concern over the prospects of major cash flow problems under current AID procedures when full-scale construction activities begin. AID may therefore wish to reduce its oversight in areas involving judgmental differences unrelated to money matters. This diminished role might well involve a change in attitude or an approach rather than the formulation of specific guidelines.

A final point relates to contractor reimbursement. Under a host country contract, a contractor's expense accounts must undergo double accounting, once by the GOE and again by USAID. This situation is an anomaly created by host country contracting under AID regulations. As a result of such a system, a contractor is obliged to learn the rules of two different auditing systems and spend twice as much time on administrative matters.

It often appears to happen, for example, that the GOE will approve an expenditure that AID disallows and vice versa. Consequently, the CHF is some $65,000 behind in payments because of disallowances. The cost of carrying such amounts is so high that CHF has nearly been obliged to terminate its contract. AID's agreement to extend CHF's advance payment period gradually from one to four months does not resolve the problem of disallowances, according to Billand. An earlier difficulty according to CHF was that it was not permitted to deal directly with the AID controller's office in straightening out payment problems. This issue apparently no longer exists.

Summary

In its role of monitor, USAID has rigorously applied its system of internal review and approval. The system has not, however, been uniformly understood and questions continue to arise about the propriety of certain AID actions. Outstanding issues should be discussed and worked out to the mutual satisfaction of all major parties to the project. Otherwise, delays may develop as principal project activities swing into simultaneous implementation.

Institutional Communications

The institutional design of this project called for the active and full-time participation of a number of institutions. In practice, seven major actors have been involved, including USAID. The parties contacted have unanimously stated that this arrangement has been unwieldy. A major focus of difficulties has been in communications. By directive, all communications must flow in and out of the JHP/PIU. This arrangement has complicated the undeniable need for regular communication, for example, among contractors. Communications are also hampered by locational problems. The JHP/PIU, which must approve activities in the field, is in Dokki, and telephone communication from Helwan is generally problematic. Almost all parties recommended that in any future similar projects only one contractor would coordinate the work of the others and ensure necessary communication.

The one effort made to deal with communications was the establishment of a project coordination meeting, which has generally met semi-monthly. Recently, these meetings have broken down into one meeting on the upgrading areas and another on the Helwan New Community. These meetings have apparently provided a useful forum for communication, although as noted elsewhere, they have sometimes been acrimonious and more than once generated considerable friction. For example, USAID reports that it is no longer regularly invited to the meetings on HNC, which have become primarily one-on-one sessions between BWN and JHP/PIU.

The project reporting system also presents a problem. In brief, the monthly progress reports do not adequately monitor the real issues confronting project implementation because of the GOE's understandable reluctance to discuss problems related to project institutional performance in reports given public circulation, i.e., to USAID. Monthly reports, therefore, tend to record benchmark progress rather than confront difficult or controversial issues. Therefore, some form of internal project reporting free of USAID involvement may deal more expeditiously with important implementational issues.

Thus, tradeoffs between AID's reporting requirements and the demands of project implementation may need to be negotiated. On the one hand, USAID has a legitimate and agreed interest in monitoring project progress and in assuring that the project remains within accepted AID guidelines. On the other hand, project implementation requires candid discussion of problems among the parties responsible for actual execution. Because these two interests cannot always be mutually accommodated, compromises may be necessary.

VI. ANSWERS TO QUESTIONS

The EST had a contractual obligation to answer a set of specific questions. This chapter, based on data developed in the previous chapters of this report, attempts to satisfy this requirement in line with how these questions are posed in the Terms of Reference.

Project Beneficiaries and Costs

Question 1. Is the Project reaching, or is it likely to reach, intended beneficiaries in both the new community and the areas to be upgraded?

Intended beneficiaries were identified in the Project Paper as being low-income workers associated with urban dwellers with family income substantially below the median level. Replicating the original analysis made in the Project Paper, which indicated that households down to the lowest 20 percentile could be reached, the EST performed a similar evaluation. This new analysis reaches the same conclusion as that reached in the original Project Paper; that is, at the present level of estimated costs of construction for the HNC and the upgrading communities, the same levels of intended beneficiaries are likely to be reached. The reason this conclusion is reached is that household income or expenditure levels probably have increased more than the costs of the project. Even though there have been some revisions in the lot sizes for the HNC, this means that on average a lower percentage of family income would be spent on dwelling units than estimated in the Project Paper.

Concerning the upgrading communities, it was not possible to make the same type of quantitative assessment. In part this was because the Project Paper did not deal rigorously with likely target income groups other than to indicate in one graph (page 28) that the home improvement loans, upgrading and new community program might encompass 90 percent of the population. While the EST was in Egypt, some

work was being done by the CHF team on analyzing the applications for home improvement loans in several of the Project's upgrading communities. However, data were not readily available to determine the distribution of income levels of recipients.[1]

From very limited inspection and interviews, the home improvement loans in the upgrading communities appeared to be used for building an additional room on a dwelling for purposes of providing rental income. The applicants were factory workers, and the average of the first 700 loan applications was for LE 1,000 (LE 2,000 is the maximum permitted). This loan program seems to be enjoying a brisk demand and is providing an opportunity for PIU, CFE, CHF, and other groups to work together and perhaps learn more about community development and the real needs of the informal housing sector.

Such data do not include the income level of applicants, which prevents a firm determination of whether the loan program is actually reaching target income groups. However, the average loan repayments are in the range of LE 11-12. Therefore, to the extent that data limitations permit, it appears that the community upgrading program also is meeting the beneficiary levels indicated in the Project Paper.

Question 2. What are the unplanned effects of the project? Who may the project injure? How? What mitigating aspects need to be planned?

Based on the impressions gained by the EST while in Egypt, it appeared that the major unplanned effect of the project was a perception felt by GOE officials that the HNC component was not a low-cost housing program relative to the government's own housing projects. The EST attempted to document whether HNC was indeed more costly by visiting some of the government's own housing projects.

At the site of the largest government housing project in the Cairo area, El Berka, the EST was told the cost of a typical low-income, five-story walk-up was costing LE 65 per square meter. (See Appendix C memo from Dr. Karanshawy to P. Amato for more details on the background of this cost estimate.) In comparison, the EST estimated an average cost for the HNC of LE 110 per square meter.

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1. It was subsequently suggested that the EST should have spent time analyzing the basic data from original CFE application forms. However, the EST leader did not feel this was the most productive use of its limited manpower.

Since the draft of this report was circulated, considerable comments have been received on whether the cost estimate of LE 65 per square meter could be correct. For example, Mr. John Flanagan, Program Manager for BWN, wrote Chairman Wakeel that, "BWN's cost data suggests that the LE 65 quoted is a direct cost and does not include such items as overhead, profit, Decennial Insurance (because the government is its own insurer), depreciation of equipment, etc."[1] Comments received from USAID also questioned the relevance of the figures on El Berka used by the EST.[2]

In spite of these comments, the EST still feels that the major unplanned effect of the project is a perception (this word unfortunately was not used in the draft of this report) by GOE officials and other Egyptians that at least the HNC component of the project will not provide low-income families with cheaper housing than the government's own programs. This perception obviously is injuring AID and presumably U.S. interest.

How serious is this injury the EST cannot determine. Further, the other aspects of the project, such as the community upgrading and home improvement loans, may have offsetting effects.

In answer to the third part of the question, "What mitigating aspects need to be planned?", one approach would be to provide more exposure to GOE officials to similar U.S. financed or supported projects or to American individuals who can explain the primary purpose of a sites and service-oriented program. From the EST's review of the files, it seemed that with one notable exception no U.S. government officials outside of AID had been approached to discuss the advantages of HNC approach in comparison to the typical Egyptian five-story walk-up.

Question 3. Are the original cost estimates still valid?

The original cost estimates are still valid for the HNC and the upgrading sites, taken together. In other words, the original cost estimates for the HNC and the upgrading rose as projected in the Project Paper closely approximate the present estimate of the cost of the HNC and the upgrading aspects of the Project. However, the present cost estimates for the component parts differ considerably from those shown in the Project Paper.

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1. Letter dated 15 March 1982. See Appendix C.
2. See memo from Amato to Fay dated April 1, 1982, Appendix C.

Although land costs for the HNC have increased more than any other single item, infrastructure costs actually have decreased from the original escalated estimates. Community upgrading costs for facilities also have decreased in terms of current dollar estimates. Estimates for housing costs for the HNC and home improvement loans for the upgrading communities, however, now are somewhat higher than the escalated amounts originally prepared. Also design and supervision costs are more than originally estimated, although the Project Paper, in an apparent oversight, did not provide for an escalation of these costs.

Full explanations and details concerning the differences between original cost estimates and present estimates are contained in Chapter IV.

Question 4. Are the size and complexity appropriate in meeting Project objectives?

The question of appropriate size and complexity is one of trade-offs: certain advantages occur because of the size but with it come certain drawbacks. No definite answer can be made, for it becomes a question of priorities and emphasis.

Size and complexity, of course, are two different issues: a large-scale effort may in fact be quite simple.

For example, viewed as a straightforward product, the urbanization and housing in the HNC are simple: the techniques, skills, and materials related to housing are common. Even though coordination issues at larger scales may be somewhat more complex, the larger contractors are able to draw on more sophisticated techniques. Upgrading viewed as a physical result is also simple: the provision of loans and the construction of schools and infrastructure.

At another level, however, the varied goals of both the upgrading programs and the HNC result in a program of complex and interrelated issues. The goals include cost recovery and lowering of subsidies, legalization of land (political issues), community development for a higher level of environmental sanitation and maintenance, lower and more flexible building standards, housing finance systems for low-income families, and mobilization of savings.

Determination of what is a "large" project and what is a "small" project is relative. No attempt will be made to answer this question, for it varies from situation to situation and item to item.

Table VI-1 provides a list of some key areas of trade-offs between large and small projects.

Project Management and Implementation

Question 5. Is the implementation of the Project proceeding according to schedule? If not, why not? What are the impediments to successful performance?

Progress in the implementation of the Project is shown in Table VI-2. That table represents a revision and updating of the implementation schedule laid out in the Project Paper.[1] It provides actual start-up dates for the major program elements of the Project and revised estimated completion dates.

Comparing actual implementation to the schedule of implementation outlined in the Project Paper indicates that the Project is more than a year behind schedule. Without explanation, this comparison is misleading because Project start-up was actually delayed by lengthy contract negotiations with the two American firms involved in the Project. This fact, coupled with recruitment problems experienced by the CHF, resulted in an actual start-up date for technical assistance and the American A/E consultants nearly one and a half years later than scheduled. However, the Project Paper's implementation schedule appears unrealistic in regard to some activities, including start-up, where, for example, the basic technical assistance team was expected to be on-site and functioning at the JHP/PIU within one month of the signing of the Grant Agreement.[2]

USAID has formally recognized the delay in start-up by extending the termination date of the Grant Agreement to July 1984. Thus, the time period available to complete the project remains approximately the same as envisaged in the Project Paper. Table VI-2 should be read with this understanding. The status of implementation of all major aspects of the Project follows.

Conditions Precedent

All conditions precedent set forth in the Grant Agreement now appear satisfied, except for parts of the implementation

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1. Project Paper, p. 37.
2. Given the demands of competitive bidding and the time required for contract negotiation, the start-up date projected in the Project Paper appears at least six months too optimistic.

Table VI-1. Trade Offs Between Large and Small Projects

A large project is able to make a strong, undeniable impact, with better ability to direct policy toward change.	The high visibility of the project results in a hesitation to innovate and to experiment. The result has been to default to accepted, known conservative approaches.
A large scale effort was believed necessary to meet the extreme housing shortage and demands of the ever-growing population.	In hindsight, current research indicates that shortage of housing was not as critical as formerly believed. The problem of housing the low-income has been met through effective informal means (ABT Study, Wheaton articles, CIS report).
A large financial commitment assures strong GOE involvement and support. A large AID commitment assures continued assistance and interest.	The large amount of money involved encourages conservatism, rather than flexibility and innovation.
A large project allows several issues to be addressed at once and enables experimentation with varied innovative programs: financial, social, and physical.	In large projects, it is difficult to agree on priority and focus. The involvement of a large number of agencies in multi-programs complicates institutional arrangements. The success of any single objective may be difficult to evaluate because of overlapping objectives and programs.
A large project is required to entice involvement of other larger government agencies, for example, the CFE.	The large size and the varied programs require the inclusion of a large number of agencies, requiring a higher level of organization and coordination.

By its very nature, large projects allow economies of scale in construction and should result in a more cost-effective project.	A large contractor produces a quicker, lower priced result by following more traditional, familiar techniques. Unfamiliar practices, new approaches may increase prices with potential loss of advantages.
Infrastructure provision is more efficiently installed at larger scales.	A larger scale generally requires the addition of of extensive off-site infrastructure: i.e., sewage treatment plant, electrical substation, water tanks, and community facilities as in Helwan. A smaller project may be possible to connect to existing networks and may use existing facilities.
Within the limits, the time of construction is probably not much different between a large project by a large contractor and a small project by a small contractor.	The large project requires the services of an American A/E to manage the program, which may lead to delays in contract negotiations and commencement of work.
A large number of upgrading sites were selected for maximum impact. The range of sites provides a variety of situations for broad applicability.	Scattered sites make adminstration physically awkward. Increased coordination is required since staff are necessary for each area.

Table VI-2. Project Paper Estimated Implementation Schedule Versus Actual Implementation

Events	Responsible organization	Estimated start	Actual start	Estimated completion	Revised estimated completion
GOE Steering					
Committee established	MOH	Jul. 1978	Oct, 1878	Jul. 1979	a
MOH Project					
Implementation Agency established	NIG	Jul. 1978	Feb. 1979	Jul. 1979	b
Project Agreement	AID/MOH	Aug. 1978	Aug. 1978	Sept. 1978	Aug. 1978
Assistance basic team contract and functioning (planner-architect, Community Development Specialists)	AID/MOH/US consultants	Sept. 1978		Jun. 1983	Feb. 1983[d]
Contracted	AID/MOH/US consultants	Sept. 1978	Feb. 1980[c]	Jun. 1983	Feb. 1983[d]
Functioning	AID/MOH/US consultants	Sept. 1978	Feb. 1980	Jun. 1983	Feb. 1983
Architectual and engineering contracts	US/Egypt. A/E MOH/AID	Oct. 1978	Nov. 1980	Mar. 1979	Apr. 1980[e]

(Continued) --

Table VI-2. (Continued)

Events	Responsible organization	Estimated start	Actual start	Estimated completion	Revised estimated completion
Helwan new community house plans (model units)	Egypt. A/E	Nov. 1978	Oct. 1980	Mar 1980	Aug. 1981[f]
Helwan new community infrastructure and site development plans	US/Egypt. A/E	Jan. 1979	Apr. 1980	Jan. 1980	Feb. 1981
First purchase of materials	MOH	Apr. 1979	Oct. 1981	Sept. 1979	Mar. 1982
Helwan Model new dewlling solutions on test site constructed by MOH	MOH/Contractors	May 1979	Oct. 1981	Apr. 1980	Aug. 1982[h]
Bidding for infrastructure community and neighborhood first site development	Egypt and US construction contractors	Sept. 1979	Jan. 1982	Apr. 1980	Jan. 1982
Construction of infrastructure new community first neighborhood site development	Egypt and US construction contractors	Jan. 1980	Mar. 1982	Jan. 1982	Aug. 1983
Construction of core houses and community facilities neighborhood first new community	Contractors	Apr. 1980	i	Mar 1982	i

(Continued)

Table VI-2. (Continued)

Events	Responsible organization	Estimated start	Actual start	Estimated completion	Revised estimated completion
Construction and move in successive neighborhoods	MOH/Contractors	Mar. 1981	i	Jun. 1983	i
Move in first section 36 units model house site with interim utility system	MOH/Credit Foncier/US Consultants	May 1980	i	Jul. 1980	i
Branch Bank TA Functioning	MOH/Credit Foncier/US Consultants	May 1980	i	Jul. 1980	i
Social/Economic evaluation program	MOH/USAID research institution US consultants	May 1980	j	Mar. 1981	j
Evaluation TA functioning	MOH/USAID research institution U.S. consultants	Nov. 1980		Feb. 1983	
Building materials/products design evaluation testing	US consultants MOH Research Institute	Jun. 1979	k	Jun. 1980	k

(Continued) --

Table VI-2. (Continued)

Events	Responsible organization	Estimated start	Actual start	Estimated completion	Revised estimated completion
Home improvement and expansion loan program operating	MOH/Credit Foncier, US consultants	Apr. 1979	Mar. 1981	cont.	cont.
Home improvement TA functioning	MOH/Credit Foncier, US consultants	Apr. 1979	Jun. 1980	cont.	Feb. 1983
Collection of mortgage payments in New Community	Credit Foncier	Mar. 1981	l	cont.	l
Upgrading areas social survey complete; link community organizations	MOH and Co-operating ministries	Mar. 1979	1979[m]	June. 1983	Jul. 1983
Organization of Cooperatives and home owner association	MOH/Governorate, US consultants	Jan. 1981	n	Jun. 1983	n
Home management TA functioning	MOH/Governorate, US consultants	Jan. 1981	n	Jun. 1983	n
A/E contracts for design of community facilities and infrastructure first upgrading area	MOH	Sept. 1978[o]	Jan. 1981	Feb. 1980	Dec. 1983

(Continued) --

Table VI-2. (Continued)

Events	Responsible organization	Estimated start	Actual start	Estimated completion	Revised estimated completion
Plans and Specs for item 20 first package	MOH/Egyptian A & E firm	Dec. 1978	Apr. 1981	Feb. 1980	Dec. 1983
Bidding for item 20 construction contracts	MOH	Mar. 1979	Jul. 1981	Apr. 1979	Dec. 1983
let first package	MOH	Mar. 1979		Apr. 1979	
Bidding for item 20 construction contracts let first package	MOH	May 1979	Sept. 1981	Jan. 1983	Dec. 1983
Evaluation and modification of project activities	MOH/Social Research Ctr/ AID/US consultants	Jan. 1979	Jan. 1982	June. 1983	Mar. 1982
Housing Policy and Land Policy Study	MOH/US consultants	Jan. 1979	Jun. 1981	Jun. 1983	Apr. 1982[p]

a. Steering Committee has met only once.
b. Although functionings, the JHP and its PIU for implementing the Helwan project still require considerable staff and organizational development.
c. CHF contract signed August 1979, effective February 1980.
d. CHF contract terminates February 1983, but may be extended.
e. BWN contract was signed in November 1979, effective March 1980.

(Continued) --

Table VI-2. (Continued)

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f. Some work still continuing by Arab Bureau although contract effectively terminated in November 1981.
g. Understood as reference to material purchases for HNC.
h. MAK contract terminates, but BWN now projects completion for early 1983.
i. Schedules indeterminate and may not begin until after construction of Model House Estate which began in October 1981.
j. No evaluation plan yet prepared and no functioning evaluation unit.
k. Only some preliminary planning accomplished owing to lack to JHP/PIU counterpart staff.
l. Schedule indeterminate and must await construction.
m. NCSCR suvey begun but cancled for lack of performance.
n. Schedule indeterminate and must await construction.
o. The PP implementation schedule here appears to refer to expected date of the CHF technical assistance contract, which was also scheduled to begin on this date. Actual A/E work in upgrading areas did not begin until early 1981.
p. According to C. Noren at USAID, this aspect of the project has been superceded by the National Urban Policy Study (NUPS) which has been underway for approximately 18 months and is nearing completion.

plan. This requirement proved to be the most difficult condition for the MOH to meet. It was apparently submitted for approval two or three times before a conditional approval was obtained. The condition set was that the model sales and mortgage agreements not included in the Implementation Plan be completed by March 31, 1982. Although no reference was made in the approval letter to the lack of a financial plan, such a plan was considered an important element of the condition precedent pertaining to the implementation plan.

Upgrading Areas

The four major program areas related to the community upgrading effort are classified in the recently approved Implementation Plan as: (1) improving the physical environment, (2) mobilizing private resources for improving existing housing stock, (3) providing community facilities, and (4) mobilizing community leaders and organizations. Some progress has been made in each of these program areas, although not in all three communities in which JHP/PIU is currently active.

Physical Environment. The principal activity in this area is the work underway by the Sabbour Company on behalf of the JHP/PIU in designing the water, sewer, and electric systems for the Rashed community. Although a water system was completed in Ghoneim in 1980, it failed to accommodate the issue of a sewer system. As a consequence, the sewer design work now being done incorporates more complexity. Recently, Misr Consultants completed a study of alternative sewage disposal and treatment methods for Ghoneim and Rashed. This program may be delayed, however, as a result of differences between USAID and JHP/PIU over the size of the treatment plant proposed, with AID claiming that it is not prepared to finance a major sewage treatment plant.[1]

Although no work appears to have been done in Izbet Zein to promote environmental improvement, according to the Implementation Plan activities are planned for on-site drainage in the first quarter of 1982 and for water, sewer, and electric systems and for main street paving and solid waste collection in mid-1982. All environmental improvement in the three upgrading areas is scheduled to be completed by October 1983.

Private Resource Mobilization. As indicated in the CHF January Progress Report, home improvement loan programs are

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1. January 24, 1982, meeting note prepared by the CHF on meeting to discuss sewage disposal and treatment for upgrading areas.

now in place and functioning in all three active upgrading programs, with the program in Arab Ghoneim being finally established in January 1982. Further staff and program development continues with completion of this effort targeted for January 1984. In addition, a small enterprise loan program has been developed and is expected to be implemented in the near future.

But perhaps the most critical element in the home improvement program, regularization of land tenure, apparently remains in question. In mid-1981, the Cairo Governorate began a survey of all lots and squatters in the three upgrading areas to determine land values. The JHP/PIU originally took the position, according to CHF, that since it owns the land, the survey by Governorate authorities is of no concern. Recently, however, the JHP/PIU, recognizing that the question of land title may not actually be resolved, has solicited a proposal from a group of attorneys to monitor the issue and presumably help to resolve any problems that may arise. The people in the communities reportedly consider the land tenure question, i.e., their rights to land, to be paramount.

Community Facilities. The principal accomplishments in this area to date include the construction of an extension to the community center in Rashed and the construction of a primary/preparatory school in Ghoneim, currently well underway. The design of the Rashed community center extension was to include space for a vocational training program. The apparent desirability embedding vocational training within the community center context has led to a decision to do so in all three upgrading areas and consequently to eliminate construction of a vocational training center originally planned near the HNC.

In November 1981 the JHP/PIU and the Arab Ghoneim Youth Association reached an agreement, thereby permitting the first disbursement of funds to construct a youth center and sports field. Construction commenced in December.

Work on health care facilities for Arab Ghoneim and Rashed is scheduled to begin in the second and third quarters of 1982.

Most work in community facilities is targeted for completion by mid-1983.

Community Organization. Much of the work in this area has so far focused on program conceptualization. A community organization conceptual framework paper, prepared primarily

by CHF and presented to the JHP/PIU in November 1981, is currently under review. The completion of all community organization work is targeted for January 1984.

One important unresolved issue involves the extension of upgrading activities to other areas. According to the CHF, it is certain that at least a fourth upgrading program in Izbet Sidqui will be added during 1982. As for the planned program in Kafr el Elw, the environmental problems associated with emissions from the cement plant probably cannot be solved soon enough for upgrading efforts to go forward under AID regulations within existing timetables. The program in Ain Shams is also under reconsideration because the area may already be too developed for the services the Project provides.

Summary

The upgrading component of the Project is currently following the 1981 approved Implementation Plan in each of the three communities now involved. A fourth community is expected to be added to the program in 1982. According to the timetables presented in the Implementation Plan, most program activities in the four upgrading communities are projected for completion by mid-1983. A few activities will not, however, be completed until early 1984. It is not yet clear whether more than four communities will ultimately form part of the Project.[1]

As the design and planning of program elements in the upgrading areas near completion and various construction and organizational activities accelerate, the demands on implementation will greatly increase. The bulk of Project expenditures must in fact occur during the last year of the CHF contract for the Project to meet current completion schedules. These pressures will allow little margin for delay.

Two potential obstacles may prevent absolute adherence to current schedules. First is the pressing need to expand PIU staff resources commensurate with program development, particularly if the Project must expand into all six areas originally plotted in the Project Paper. The continuing and expanded use of outside contractors can substantially mitigate staff shortage, however, and it should be expected that the JHP/PIU will make increased use of this option. Second

1. The present approved Implementation Plan indicates a $1.0 million overrun in costs. The EST analysis of cost estimates indicates that upgrading expenditures will be $1.0 million less than the original Project Paper estimates (see Chapter IV).

is the need in this final phase for USAID to assist JHP/PIU in every possible way. In this regard, the continuation of the CHF team at least at its present and possibly at an expanded level should be seriously considered.

Helwan New Community

The HNC comprises two distinct stages: first, the construction of the MHE and, second, the development of the rest of the community. Each stage involves the elements indicated below:

- Model Housing Estate
  - infrastructure
  - core house construction
  - sales
  - mortgage loan program
- Development of Zones A, B, C, and D
  - infrastructuee
  - core house construction
  - sales
  - mortgage loan program
  - housing cooperatives and home owners associations
  - community centers
  - market plazas
  - schools
  - municipal buildings
  - health centers

Model House Estate. Construction activities on the MHE began in October 1981. Infrastructure will be laid as a component of infrastructure development in Zones A and B, scheduled to begin in February 1982 but now delayed by questions raised by USAID over bidding procedures. Completion of the MHE is scheduled for July 1982 although BWN has expressed concern at the rate of construction and believes the MHE may not be complete until the end of 1982. Since the MHE as now conceived was not a concept included in the Project Paper, it follows no pre-established schedule of implementation. It appears, however, that the completion of the working drawings for the infrastructure and dwelling solutions for the MHE went forward on schedule, once the concept of the present MHE was agreed to.

As for the sales and marketing programs and the mortgage loan program, CFE is now preparing the necessary documentation, which by USAID condition must be complete by the

end of March 1982. However, it is still unclear whether CFE is prepared to offer a graduated mortgage payment type of financing. The Implementation Plan schedules the beginning of the sales program for the second quarter of 1982, which the CHF now expects to occur in mid-1982. Currently, a marketing progrm is being considered by Chairman Wakeel.

Zonal Development. Work on infrastructure in MHE and Zones A and B was scheduled to begin in early 1982. Award of bid for the contract, however, has been delayed. It is unclear at this point when the award of bid may take place. Under the circumstances, it appears that current target completion dates and dates set for beneficiary occupancy in Zones A and B may be delayed. The development of Zones C and D, meant to follow in sequence, may consequently be delayed also.

One scheduling issue deserves particular attention: whether to postpone construction of housing in Zones A and B pending the outcome of the sales effort in the MHE. If delaying construction of the MHE will impair marketing efforts, an opportunity to incorporate changes based on experience in the MHE will be lost if construction in Zones A and B proceeds. Yet if the completion of MHE is delayed and construction in Zones A and B held back for the sake of gaining experience in MHE, the Project may have difficulty completing the HNC within the timeframe permitted, i.e., the July 1984 date to which USAID has extended the Project.

If MHE is completed on schedule, or close to it, and the award of contract for infrastructure moves forward without further delay, the HNC will meet the timetables set out in the Implementation Plan, as follows:

	Approximate start of construction	Estimated date of occupancy
MHE	Oct. 1981	Nov. 1982
Zone A	Feb. 1982	Mar. 1983
Zone B	Feb. 1982	Mar. 1983
Zone C	May 1982	Sept. 1983
Zone D	Aug. 1982	Jan. 1984

As the Plan states, "This schedule appears very aggressive, but feasible under optimum conditions." It remains to be seen whether "optimum conditions" can be reached and maintained. Infrastructure must be laid, a sales and marketing

effort successfully mounted, and core houses constructed within a very tight timeframe.

Summary

The development of the MHE is currently in process. Construction has begun in the MHE and is expected to be initiated soon on Zones A and B. Under current schedules, as laid out in the Implementation Plan, the entire new community program could be completed by or before the current termination date. Completion is, however, dependent on the successful implementation of all program components while the most difficult stage of Project implementation lies ahead. Potential impediments to completion of the HNC include continuing difficulties in complying with USAID regulations, construction delays, and the possibility that the sales effort may lag. Previous major issues raised over design standards appear for the most part resolved. The issue of the tramway line is resolved as is the question of the electrical cable. Only the matter of the location of power lines remains under consideration. All the essential institutional requirements for the completion of the HNC appear at least available, if not actually in place.

Institutional Development

The Project Paper's implementation schedule projected one year for the development of the Project implementation agency into a fully functioning institution. The JHP/PIU is now formally three years old. It is a functioning and expanding institution headed by very senior, experienced GOE officials, although it still lacks a full complement of staff according to the requirements of its internal organizational chart. Owing in part to lack of staff, the Project has not expanded its work in the upgrading areas beyond three communities.

The JHP/PIU has also faced some difficulties in rationalizing the management of the Project within its own organizational structure. This situation appears to result at least partly from the constraints of GOE civil service regulations. No clear evidence, however, suggests that problems of internal organization and management have seriously delayed project execution.

The Project Paper also anticipates that the MOH will have upgraded its capacity to coordinate and replicate strategies of low-cost housing as a result of the Project. The fact that many young university graduates are acquiring their first experience in the field of housing through

contact with the Project's strategies should enhance the prospects for replicability. Whether the Ministry is developing the necessary degree of expertise to replicate these easily is unclear, however.

The CFE has also made considerable progress institutionally in developing a functioning credit program in the upgrading areas. Currently, it is preparing the model sales contracts and mortgage loan agreements to be used in new home sales in the HNC. The arrival and installation of the EDP equipment, identified in the Project Paper as an integral component of the home finance program, should further increase its capacity to administer the credit programs. However, the CFE's development and offering of the graduated payment mortgage required by the Project Paper remains questionable.

Other Issues

Two principal Project objectives are not being implemented as they were outlined in the Project Paper. First, the vocational training center planned for the HNC has apparently been eliminated and replaced by programs to teach vocational skills at locations within community centers at each of the upgrading areas and presumably at the HNC as well. Second, the anticipated preparation of a national housing and land use policy has been superseded by the National Urban Policy Study (NUPS) sponsored by USAID.

The Project has had difficulties in fulfilling three goals important to the long-term success of Project implementation; these include the development of a Project finance plan, an evaluation plan, and a training plan. Now that the preparation of a finance plan has high priority, the JHP/PIU expects to resolve this deficiency in the near future with the arrival of CHF advisor Stubbs.

Base line surveys conducted by the NCSR should launch a continuous evaluation of the Project's impacts on its intended beneficiaries. But no such evaluation process is now functioning even though the Implementation Plan indicates an evaluation matrix relating Project components, development impacts, indicators, and objectives has been prepared within the JHP/PIU.

The Project also lacks a comprehensive institutional training program for the JHP/PIU. There appear to be two principal explanations for this. The first is that neither the Project Paper nor consultant contracts provide clear direction regarding the ultimate responsibility for developing an overall training effort. Responsibility appears

divided among USAID, the JHP/PIU, and the U.S. consultants. The second explanation is that the JHP/PIU lack available staff to take advantage of training opportunities. Even though senior management has used some funds for useful study tours abroad, down the line the lack of middle level management limits training activities, while junior level staff in the field have little time available for training in addition to their other responsibilities.

One important aspect of Project implementation not yet discussed is the survey of factory worker annual income first assembled and published by the JHP/PIU in July 1981. This study has been under revision and is nearly complete. It forms the basis of Project affordability.

Also, the development of the proposed program to design and evaluate building methods and products for low-cost housing has made little headway. Moreover, it is not clear what steps are planned to remedy this situation.

The EST has reviewed the computerized construction schedule maintained by BWN for construction work in the HNC. The computer schedule provides a very detailed breakdown of work tasks for all aspects of construction in the MHE and the HNC. According to BWN, however, this computer schedule is not actively used as a management tool. Rather, BWN follows essential construction targets laid out in its contract. There do not appear at present to be any major identifiable gaps or conflicts between that contract and the recently approved Implementation Plan.

General Summary

The Project is moving forward in accord with the approved Implementation Plan on both subprojects, the HNC and the upgrading communities. Although the start of the Project was delayed by over a year and a half, USAID has extended the termination date by one year to July 1984. According to current implementation schedules, all principal elements of the Project will be completed within the available timeframe. Although the Project may be concluded, a number of significant issues must be resolved, and resolved quickly, if the Project in all its aspects is to be finished in line with the Project Paper's original targets.

Question 6. Are the agencies and units involved in Project Management and implementation functioning in a coordinated and effective manner? If not, why not?

As the agency responsible for the overall management of Project implementation, the JHP/PIU has functioned under a

constraint: by defining the organization of institutional resources, the Project Paper forced the JHP/PIU to manage the Project within a largely predetermined framework. Thus, the judgments passed on the Project's management coordination and effectiveness must evolve within the context of these limitations.

The Project Paper also specified the functions and responsibilities of the other agencies and consulting services involved in the Project:

- The Project Paper directed the GOE to establish a special implementation agency to manage the Project.
- Technical assistance and training provided by a U.S. consultant firm were to support the unit, while outside contractors were also to carry out elements of the Project.
- The Credit Froncier Egyptien was to develop and deliver mortgage and home improvement programs.
- An Egyptian firm and an American A/E firm were to divide the design of infrastructure, dwelling solutions, and community facilities in the HNC; this work would be performed as a joint venture with another Egyptian A/E firm.
- A U.S. firm affiliated with the joint venture would supervise construction of the HNC.
- The JHP/PIU would undertake responsibility for the design work for infrastructure and community facilities in the upgrading communities, either on its own or through outside consultants.
- Egyptian contractors would carry out construction in both the HNC and the upgrading communities.

Obviously, the proposed arrangement would prima facie involve plethora of organizations. If only the principal institutions enumerated by the Project Paper were counted, there were to be seven major actors on the scene, including

USAID.[1] In addition, up to now approximately ten more local contractors either have been involved already or are prospectively involved in Project implementation with the likelihood of many more before Project completion.

Beyond the agencies and organizations responsible for Project implementation, several government bodies with related interests or regulatory responsibilities have also intersected Project activities, including the Ministry of Education, the Ministry of Social Affairs, the Ministry of Health, CEDCO (the Electric Authority), the Egyptian Water Authority, and Cairo Governorate organizations.

Moreover, the Project itself was not a single programmatically unified undertaking, but rather two distinct subprojects: the development of a new town, the HNC, and the upgrading of six existing communities. Each subproject had its own set of material and professional requirements. These schedules and requirements only corresponded with each other in the most general fashion.[2]

In short, implementation of the Project required the simultaneous direction and coordination of a complex set of institutional resources on two different types of projects whose implementation schedules did not mesh. Experience to date in managing the demands of this complex institutional arrangement, not surprisingly, has been mixed.

Although institutional coordination now appears to be effective, some problems arose in an earlier stage of Project development and continue to elicit comment. BWN believes, for example, that some issues that arose over design standards could have been more quickly resolved had BWN been permitted direct access both to the Arab Bureau and to CHF. Under JHP/PIU policy, however, contractors have not been permitted to deal with each other directly, but rather only through the JHP/PIU. Other contractors also saw this policy as a hindrance to the efficient coordination of work.

Although the JHP/PIU policy in question may have drawbacks, it does enable the JHP/PIU to keep its lines of

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1. When the basic contracting for the Project was complete and subcontracts let and joint ventures arranged, the number of institutions involved in the basic organizational arrangement had risen to twelve.

2. Other Project objectives included institutional building at the MOH and CFE, formulation of national housing and land policy, and the establishment of a vocational training center.

management control clear, an objective of no small importance on a project as complex as this one. Moreover, the earlier problems of coordination between BWN and AB appear to have sprung as much from the design of the Project itself, which divided the labor between an American A/E firm and an Egyptian one on a set of tasks so clearly related that they might more efficiently have been undertaken by a single firm. Some problems also arose earlier in the coordination of BWN's work with that of the CHF. Partly, these difficulties may have occurred because the CHF was asked by JHP/PIU to review BWN's plans, a task for which the CHF team lacked the skills.

Superimposed upon the JHP/PIU's management structure is USAID, which can veto any decision made by JHP/PIU affecting the disbursements of U.S. Government funds allocated to the Project. Many other entities in the Project have complained about the arrangement, apparently feeling themselves professionally "second guessed." Unless USAID provides the JHP/PIU with the criteria by which individual programs will be judged, the Project's two-headed management system is likely to continue.

One way to measure the success of institutional coordination is to review progress in implementation since all the major entities involved have been working together on the Project since its inception. Progress so far indicates that the many institutions engaged on the Project are functioning together in a satisfactory manner at least. Although problems of coordination have caused some delays, the EST has seen no real evidence that such delays have directly caused delays in Project implementation. This conclusion should not suggest that there is no room for improvement. It does suggest, however, that the JHP/PIU deserves a large measure of credit for the relatively effective management of a highly complex array of diverse institutions.

Summary

Although the coordination of the complex array of institutions involved in this Project has been troubled only by a series of relatively minor issues in the past, real coordination problems might emerge in the near future. The entire issue of whether demand exists for the type of dwellings designed for HNC has yet to be addressed. If reaction to a major issue radically changed the direction of the Project, the joint management arrangement between JHP and USAID might not prove flexible enough.

Question 7. Do all agencies and units involved share a common set of views on the Project's purposes, roles which different actors have, reasons for successess and failures and future implementation strategies? If not, how important are the different patterns of Project dissensus for Project success? Can the patterns of dissensus be overcome? How?

One difficulty inherent in Project design was its multifold objectives, ranging from the changing of GOE national housing policy at one extreme to the establishment of a vocational training center at the other. Under the circumstances, the various actors involved in the Project could have been expected either to hold differing views on the purposes of the Project or to emphasize different objectives among the many cited in Project documentation.

In any event, less than a year ago the CHF team leader apparently believed that at least some aspects of Project design were neither fully understood nor widely agreed upon among major participants. Smit summed up his views as follows:

> During the first year of [the Project] PIU received technical advice from USAID, BWN, AB, FCH and several consultants it put on retainer. This advice was frequently not in harmony. A good deal of the conflicting advice, it seems to me, was due to a lack of understanding and of concensus concerning the basic structural and strategic aspects of [the] Project.
>
> A seminar is needed amongst the senior 15 or 20 professionals concerned to reach such a consensus. The seminar should receive position papers for consideration. It might be held over a long weekend in the desert.[1]

Although the EST did not find a widespread lack of understanding of the purposes of the Project, the actors clearly continue to hold divergent views on priorities among stated objectives and widely varying degrees of commitment to individual Project goals. Such divergent opinions exist within the individual participating entities as well as among them, including USAID.

Also, several different organizations still subject the Project to technical views on every issue of programmatic

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1. Smit, First Year Report, p. 22.

significance. The JHP/PIU and its consultants and contractors first develop a program position, for example, on the construction of a sewage treatment plant or a community organization plan. These program plans are then submitted to USAID, which will frequently recommend technical changes, either to comply with certain technical criteria or, in some cases, simply to recommend an "improvement." Such recommendations have the force of a condition.

The roles and responsibilities of the various actors provoke less controversy. Although this issue did arise in an early stage of the Project regarding CHF's review of BWN's urbanization plan, evidently no further conflict over role and responsibility has surfaced.

The success of the Project's implementation can be assessed objectively. The considerable degree of progress in implementation in all major aspects of the Project is recorded elsewhere. The parties responsible for individual elements of project implementation, cited in Chapter V in detail, are easily identifiable. How the various actors judge the success of the Project is not very clear, however.

As for views on Project failures, the issues are perhaps somewhat more sharply defined. One unfulfilled Project objective already cited is to develop lower standards. BWN, at least, believes that USAID could have taken a more forceful posture toward enforcement of lower standards. Nonetheless, neither USAID nor the MOH has the authority to force decisions with GOE agencies such as CEDCO.

Another Project failure relates to institutional training at the JHP/PIU. As indicated elsewhere in this report, the parties involved -- which include JHP/PIU, USAID, CHF, and BWN -- all appear to have pieces of what should be a comprehensive training program. Each appears to believe that the responsibility for preparing a comprehensive program lies with another party. A Project finance plan and evaluation plan have also fallen victim to the failure of a single agency to shoulder the responsibility of development.

Apparently, the major Project actors have agreed upon the principal elements of future implementation strategies now that the Implementation Plan has been approved. As the Project has gradually evolved into two separate subprojects, one in upgrading and one at the HNC, less opportunity for conflict and disagreement has arisen among the parties whose paths no longer cross regularly.

There are, however, several important exceptions to the general harmony presently prevailing. One applies to a

critical issue: housing design at the HNC. Sentiment at the JHP/PIU continues for consideration of the three-story vertical core. However, acceptance of that design approach would substantially alter the nature of the HNC from a sites and service project to a conventional Egyptian government housing project.

The GOE and USAID continue to disagree upon the extent to which the Project can be used as springboard to larger developmental goals. Such issues as the size of sewage treatment plants, for example, continue to emerge which do not comform to Project budgetary limitations and programmatic guidelines. The fact that such issues continue to arise suggests that the guidelines and criteria for specific program activities are either not adequately developed or are inadequately understood.

More broadly, a major area of disagreement appears to be over the nature of USAID's technical oversight function. The JHP/PIU and its contractors appear to believe rather strongly that such function should be restricted to monitoring whether the JHP/PIU's technical programs fit within the general budgetary and programmatic outlines of the Project Paper and Grant Agreement. USAID takes the position that it has the equal right to rework program submissions according to its own technical judgments and require its acceptance as a condition of disbursement of grant funds.

A middle ground acceptable to both parties might somehow be reached. If USAID would define its technical oversight role and develop guidelines to satisfy its requirements, the JHP/PIU would enjoy a greater sense of independence in project implementation.

All of these issues point to a major potential failure of the project, which is that it may not achieve its objective of replicability as envisioned in the Project Paper. However, even if this failure occurs, the Project may still achieve some of its other objectives, such as establishing new types of credit mechanisms, introducing a potential alternative for redirecting the development of the informal housing sector, and establishing a cadre within the GOE to undertake more nontraditional housing programs in the future.

Project Lessons to be Learned and Possible Project Modifications

Question 8. What lessons can be learned to date from this Project which can be applied to future stages of the effort? Could any of these factors

> have been taken into account at the time of the Project design? What lessons can be learned for the replicability of a model for low-income housing? For related projects in the housing field? For USAID projects in general?

The lessons that can be learned from the Project may be divided into three areas. First are those which can be dealt with in the design phase. Essentially, structuring a realistic implementation would have prevented these problems. From examples given elsewhere in this report, the Project Implementation Plan did not appear to allow sufficient time to carry out some necessary activities, particularly in the very early phases of the Project. This unrealistic expectation led to a conviction that the Project was ill-conceived and perhaps doomed to failure. A more realistic implementation schedule may have lessened some of these concerns.

Second are those lessons which may relate to the level of understanding between major participants in the Project, particularly the GOE and AID. With better understanding, the long delay in negotiating the consulting firms' contracts may have been reduced as the two agencies gained a better understanding of how their work tasks corresponded to required levels of effort.

A better understanding of USAID regulations for monitoring and approving requests for project expenditure reimbursements was also needed. Indoctrination or training courses could have quickly dispelled misunderstandings of procedures and regulations.

Not all parties have understood the role of the GOE Steering Committee mentioned in the Project Paper. The same problem perhaps still exists concerning the JHP/PIU role and functions. Finally, there is the question of how better communications may have helped to change standards and introduce more new technologies or nonconventional materials into the Project.

All these issues may have been foreseen during the Project's design phase, unlikely though it is. But one unmistakable lesson to be learned from the cumulative experience of the Project is this: a day-to-day communications channel is essential to expedite the flow of information among parties and to increase the chances for Project replicability.

Finally, there are lessons to be learned in regard to long-term and policy-oriented issues. The Project Paper clearly states some ambitious goals and objectives that it set for the Project (e.g., seeking cost recovery from the target group at its ability to pay). However, since the implementation of the Project began, emphasis has been almost exclusively concentrated on dealing with day-to-day problems. Consequently, not much attention is given to achieving the stated long-run policy-oriented objectives outlined in the Project Paper. Some may argue that attempting to change government policy is not possible or even desirable. However, without the long-range, policy-oriented objectives of the Project, the Project exists merely to build houses. This limited goal does not seem to require the large investment of both AID and GOE resources of time, staff, and funds.

If the Project still incorporates objectives directed toward long-run policy changes, even successful implementation of both the HNC and upgrading components is only a necessary, but not a sufficient, condition for success.

One need that has crystallized from this body of experience is for an action program to serve as change agent for accomplishing the Project's policy-oriented objectives. Training and indoctrination programs are two obvious approaches. However, agreement with the GOE and even within AID on the Project's major long-run objectives also may be a necessary first condition. As a prelude, monitoring other GOE housing projects and developing the informal housing sector may help determine whether the initial policy-oriented objectives of the Project are still valid.

In this regard, the issue of design standards and whether projects such as HNC should be allowed to have lower standards than typical GEO housing projects should be a major focus.

At this stage of the Project, it is not possible to draw firm conclusions about either the validity of Project design or the prospects of meeting Project objectives. No clear and decisive indicators have appeared thus far to suggest that the Project will or will not meet its targets; the Project is approximately on course. Some indication of the GOE's attitude toward the Project's housing strategy is apparent, however. As previously indicated, the GOE still prefers multi-story walk-ups as a solution to low-income housing needs, although coupled with an increasing acceptance of the validity of the concept of sites and services.

Question 9. How do the outputs of the Project compare, in terms of improvement in living standards over existing conditions (i.e., financial, equity, opportunity and services, in metropolitan Cairo to the intended beneficiaries) with their current housing and with GOE-supported housing projects in which these or similar beneficiaries are eligible to participate?

A brief comparison will be made with a generalized model of the standard GOE walk-up apartment and a composite of informal housing. As informal housing is the direct competitor to the HNC, it therefore is the prime indicator of comparison. Only a summary of the key points will be included here since more detailed discussion is included throughout the text.

As seen in Table VI-3, the HNC contains several advantages over currently provided GOE housing as envisioned in the Project Paper. The HNC provides ownership where individuals can build up equity by expanding their dwellings, both to meet family desires and to provide a potential for rental income. The HNC clearly provides better site planning, by reapportioning open land among the lot areas with less open area remaining under public responsibility.

In comparing housing provided by the HNC with the informal sector, a key issue is time. In any informal area a variety of dwellings can be seen, in all stages of development, from a single-story initial build out to a full four- to five-story unit with complete interior and exterior finishing, essentially identical to houses found in higher income areas. However, it takes more time in the informal sector to get the basic utility infrastructure installed and to some extent to build schools and health facilities takes longer than for a turnkey project like HNC.

In this context, improvements provided by the HNC are essentially limited to clear land title; a quicker, initial full standard provision of services; and the inclusion of a range of build-out options, all of which are indicated in the Project Paper. However, it may not be appropriate to consider these as "improvements" (other than the aspect of clear title) since these are experimental elements and it remains to be seen if any advantages/improvements will result.

Despite the generally improved product over the GOE housing and some advantages over informal housing, a

Table VI-3. Summary Comparison of HNC with GOE and Informal Housing

	GOE Housing	Informal Housing
Dwellings	HNC Equal and Better; variety of sizes only available within narrow limits in GOE, whereas HNC offers both variety in type and size. HNC offers expansion possibility.	HNC Equal, But Costs Higher; a trade-off for legal tenure and full initial services. Variety of sizes/types for multiple entry into market. Both offer expansion possibilities.
Infrastructure	HNC Equal; full individual services.	HNC Initial Better Provision; but upgrading of informal areas tends toward full service over time.
Public Facilities	HNC Equal; the general level in Cairo is lower.	HNC Better Provision; informal areas do eventually achieve some public facilities, but at low level.
Planning	HNC Equal or Improved; density higher or the same; circulation length/ratio improved, and land utilization appreciability improved.	HNC Equal or Improved; density the same; circulation length/area improved, and land use improved by providing area for public facilities.
Tenure	HNC Equal or Better; HNC provides ownership: GOE generally rental, but now also ownership offered.	HNC Better; provides initial legal security for both land dwelling; informal only land is generally legal.
Costs	HNC indeterminant; provides lower cost dwellings than in projects like 15th of May, but higher than some like El Berka.	HNC Higher; HNC includes full range of cost items, and also cannot compete with artisans and small informal contractors.
Subsidies	HNC indeterminant; provides higher cost recovery, particularly in comparison with projects like 15th of May, but maybe less than some projects like El Berka.	HNC Higher; GOE subsidizes informal through eventual provision of infrastructure and public facilities, with no or little cost recovery but less than HNC.

perspective should be kept on the costs, both in straight financial terms and in expended effort terms. When the products are viewed this way, an appreciable variation in expended effort achieves largely similar results.

The amount of effort, as defined in terms of time and resources, is highest in the HNC. In defense, the HNC is a demonstration project and a penalty is extracted during the learning and formulation process. In future projects of this nature, should they be done, the expenditure of effort would lessen, and investigation of methods and areas where economies could be made would be necessary.

Clearly, the lowest level of effort is noted in the informal sector, even when including later GOE upgrading efforts and the provision of schools and clinics.

As indicated in the Project Paper, environment sanitation is a basic problem in the informal areas and also in the GOE walk-up units. The HNC relies upon community organizations as the major actors to achieve improvements in this area. This, however, cannot be evaluated until the community is inhabited and functioning.

Question 10. Does the Project, on the experience to date --design, construction, implementation, beneficiary financing, cost effectiveness and social acceptability -- represent a possible model for packaging low-income housing?

This is a difficult question to answer, primarily because the Project is in such an early stage of development. Certainly the issue of social acceptability cannot be answered definitively although there is some indication that the home improvement loans for the upgrading areas may be socially acceptable, if that is the right term. Also, the basic concept of upgrading sites in the informal sector communities may represent a possible model for future low-income housing projects.

The design of the HNC, which represents an alternative to the standard five-story walk-up, may also be a possible model for some portion of future low-income housing developments. Some evidence both in the Cairo Governorate and in Ismailia suggests that sites and services may be considered an alternative to standard solutions.

It is difficult to see how construction of the HNC could be considered a possible model since the infrastructure does not depart significantly from present GOE practices.

The build-out of homes would represent a new model, but empirical evidence is not available.

The issue of beneficiary financing also has not been answered except in the limited case of home improvement loans for one upgrading community. Acceptance of the graduated monthly payment (GMP) would represent a possible model, but that issue still is very much in doubt.

Evolving a workable model for packaging low-income housing based on cost-effectiveness probably represents the least likely opportunity due to the apparent high cost of the Project. Because typical GOE infrastructure standards were adopted, about 70 percent of the total housing plus infrastructure costs were tied into whatever the GOE was doing elsewhere. This fact alone makes it difficult for HNC to serve as a cost-effective model. However, the upgrading activities may achieve some cost-effective results, for example, by combining water and sewage infrastructure development.

Question 11. Are there modifications to the Project of an institutional, management, financial and or physical design nature, which could, with minor effects on timing and costs, improve the prospects for meeting Project objectives?

A possible modification having minor effects on timing and costs concerns the schedule for marketing the MHE and the related issue of when and what type of dwelling units should be constructed in Zones A and B. The EST was not able to establish definitively when the MHE would be completed or when the construction of dwelling units in Zones A and B would begin. However, it appears desirable and consonant with the concepts of the Project Paper to obtain as much information as possible from the marketing activities associated with the MHE. However, if the completion of construction of the MHE is significantly delayed and construction of dwelling units in Zones A and B has commenced before real marketing experience can be gained from the MHE, the prospects for meeting some of the Project objectives may be vitiated. Just how long such a delay might be is not possible to predict.

Concerning relatively minor modifications applicable to the institutional framework, the only changes that might improve the prospects for meeting the Project objectives concern extensions of the CHF Technical Assistance contract, the BWN A/E contract, and the AB A/E contract. The extended time of completion of the Project appears to make extension

of the first two contracts necessary, and in addition, it may be desirable to increase the CHF staff size as well. The AB contract may need extension depending on the housing solution modifications that will be recommended based on the experience obtained from the MHE.

In summary, given the present implementation status of the Project, there do not appear to be many modifications that could significantly alter the course of the Project, while at the same time having minor effects on timing and costs. There is, however, a major modification that has been raised both by the GOE and as a consequence of comments reviewed on the draft of this report. The major modification concerns the issue of vertical core build out as proposed principally by the Vice-Chairman of the JHP.

Since the issue of a vertical core build-out of the HNC has become a major problem, a brief review of the EST's understanding of this issue is warranted. From several sources, including both interviews and the file review, it was the EST understanding that the vertical core issue had been raised by the JHP and rejected by USAID about a year prior to the time of this evaluation study. (See, for example, J. Smit comments as contained in Appendix C). However, the EST did attend several meetings with the JHP and even individually with Vice Chairman Mahmound Zaki Ali at which the vertical core issue was discussed at some length. In consultation with USAID officials, it was agreed that the EST should not seriously consider the vertical core concept since it had already been laid to rest. However, at the exit briefing given by the EST the vertical core issue was again raised by the Vice Chairman of the JHP and since leaving Egypt the EST has been requested to seriously consider the concept (see, for example, item 3 in the P. Amato to J. Fay memo, Appendix C).

Chapter IV now includes a rather lengthy section on this issue. However, aside from what now is included in Chapter IV on the vertical core issue, there is little more that the EST can contribute. Adoption of the vertical core concept would be more than a major modification to the project, it would basically represent a complete departure from the approach for low-income housing indicated in the Project Paper. It probably would require more time for the Project's completion with the possibility that funding might not be available after the present cut-off date of mid-1984. (The Vice Chairman disagrees with this point and claims the vertical core concept would require less time for construction and at a lower cost.) USAID, however, cannot disregard the vertical core issue primarily because it has evolved

from the Egyptian perception that the HNC will represent a higher cost solution than the GOE's own low-cost housing program.

Thus, the basic issue of whether to accept or reject the vertical core concept becomes one of policy and therefore is not something that can be evaluated in terms of which approach is "better."

APPENDIX A: COST RECOVERABILITY TABLES

Cost recoverability tables associated with the HNC were developed in two parts. The first series of tables is for the five build-out stages of the four basic types of lots offered at the HNC lot types. The second series is a comparison of a representative unit in the HNC with a minimum unit in 15th of May, El Berka, and a composite of an informal dwelling.

For HNC recoverability, all units to be built are included in the tables, ranging from Stage I build-out with only the utility module and boundary wall, to Stage V with bathroom, kitchen, and two rooms. Dwelling costs are in Egyptian pounds and incorporate the latest costs from the MHE. Land, infrastructure, community facilities, and design/supervision costs represent the current "best estimates" and are a function of the prorated lot factor as used in the Project Paper.

Subsidy options for the HNC use four different combinations of costs: (1) a full cost figure, (2) a "reasonable" subsidy as defined by the reviewers, (3) a subsidy as developed in the Project Paper, and (4) original Project Paper land costs combined with a "reasonable" subsidy (see Table A-1).

Following the tables on the different stages and lots for the HNC are three tables comparing the 15 of May, El Berka, and a composite informal dwelling unit with a weighted average HNC dwelling unit. These three tables use (1) the Project Paper subsidy level, (2) full costs except for community facilities, and (3) full costs.

Determination of comparable values is always difficult and subject to much interpretation. Straight cost comparisons are somewhat misleading because other attributes of a particular product may color the decision of the purchasers: for example, ownership in a walk-up apartment as opposed to ownership of a lot/core house, with its potential for expansion.

Table A-1. Subsidy Options

Cost item	Full costs	Reasonable percentages	Project paper[a] percentages	Reasonable and PP land cost
	----------percentage----------			
Dwelling unit	100	100	100	100
Land	100[b]	91[c]	84	91[d]
Infrastructure	100	61[e]	26	61
Community Fac.	100	-	-	-
Design/ supervision	100	63[f]	63	63

a. From Project Paper, page 27.
b. @ LE 10/m^2.
c. Excludes land for community facilities.
d. % of $5,700,000
e. Excludes off-site sewage, all electrical and telephone.
f. From Project Paper.

Selection of the representative unit type was determined by roughly equivalent areas. Accordingly, the HNC unit is larger than the more typical unit provided. The "standard" unit has only one room and costs 3037 LE, approximately 600 LE less than the unit used in the tables. Conversely, the standard average units in both 15th of May and El Berka are larger and more expensive.

	Equivalent units (LE)	Standard average units (LE)
HNC	3622	3037
15th of May	4085	5831
El Berka	3149	3785

The following projects were used as comparison:

- 15th of May: This new town project has a similar terrain with its concomitant cost and structural difficulties. It is targeted to similar clients, the same workers, but housing for higher income is also provided and is provided with the traditional subsidized units. It was included because of the inevitable comparison with the adjacent Helwan project. The comparison was limited to lower standard units.

- El Berka: This public housing project is of a lower standard (in finishing, areas, etc.) than the traditional walk-up apartment. Its particular advantage is its rapid construction, which relies on local expertise without expatriate involvement. It provides a site contrast in its simple topography with no underlying limestone with its implied higher infrastructure and site grading costs.

- Composite informal mode: A hypothetical case of a "typical" informal development is included to give a general benchmark with which to evaluate low-income housing programs.

AFFORDABILITY FOR FULL AND PARTIAL COST RECOVERY FOR NEW COMMUNITY DESIGN
AS MEASURED BY PERCENTAGE OF MONTHLY HOUSEHOLD
INCOME REQUIRED TO SERVICE MORTGAGE
(30-year mortgage, 10% down, level payments)

COST RECOVERABILITY

Type Dwelling Unit: Lot Type A ($56.25m^2$ -1 lot unit) Stage I (M+Boundary Wall)

Cost item (In Egyptian Pounds)	Full	Reasonable percentages	Project paper percentages	Reasonable and PP land cost
Dwelling Unit	730	730	730	730
Land	1,803	1,641	1,514	537
Infrastructure	4,621	2,830	1,197	2,830
Community Fac.	706	--	--	--
Design/ supervision	1,145	721	721	721
TOTAL	9,005	5,922	4,162	4,818

Monthly mortgage payment and household income percentile exceeded at varying interest rates	LE	Percentile	LE	Percentile	LE	Percentile	LE	Percentile
5%	44	45-80	29	20-50	20	<20-30	23	<20-40
7%	54	>70	35	30-60	25	<20-40	29	20-50
9%	65	>80	43	40-80	30	20-50	35	30-60

> = greater than
< = less than

AFFORDABILITY FOR FULL AND PARTIAL COST RECOVERY FOR NEW COMMUNITY DESIGN
AS MEASURED BY PERCENTAGE OF MONTHLY HOUSEHOLD
INCOME REQUIRED TO SERVICE MORTGAGE
(30-year mortgage, 10% down, level payments)

COST RECOVERABILITY

Type Dwelling Unit: (Lot Type A (56.25m^2 -1 lot unit) Stage II/III (B/B+K)

Cost item (In Egyptian Pounds)	Full	Reasonable percentages	Project paper percentages	Reasonable and PP land cost
Dwelling Unit	1,644	1,644	1,644	1,644
Land	1,803	1,641	1,514	537
Infrastructure	4,621	2,830	1,197	2,830
Community Fac.	706	--	--	--
Design/ supervision	1,145	721	721	721
TOTAL	9,919	6,836	5,076	5,732

Monthly mortgage payment and household income percentile exceeded at varying interest rates	LE	Percentile	LE	Percentile	LE	Percentile	LE	Percentile
5%	48	50->80	33	25-60	25	<20-40	28	20-50
7%	59	>80	41	40-75	30	25-50	34	30-60
9%	72	>80	50	>60	37	30-60	42	40-75

> = greater than
< = less than

AFFORDABILITY FOR FULL AND PARTIAL COST RECOVERY FOR NEW COMMUNITY DESIGN
AS MEASURED BY PERCENTAGE OF MONTHLY HOUSEHOLD
INCOME REQUIRED TO SERVICE MORTGAGE
(30-year mortgage, 10% down, level payments)

COST RECOVERABILITY

Type Dwelling Unit: Lot Type A (56.25m^2 -1 lot unit) Stage IV (B+K+R)

Cost item (In Egyptian Pounds)	Full	Reasonable percentages	Project paper percentages	Reasonable and PP land cost
Dwelling Unit	1,955	1,955	1,955	1,955
Land	1,803	1,641	1,514	537
Infrastructure	4,621	2,830	1,197	2,830
Community Fac.	706	--	--	--
Design/ supervision	1,145	721	721	721
TOTAL	10,230	7,147	5,387	6,043

Monthly mortgage payment and household income percentile exceeded at varying interest rates	LE	Percentile	LE	Percentile	LE	Percentile	LE	Percentile
5%	49	60->80	35	30-60	26	20-50	29	20-50
7%	61	>80	43	40-80	32	25-60	36	30-65
9%	74	--	52	60->80	39	40-70	44	45->80

> = greater than
< = less than

AFFORDABILITY FOR FULL AND PARTIAL COST RECOVERY FOR NEW COMMUNITY DESIGN
AS MEASURED BY PERCENTAGE OF MONTHLY HOUSEHOLD
INCOME REQUIRED TO SERVICE MORTGAGE
(30-year mortgage, 10% down, level payments)

COST RECOVERABILITY

Type Dwelling Unit: Lot Type A (56.25m^2 -1 lot unit) Stage V (B+K+2R)

Cost item (In Egyptian Pounds)	Full	Reasonable percentages	Project paper percentages	Reasonable and PP land cost
Dwelling Unit	2,374	2,374	2,374	2,374
Land	1,803	1,641	1,514	537
Infrastructure	4,621	2,830	1,197	2,830
Community Fac.	706	--	--	--
Design/ supervision	1,145	721	721	721
TOTAL	10,649	7,566	5,806	6,462

Monthly mortgage payment and household income percentile exceeded at varying interest rates	LE	Percentile	LE	Percentile	LE	Percentile	LE	Percentile
5%	51	>60	37	30-70	28	20-50	31	25-60
7%	64	>80	45	50-80	35	30-60	39	40-70
9%	77	>80	55	>70	42	40-80	47	50->80

> = greater than
< = less than

AFFORDABILITY FOR FULL AND PARTIAL COST RECOVERY FOR NEW COMMUNITY DESIGN
AS MEASURED BY PERCENTAGE OF MONTHLY HOUSEHOLD
INCOME REQUIRED TO SERVICE MORTGAGE
(30-year mortgage, 10% down, level payments)

COST RECOVERABILITY

Type Dwelling Unit: Lot Type B ($67.5m^2$ -1 lot unit) Stage I (M+Boundary Wall)

Cost item (In Egyptian Pounds)	Full	Reasonable percentages	Project paper percentages	Reasonable and PP land cost
Dwelling Unit	953	953	953	953
Land	1,803	1,641	1,514	537
Infrastructure	4,621	2,830	1,197	2,830
Community Fac.	706	--	--	--
Design/ supervision	1,145	721	721	721
TOTAL	9,228	6,145	4,385	5,041

Monthly mortgage payment and household income percentile exceeded at varying interest rates	LE	Percentile	LE	Percentile	LE	Percentile	LE	Percentile
5%	45	45-80	30	20-50	21	<20-30	24	<20-40
7%	55	>70	37	30-60	26	<20-40	30	20-50
9%	67	>80	45	40-80	32	20-50	37	30-60

> = greater than
< = less than

AFFORDABILITY FOR FULL AND PARTIAL COST RECOVERY FOR NEW COMMUNITY DESIGN
AS MEASURED BY PERCENTAGE OF MONTHLY HOUSEHOLD
INCOME REQUIRED TO SERVICE MORTGAGE
(30-year mortgage, 10% down, level payments)

COST RECOVERABILITY

Type Dwelling Unit: Lot Type B (67.5 m^2 -1 lot unit) Stage II (M+B)

Cost item (In Egyptian Pounds)	Full	Reasonable percentages	Project paper percentages	Reasonable and PP land cost
Dwelling Unit	1,929	1,929	1,929	1,929
Land	1,803	1,641	1,514	537
Infrastructure	4,621	2,830	1,197	2,830
Community Fac.	706	--	--	--
Design/ supervision	1,145	721	721	721
TOTAL	10,204	7,121	5,361	6,017

Monthly mortgage payment and household income percentile exceeded at varying interest rates	LE	Percentile	LE	Percentile	LE	Percentile	LE	Percentile
5%	49	50->80	34	26-60	26	<20-40	29	20-50
7%	61	>80	43	40-75	32	25-50	36	30-60
9%	74	>80	52	>60	39	30-60	44	40-75

> = greater than
< = less than

AFFORDABILITY FOR FULL AND PARTIAL COST RECOVERY FOR NEW COMMUNITY DESIGN
AS MEASURED BY PERCENTAGE OF MONTHLY HOUSEHOLD
INCOME REQUIRED TO SERVICE MORTGAGE
(30-year mortgage, 10% down, level payments)

COST RECOVERABILITY

Type Dwelling Unit: (Lot Type B (67.5m^2 -1 lot unit) Stage III (B+K)

Cost item (In Egyptian Pounds)	Full	Reasonable percentages	Project paper percentages	Reasonable and PP land cost
Dwelling Unit	2,591	2,591	2,591	2,591
Land	1,803	1,641	1,514	537
Infrastructure	4,621	2,830	1,197	2,830
Community Fac.	706	--	--	--
Design/ supervision	1,145	721	721	721
TOTAL	10,866	7,783	6,023	6,679

Monthly mortgage payment and household income percentile exceeded at varying interest rates	LE	Percentile	LE	Percentile	LE	Percentile	LE	Percentile
5%	53	>60	38	30-70	29	20-50	32	25-60
7%	65	>80	47	50-80	36	30-60	40	40-70
9%	79	>80	56	>70	44	40-80	48	50->80

> = greater than
< = less than

AFFORDABILITY FOR FULL AND PARTIAL COST RECOVERY FOR NEW COMMUNITY DESIGN
AS MEASURED BY PERCENTAGE OF MONTHLY HOUSEHOLD
INCOME REQUIRED TO SERVICE MORTGAGE
(30-year mortgage, 10% down, level payments)

COST RECOVERABILITY

Type Dwelling Unit: Lot Type B (67.5 m^2 -1 lot unit) Stage IV (B+K+R)

Cost item (In Egyptian Pounds)	Full	Reasonable percentages	Project paper percentages	Reasonable and PP land cost
Dwelling Unit	4,111	4,111	4,111	4,111
Land	1,803	1,641	1,514	537
Infrastructure	4,621	2,830	1,197	2,830
Community Fac.	706	--	--	--
Design/ supervision	1,145	721	721	721
TOTAL	12,386	9,303	7,543	8,199

Monthly mortgage payment and household income percentile exceeded at varying interest rates	LE	Percentile	LE	Percentile	LE	Percentile	LE	Percentile
5%	60	>80	45	45-80	36	30-60	40	40-75
7%	74	>80	56	>70	45	45-80	49	>60
9%	90	>80	67	>80	55	>70	59	>80

> = greater than
< = less than

AFFORDABILITY FOR FULL AND PARTIAL COST RECOVERY FOR NEW COMMUNITY DESIGN
AS MEASURED BY PERCENTAGE OF MONTHLY HOUSEHOLD
INCOME REQUIRED TO SERVICE MORTGAGE
(30-year mortgage, 10% down, level payments)

COST RECOVERABILITY

Type Dwelling Unit: Lot Type B (67.5m^2 -1 lot unit) Stage V (B+K+2R)

Cost item (In Egyptian Pounds)	Full	Reasonable percentages	Project paper percentages	Reasonable and PP land cost
Dwelling Unit	5,158	5,158	5,158	5,158
Land	1,803	1,641	1,514	537
Infrastructure	4,621	2,830	1,197	2,830
Community Fac.	706	--	--	--
Design/ supervision	1,145	721	721	721
TOTAL	13,433	10,350	8,590	9,246

Monthly mortgage payment and household income percentile exceeded at varying interest rates	LE	Percentile	LE	Percentile	LE	Percentile	LE	Percentile
5%	65	>80	50	50->80	42	40-80	45	45->80
7%	80	>80	62	>80	51	60->80	55	>70
9%	97	>80	75	>80	62	>80	67	>80

> = greater than
> = less than

AFFORDABILITY FOR FULL AND PARTIAL COST RECOVERY FOR NEW COMMUNITY DESIGN
AS MEASURED BY PERCENTAGE OF MONTHLY HOUSEHOLD
INCOME REQUIRED TO SERVICE MORTGAGE
(30-year mortgage, 10% down, level payments)

COST RECOVERABILITY

Type Dwelling Unit: Lot Type C (84.375 m^2 -1-1/2 lot units) Stage I (M+Boundary Wall)

Cost item (In Egyptian Pounds)	Full	Reasonable percentages	Project paper percentages	Reasonable and PP land cost
Dwelling Unit	1,325	1,325	1,325	1,325
Land	2,705	2,462	2,271	806
Infrastructure	6,932	4,245	1,796	4,245
Community Fac.	1,059	--	--	--
Design/ supervision	1,718	1,082	1,082	1,082
TOTAL	13,739	9,114	6,474	7,458

Monthly mortgage payment and household income percentile exceeded at varying interest rates	LE	Percentile	LE	Percentile	LE	Percentile	LE	Percentile
5%	66	>80	44	45->80	31	25-60	36	30-65
7%	82	>80	55	>70	39	40-70	45	50-80
9%	99	>80	66	>80	47	50->80	54	>70

> = greater than
< = less than

AFFORDABILITY FOR FULL AND PARTIAL COST RECOVERY FOR NEW COMMUNITY DESIGN
AS MEASURED BY PERCENTAGE OF MONTHLY HOUSEHOLD
INCOME REQUIRED TO SERVICE MORTGAGE
(30-year mortgage, 10% down, level payments)

COST RECOVERABILITY

Type Dwelling Unit: Lot Type C (84.375 m^2 -1-1/2 lot units) Stage II (M+B)

Cost item (In Egyptian Pounds)	Full	Reasonable percentages	Project paper percentages	Reasonable and PP land cost
Dwelling Unit	2,335	2,335	2,335	2,335
Land	2,705	2,462	2,271	806
Infrastructure	6,932	4,245	1,796	4,245
Community Fac.	1,059	--	--	--
Design/ supervision	1,718	1,082	1,082	1,082
TOTAL	14,749	10,124	7,484	8,468

Monthly mortgage payment and household income percentile exceeded at varying interest rates	LE	Percentile	LE	Percentile	LE	Percentile	LE	Percentile
5%	71	>80	49	60->80	36	30-60	41	40-75
7%	88	>80	61	>80	45	50-80	51	>60
9%	107	>80	73	>80	54	>70	61	>80

> = greater than
< = less than

AFFORDABILITY FOR FULL AND PARTIAL COST RECOVERY FOR NEW COMMUNITY DESIGN
AS MEASURED BY PERCENTAGE OF MONTHLY HOUSEHOLD
INCOME REQUIRED TO SERVICE MORTGAGE
(30-year mortgage, 10% down, level payments)

COST RECOVERABILITY

Type Dwelling Unit: Lot Type C (84.375 m^2 -1-1/2 lot units) Stage III (B+K)

Cost item (In Egyptian Pounds)	Full	Reasonable percentages	Project paper percentages	Reasonable and PP land cost
Dwelling Unit	2,721	2,721	2,721	2,721
Land	2,705	2,462	2,271	806
Infrastructure	6,932	4,245	1,796	4,245
Community Fac.	1,059	--	--	--
Design/ supervision	1,718	1,082	1,082	1,082
TOTAL	15,135	10,510	7,870	8,854

Monthly mortgage payment and household income percentile exceeded at varying interest rates	LE	Percentile	LE	Percentile	LE	Percentile	LE	Percentile
5%	73	>80	51	>60	38	40-70	43	45-80
7%	91	>80	63	>80	47	50->80	53	>70
9%	110	>80	76	>80	57	>80	64	>80

> = greater than
< = less than

AFFORDABILITY FOR FULL AND PARTIAL COST RECOVERY FOR NEW COMMUNITY DESIGN
AS MEASURED BY PERCENTAGE OF MONTHLY HOUSEHOLD
INCOME REQUIRED TO SERVICE MORTGAGE
(30-year mortgage, 10% down, level payments)

COST RECOVERABILITY

Type Dwelling Unit: Lot Type C (84.375 m^2 -1-1/2 lot units) Stage IV (B+K+R)

Cost item (In Egyptian Pounds)	Full	Reasonable percentages	Project paper percentages	Reasonable and PP land cost
Dwelling Unit	3,943	3,943	3,943	3,943
Land	2,705	2,462	2,271	806
Infrastructure	6,932	4,245	1,796	4,245
Community Fac.	1,059	--	--	--
Design/ supervision	1,718	1,082	1,082	1,082
TOTAL	16,357	11,732	9,092	10,076

Monthly mortgage payment and household income percentile exceeded at varying interest rates	LE	Percentile	LE	Percentile	LE	Percentile	LE	Percentile
5%	79	>80	57	>70	44	45-80	49	50->80
7%	98	>80	70	>80	54	>70	60	>80
9%	118	>80	85	>80	66	>80	73	>80

> = greater than
< = less than

AFFORDABILITY FOR FULL AND PARTIAL COST RECOVERY FOR NEW COMMUNITY DESIGN
AS MEASURED BY PERCENTAGE OF MONTHLY HOUSEHOLD
INCOME REQUIRED TO SERVICE MORTGAGE
(30-year mortgage, 10% down, level payments)

COST RECOVERABILITY

Type Dwelling Unit: Lot Type C (84.375 m^2 -1-1/2 lot units) Stage V (B+L+2R)

Cost item (In Egyptian Pounds)	Full	Reasonable percentages	Project paper percentages	Reasonable and PP land cost
Dwelling Unit	5,313	5,313	5,313	5,313
Land	2,705	2,462	2,271	806
Infrastructure	6,932	4,245	1,796	4,245
Community Fac.	1,059	--	--	--
Design/ supervision	1,718	1,082	1,082	1,082
TOTAL	17,727	13,102	10,462	11,446

Monthly mortgage payment and household income percentile exceeded at varying interest rates	LE	Percentile	LE	Percentile	LE	Percentile	LE	Percentile
5%	86	>80	63	>80	51	>60	55	>70
7%	106	>80	78	>80	63	>80	69	>80
9%	128	>80	95	>80	76	>80	83	>80

> = greater than
< = less than

AFFORDABILITY FOR FULL AND PARTIAL COST RECOVERY FOR NEW COMMUNITY DESIGN
AS MEASURED BY PERCENTAGE OF MONTHLY HOUSEHOLD
INCOME REQUIRED TO SERVICE MORTGAGE
(30-year mortgage, 10% down, level payments)

COST RECOVERABILITY

Type Dwelling Unit: Lot Type D (101.25 m^2 -2 lot units) Stage I (M+Boundary Wall)

Cost item (In Egyptian Pounds)	Full	Reasonable percentages	Project paper percentages	Reasonable and PP land cost
Dwelling Unit	1,914	1,914	1,914	1,914
Land	3,606	3,282	3,028	1,074
Infrastructure	9,242	5,660	2,394	5,660
Community Fac.	1,412	--	--	--
Design/ supervision	2,290	1,442	1,442	1,442
TOTAL	18,464	12,298	8,778	10,090

Monthly mortgage payment and household income percentile exceeded at varying interest rates	LE	Percentile	LE	Percentile	LE	Percentile	LE	Percentile
5%	89	>80	59	>80	42	40-75	49	50->80
7%	111	>80	74	>80	53	60->80	60	>80
9%	134	>80	89	>80	64	>80	73	>80

> = greater than
< = less than

AFFORDABILITY FOR FULL AND PARTIAL COST RECOVERY FOR NEW COMMUNITY DESIGN
AS MEASURED BY PERCENTAGE OF MONTHLY HOUSEHOLD
INCOME REQUIRED TO SERVICE MORTGAGE
(30-year mortgage, 10% down, level payments)

COST RECOVERABILITY

Type Dwelling Unit: Lot Type D (101.25 m^2 -2 lot units) Stage II (B)

Cost item (In Egyptian Pounds)	Full	Reasonable percentages	Project paper percentages	Reasonable and PP land cost
Dwelling Unit	3,284	3,284	3,284	3,284
Land	3,606	3,282	3,028	1,074
Infrastructure	9,242	5,660	2,394	5,660
Community Fac.	1,412	--	--	--
Design/ supervision	2,290	1,442	1,442	1,442
TOTAL	19,834	13,668	10,148	11,460

Monthly mortgage payment and household income percentile exceeded at varying interest rates	LE	Percentile	LE	Percentile	LE	Percentile	LE	Percentile
5%	96	>80	66	>80	49	50->80	55	>70
7%	119	>80	82	>80	61	>80	69	>80
9%	144	>80	99	>80	73	>80	83	>80

> = greater than
< = less than

AFFORDABILITY FOR FULL AND PARTIAL COST RECOVERY FOR NEW COMMUNITY DESIGN
AS MEASURED BY PERCENTAGE OF MONTHLY HOUSEHOLD
INCOME REQUIRED TO SERVICE MORTGAGE
(30-year mortgage, 10% down, level payments)

COST RECOVERABILITY

Type Dwelling Unit: Lot Type D (101.25 m^2 -2 lot units) Stage III (B+K)

Cost item (In Egyptian Pounds)	Full	Reasonable percentages	Project paper percentages	Reasonable and PP land cost
Dwelling Unit	3,762	3,762	3,762	3,762
Land	3,606	3,282	3,028	1,074
Infrastructure	9,242	5,660	2,394	5,660
Community Fac.	1,412	--	--	--
Design/ supervision	2,290	1,442	1,442	1,442
TOTAL	20,312	14,146	10,626	11,938

Monthly mortgage payment and household income percentile exceeded at varying interest rates	LE	Percentile	LE	Percentile	LE	Percentile	LE	Percentile
5%	98	>80	68	>80	51	>60	58	>80
7%	122	>80	85	>80	64	>80	71	>80
9%	147	>80	102	>80	77	>80	86	>80

> = greater than
< = less than

AFFORDABILITY FOR FULL AND PARTIAL COST RECOVERY FOR NEW COMMUNITY DESIGN
AS MEASURED BY PERCENTAGE OF MONTHLY HOUSEHOLD
INCOME REQUIRED TO SERVICE MORTGAGE
(30-year mortgage, 10% down, level payments)

COST RECOVERABILITY

Type Dwelling Unit: Lot Type D (101.25 m^2 -2 lot units) Stage IV (B+K+R)

Cost item (In Egyptian Pounds)	Full	Reasonable percentages	Project paper percentages	Reasonable and PP land cost
Dwelling Unit	5,291	5,291	5,291	5,291
Land	3,606	3,282	3,028	1,074
Infrastructure	9,242	5,660	2,394	5,660
Community Fac.	1,412	--	--	--
Design/ supervision	2,290	1,442	1,442	1,442
TOTAL	21,841	15,675	12,155	13,467

Monthly mortgage payment and household income percentile exceeded at varying interest rates	LE	Percentile	LE	Percentile	LE	Percentile	LE	Percentile
5%	106	>80	76	>80	59	>80	65	>80
7%	131	>80	94	>80	73	>80	81	>80
9%	158	>80	114	>80	88	>80	98	>80

> = greater than
< = less than

AFFORDABILITY FOR FULL AND PARTIAL COST RECOVERY FOR NEW COMMUNITY DESIGN
AS MEASURED BY PERCENTAGE OF MONTHLY HOUSEHOLD
INCOME REQUIRED TO SERVICE MORTGAGE
(30-year mortgage, 10% down, level payments)

COST RECOVERABILITY

Type Dwelling Unit: Lot Type D (101.25 m^2 -2 lot units) Stage V (B+K+2R)

Cost item (In Egyptian Pounds)	Full	Reasonable percentages	Project paper percentages	Reasonable and PP land cost
Dwelling Unit	6,806	6,806	6,806	6,806
Land	3,606	3,282	3,028	1,074
Infrastructure	9,242	5,660	2,394	5,660
Community Fac.	1,412	--	--	--
Design/ supervision	2,290	1,442	1,442	1,442
TOTAL	23,356	17,190	13,670	14,982

Monthly mortgage payment and household income percentile exceeded at varying interest rates	LE	Percentile	LE	Percentile	LE	Percentile	LE	Percentile
5%	113	>80	83	>80	66	>80	72	>80
7%	140	>80	103	>80	82	>80	90	>80
9%	169	>80	124	>80	99	>80	108	>80

> = greater than
> = less than

AFFORDABILITY FOR FULL AND PARTIAL COST RECOVERY FOR NEW COMMUNITY DESIGN
AS MEASURED BY PERCENTAGE OF MONTHLY HOUSEHOLD
INCOME REQUIRED TO SERVICE MORTGAGE
(30-year mortgage, 10% down, level payments)

COST RECOVERABILITY - BASED ON PROJECT PAPER SUBSIDY LEVEL

Cost Item (In Egyptian Pounds)	HNC	15th May	El Berka	Composite Informal
Dwelling Unit	3,622	4,085	3,149	2,000
Land	1,515 (84%)	--	--	1,050
Infrastructure	1,201 (26%)	--	(included with unit)	104[1]
Community Fac.	--	--	--	--
Design/ supervision	721 (63%)	--	--	--
TOTAL	7,059	4,085	3,149	3,154

Monthly mortgage payment and % household income percentile exceeded at varying interest rates	LE	Percentile	LE	Percentile	LE	Percentile	LE	Percentile
5%	34	30-60	20	<20-30	15	<20-25	15	<20
7%	42	40-80	24	20-40	19	<20-30	19	<20-30
9%	51	>60	30	25-60	23	<20-40	23	<20-40

1. Connections for utilities.
> = greater than
< = less than

AFFORDABILITY FOR FULL AND PARTIAL COST RECOVERY FOR NEW COMMUNITY DESIGN
AS MEASURED BY PERCENTAGE OF MONTHLY HOUSEHOLD
INCOME REQUIRED TO SERVICE MORTGAGE
(30-year mortgage, 10% down, level payments)

COST RECOVERABILITY - FULL COSTS EXCEPT FOR COMMUNITY FACILITIES

Cost Item (In Egyptian Pounds)	HNC	15th May	El Berka	Composite Informal
Dwelling Unit	3,622	4,085	3,149	2,000
Land	1,803	1,803[2]	1,803[2]	1,050
Infrastructure	4,621	3,235	1,360	656
Community Fac.	706	7,560	545	545[1]
Design/ supervision	1,145	--	--	--
TOTAL	11,897	16,683	6,857	4,251

Monthly mortgage payment and % household income percentile exceeded at varying interest rates	LE	Percentile	LE	Percentile	LE	Percentile	LE	Percentile
5%	57	>80	81	>80	33	25-60	21	<20-30
7%	71	>80	100	>80	41	40-75	25	20-40
9%	86	>80	121	>80	50	>60	31	25-60

1. Used same as El Berka.
2. Used same as Helwan.
> = greater than
< = less than

AFFORDABILITY FOR FULL AND PARTIAL COST RECOVERY FOR NEW COMMUNITY DESIGN
AS MEASURED BY PERCENTAGE OF MONTHLY HOUSEHOLD
INCOME REQUIRED TO SERVICE MORTGAGE
(30-year mortgage, 10% down, level payments)

COST RECOVERABILITY - TOTAL FULL COSTS

Cost Item (In Egyptian Pounds)	HNC	15th May	El Berka	Composite Informal
Dwelling Unit	3,622	4,085	3,149	2,000
Land	1,803	1,803[2]	1,803[2]	1,050
Infrastructure	4,621	3,235	1,360	596
Community Fac.	1,412	7,560	545	545[1]
Design/ supervision	1,145	--	--	--
TOTAL	12,603	16,683	6,857	4,191

Monthly mortgage payment and % household income percentile exceeded at varying interest rates	LE	Percentile	LE	Percentile	LE	Percentile	LE	Percentile
5%	61	>80	81	>80	33	25-60	20	<20-30
7%	75	>80	100	>80	41	40-75	25	20-40
9%	91	>80	121	>80	50	>60	30	25-60

1. Used same as El Berka.
2. Used same as Helwan.
> = greater than
< = less than

APPENDIX B: REVIEW OF "URBAN DEVELOPMENT STANDARDS AND COSTS"

In its terms of reference, the EST was asked to verify the figures of the PADCO report, "Working Paper on Urban Development Standards and Costs." As part of the review, a meeting was arranged with PADCO on February 14, 1982, to discuss the report with them.

Background

The report was submitted October 30, 1980, and subsequently typographical errors were corrected and minor additional changes were made. The data, gathered in the months previous, were derived from interviews with the various agencies and master plan reports. The consultant was told that subsequently all of the projects were reviewed and the information was updated in March-April of 1981. Part of the updated material that dealt with new towns was included in the October 1981 PADCO report, "New Towns and Satellite Cities, a Strategy for Deconcentration of Urban Development," as part of the ongoing AID-funded National Urban Policy Study (NUPS). The entire updated information of all projects was summarized, edited, and incorporated in the most recent NUPS study, "Urban Data and Urban Growth," which was not available to the consultants; however, it was indicated that detailed tables were prepared that included physical and financial data. Affordability studies of all the projects were developed, including the Helwan New Community. A previous internal working paper on affordability, focused on Helwan, had been prepared in February 1981 and submitted to AID.[1]

In summation, considerable updating and verification of the data have occurred, with the latest in April 1981.

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1. Copy received from PADCO, February 1982.

Changes

The primary changes in the report would include, in the case of Helwan, sharpening the population values to reflect the latest lot figures, which result in a 34,505 population at the initial stage (30,000 previously, a 15 percent increase) and 103,515 at the final stage (110,000 previously, a 10 percent decrease). All other figures change accordingly since per capita costs are one of the primary comparative bases. Updated costs from the April 1981 costs are included elsewhere in this report.

Issues

The work provides a clear point of reference for urban development in Egypt. At the macro-scale, it provides the necessary data form for effective policy determination. However, four general areas are suggested for further review, primarily when data are to be used for smaller scales of study:

- Length per unit area index to assist in determining layout efficiencies and resultant urbanization costs for smaller scales of development;
- Walk-up apartment layouts as opposed to lot/row house layouts, particularly in assessing residential land per capita;
- Aggregate values as opposed to item values; and
- Comparative scales of developments: smaller projects that are primary residential (such as the World Bank Projects) and large new town projects that include areas of specialized use (such as in the desert new towns).

Length per Unit Area

The primary index of costs and facilities used in the report is area based (units per square meter, etc.) and per capita based. For many components, these measurement indices are appropriate, but for linear elements the values become distorted; particularly for infrastructure (water, sewer, electrical network) m^2 measurements are limited. A linear value gives a better indication of the efficiency of a layout and recognizes that some layouts are inherently more costly than others. Only for streets, perhaps, can an

argument be made for use of m^2 measurements, but these can be readily overcome by use of a width factor. (See "basic indices" in review of physical design.)

It is suggested that length/area ratios be incorporated in future comparative evaluations.

Walk-up Apartment Layouts
and Lot/Row House Layouts

Reviewing projects with similar residential m^2/person (for example 15th of May - 17.5 and Helwan - 16.8, page 27 of report), the impression is given that they are similar developments. In addition, the open space per person (15th May - 9.0, Helwan - 10.8) gives the apperance that 15th of May is less well provided. A conclusion from these figures indicates necessary public maintenance will be higher in Helwan and increased budgetary resources would be required. Obviously, however, 15th of May has ample open space between the apartment units, and the reverse is probably true.

Land is basically divided into private land (sellable land that supports the remainder of a project) and public land (land under the responsibility of the government or its assign). Designating land around a walk-up apartment as "public" instead of residential (private) would readily clarify the situation, and would give more accurate cost parameters. Particularly in walk-ups for the low-income, maintenance is essentially nonexistent and any public open area rapidly degenerates.

Aggregate Values
vs. Item Values

In new towns, a sizable proportion of land is usually added for specialized purposes, for example, tourism and industry in 6th of October (51 percent of the land, Table 2). The addition of areas such as these provides little guidance in assessing an "efficient" plan and skews further values. Again in 6th of October, the sale of 51 percent of the land results in it being the only project to show a surplus (Table 22), but gives little indication of its cost effectiveness as compared to the other areas.

A parallel issue is that base values are taken as defined by each project. On an aggregate macro-scale, this is acceptable; with issues at the "neighborhood" scale the numbers prove not to be reliable, particularly in land consumption (Table 2). If we make comparison of the 10th of Ramadan residential areas (46.3 m^2/person) and 15th of May

(17.5 m^2/person),[1] it is difficult to reconcile the values, as both projects rely on walk-up apartments and are relatively similar. Similar problems occur in determination of other areas, particularly in "open space." This is noted in a footnote (page 24) in the case of 15th of Ramadan, but this issue prevails throughout the study. The only remedy is case-by-case evaluation and consistent definition of uses.

Comparison Between Scales of Development

The size of a project determines the range of public facilities required: the larger the project in population, regardless of area, the more additional public facilities are required. (A hospital can only be provided if the population is large enough, etc.)

The World Bank projects, the Ismailia project, and the other similar types all rely on adjacent facilities for the full range of public services. The new towns, self-contained and larger in number, must provide complete facilities and have lower residential area per capita and higher service area per capita. In a comparative examination of the tables, grouping by population would clarify further issues of new towns.

When a comparison of new towns versus projects adjacent to existing centers is not at issue, the following two bases are suggested:

- Grouped according to population. Similar sizes demand similar public facilities. This grouping allows a valid comparison of the level of provision of infrastructure. Smaller sized projects will generally be more economical in all aspects. However, in projects adjacent to existing cities, the new population may warrant additional facilities which are hidden by the relatively small addition.

- Compared through a representative "neighborhood" sample, or alternatively only by the total resultant areas when eliminating public facilities required by the aggregate size of the project. This allows the comparison of relative efficiencies of layout, infrastructure, etc.

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1. The issue is partially recognized in the report for the case of 10th of Ramadan, but not for others.

APPENDIX C: COMMENTS RECEIVED ON DRAFT REPORT

1. USAID Comments - Memo from Peter Amato to James Fay, date April 1, 1982.

2. GOE Comments - Memo from Arch. Mahmond Zaki, Vice Chairman, JHP, to Dr. Peter Amato, dated March 25, 1982.

3. BWN Comments - Memo to Peter Amato from John Flanagan, dated March 22, 1982, and letter from John Flanagan to Chairman Wakeel, dated March 15, 1982.

4. CHF Comments - Letter from Charles Billand to Peter Amato dated March 18, 1982. Also including attached memo from CHF team members Paul Gabele, Sawsan El Messiri, Jeff Stubb, Steve Silcox and from team leader J. Smit.

5. Memo from Dr. H. El Karanshawy to Mr. Peter Amato, undated.

DATE: April 1, 1982

TO: Robert Nathan and Associates
Attn: Mr. James Fay, Team Leader

FROM: Peter W. Amato, DPPE Project Officer, Helwan Evaluation

SUBJECT: Indefinite Quantity Contract, No. AID/SOD/PDC-C-0397
Helwan Evaluation

Comments on the draft submissions of the subject study have been compiled from our office and are submitted herewith. The JHP, PIU and their consultants have also prepared comments which are attached to this memo. These comments are submitted for your consideration in the preparation of your final report. As per my memo of understanding to Mr. Jim Fay, dated March 2, 1982, you will send back to me advice as to how you plan to respond to the comments contained herein. You will then have thirty days to submit the Final Report, thirty (30) copies to USAID Program Office to my attention, and thirty (30) copies to AID/Washington.

A. Expansion and/or Clarifications Needed

Chapter Six Answers to Questions

1. Response to Question No. 1 needs additional elaboration. The Scope of Work for the subject study defines the Project as consisting of two major elements (1) the new community and the MHE and (2) upgrading of several existing housing areas. Consequently, all references in the Statement of Work to the Project includes upgrading activities as well as new community activities. Further attention to the types of loans given to upgrading, the number of beneficiaries involved, and types and scale of upgrading activities presently underway is needed. In addition, conclusions as to the replicability of this type of activity and or suggested modifications would also be helpful.

2. Response to Question No. 2, p. VI-3, "unplanned effects of the project," needs to be amplified either in the text or footnoted. The actual cost figures which are used for the GOE five story walk-ups should be given. Are these for El Berka? What do they include? Are comparable figures being used including infrastructure, for HNC? A review of the Monthly Report dated 12/9/81 by the Arab Bureau, Cost Analysis, indicates 3 story build-out costs for the HNC ranging from L.E. 64.35 m^2 to L.E. 74 m^2 (see enclosed memo). It would appear that these figures are more relevant to use in comparing construction costs with El Berka 5 story walk-ups. It can be argued that although the initial owner may be charged a higher unit cost/m^2 the complete build-out would be less expensive and this savings would occur over time to the owner. We recommend that figures showing your comparisons be changed to reflect similar build-out costs for single story or 3-5 story walk-up apartments.

3. Response to Question No. 4, p. VI-48, "modifications to the Project," needs to be amplified concerning the issue of the vertical core build out as proposed by the JHP. The consultants need to consider the implications of the build-out proposal as regards unit costs in Question No. 2 above, total project cost, project goals, beneficiary impact and implementation timing. The issue of a major modification in the design of the project, which was discussed with the team members by the JHP and was raised again at the exit briefing, needs special attention and consideration in the Evaluation Report.

4. Page VI-18 - size of treatment plant? The physical environment is presented as an issue. It was only a transitory issue based upon a few comments in one meeting. The issue was resolved in the same meeting satisfactory to everyone.

5. Page VI-40 - Role of the steering committee vs. problems of project - particularly approval of reduced standards by GOSSD and CIDCO should be brought out.

6. Page VI-45 - Informal Housing/Costs - shows HNC higher. The consultants should reference that substantial cost savings are available in HNC provided beneficiaries elect serviced lot only and construction by "small informal contractors".

7. Page VI-48 3rd para - Implies 22 schools will be built by the project. The Implementation Plan indicates that only schools for initial population (7) will be built.

Body of Text

8. Chapter IV Project Cost and Affordability needs substantial rewriting. In particular, references under the urbanization plan to circulation length/area ratios needs clarification and perhaps some illustration. It is also suggested that large portions of this chapter may be put in an appendix.

9. Page III-6, explanation is needed as to why ABT income figures were inflated at 14% p.a. and why 25% of income was chosen for calculating housing expenditure (a target of 20% is used in the affordability analysis).

10. Table 3, p. IV-69, "Solution Construction Cost" - how does this compare with tables in Appendix A-4, 5, 6, 7 for lot type A?

11. Table IV 1-3 columns (a) and (b) circulation and open space for Berka 75% needs explanation (most of this area is unimproved desert). What are the data sources for El Berka? 15th of May? What is the urbanization primer?

12. Table IV-1-4 - What is the meaning of "standard column"? Footnotes need clarification.

13. Table IV-1-5 - Footnotes are needed to explain the amounts of public facilities included in informal areas. If little or none included, comparisons with other developments are not accurate.

14. Table IV-1-6 should be developed to include material on other case studies.

15. Page iv-22 - It should be pointed out that the argument raised to increase the number of additional lots is theoretical. Many of the spaces designated for "mini parks, public spaces etc." are left over spaces and may not result in additional lots per se. They may be added to the existing lots however.

16. Page iv-31 - If significant, the cost implications of saving a stair step in the house design should be given.

17. Page iv-32 - The discussion on frame vs. bearing wall construction needs some recommendations by the Consultant.

18. Page iv-35 - The advantage of the front boundary wall might be considered more "social" than "political" as noted.

19. Pages iv-38 thru 42 - The utility infrastructure section should spell out the reasons various cost savings innovations in the NHC project were rejected and by whom. What are the implications for achieving such innovations in other future GOE projects?

20. Pages iv-43-44 - The arguments presented here are at variance with the trade-offs presented in chapter 6 question 4 dealing with the appropriateness of the size and complexity of the project in meeting objectives. According to the statement on page 44, a smaller scale first project would jeopardize less and a larger scale second project may achieve more in terms of innovations and in meeting PP objectives.

21. Page iv-48 - The comment that costs have declined from the original estimates needs further explanation. Why is this so? Also statements concerning the under budgeting for the HNC home improvement loans needs further explanation. What is a realistic amount and how much extra resources could be directed to this effort?

22. Page iv-63 - The plot/mortgage/cost argument needs to be better explained.

23. Page v-16 - USAID internal memo should not be quoted as such. The sense of the memo might be given.

24. Tables a-2 at end of Chapter 5 - For actual costs charged to the project, HNC the total of 7059 is used. However, this figure needs explanation since all preceding tables for HNC use other figures. Other tables in this series also need to be footnoted, i.e, use of term "reasonable"? Also, are percentiles which are used bottom-up or top-down? Where does the cost data on 15th of May and El Berka come from?

25. Page III-2 - Method of indicating percentile levels either bottom-up or top-down should be used consistently. If both are used, they should be footnoted as to the reason for their use.

26. Table III-1 is insufficiently titled. It needs footnotes and should be better tied to the text.

27. Table IV-9 - Page needs to be better related to the text, and footnoted as to source for calculating gross and net densities. Page iv-10, - Net density in both neighborhood and community scale should be footnoted as to what each includes.

28. Page iv-13 - Explain why the proposed "index number" in para two is appropriate to this project.

29. Page iv-18 - Explanation needed as to where and between whom "much debate occurs..." Also reference needed on "new law...".

30. Page iv-34 needs rewriting - sentences starting "... of the areas surveyed..." and "the owners pay twice..." are unclear.

31. Page iv-65 - Best estimates or confidence levels on estimates in calculating affordability would be useful.

32. Page iv-69 - Summary chart needs to be better linked to text and titled. The mortgage amount that is being used for the calculations needs to be footnoted. Why is 20% used in this table as annual income of beneficiaries and 25% used in table on page III-6?

B. Overall Structure and Writing of Paper

While submission of the Executive summary helps to give the paper more focus, added attention should be given towards making each section more readable. The following points are suggested:

1. Summary and Background. This section should be brief, perhaps no more than 5-6 pages. Much of the material presented in the Background might best be placed in an Appendix. All aspects of the history of the project need not be traced thru in the body of the text. It would be more useful to have the main goals and purposes of the project highlighted in this section and all supporting documentation put into an appendix.

2. Body of Paper, Physical Aspects of Project, Technical. Basically, a rewrite is needed which gets at the important questions of what is planned, the issues raised and the options open for decision makers. The relationship of the Project with other examples such as the 15th of May, Berka and the Informal sector should be developed only in so far as the issues are clearly illustrated. Much of the present information can be put in an Appendix under physical design standards.

The section under Project Management, while written in a clearer style, nevertheless, still contains a great amount of material which might best be placed in an Appendix. This section should be forward looking and expanded to include more options for decision makers.

Project Cost and Affordability section needs to more clearly point out the question of affordability not only to the target income group as indicated in the PP but to the larger issues of replicability and to costs of other GOE anmd informal housing effoprts. Although much of this argument is contained in the section, it needs to be more clearly stated and supplemental information put in an Appendix.

ARAB REPUBLIC OF EGYPT

MINISTRY OF RECONSTRUCTION
AND STATE MINISTRY FOR HOUSING
AND LAND-RECLAMATION

JOINT HOUSING PROJECTS

جمهورية مصر العربية

وزارة التعمير والدولة للاسكان
واستصلاح الأراضى

الجهاز التنفيذى للمشروعات المشتركة

25 - 3 - 1982

To : Dr. Peter W. Amato
Project Officer, Helwan Evaluation
USAID, Cairo Center Building

From : Arch. Mahmoud Zaki
Vice Chairman - JHP.

In reply to your letter of 2,March1982 requesting comments on the submission of the evaluation report by Robert Nathan and associates, we are submitting herewith our comments .

While the overall evaluation is through analysis of the project , we believe that many points need to be better emphasized the language is too diplomatic . Our understanding that the targets of the project are :

A. <u>To Reduce the Cost of Housing Units</u>

By improving physical planning and site designs;providing smaller units; reducing infrastructure standards; using New Technologies; and upgrading the standards of workmanship and training .

B. <u>To Provide Improved Cost Recovery</u>

C. <u>To Encourage more Private Sector Involvement Economic Housing</u>

D. <u>To Develop A Project which Could Be Replicated in other parts of the Country</u>

Given the above targets, we beleive that the Consultants should clearly indicated how successful the project is or will be in meeting these targets . For example, the Consultants should emphasize the following :

1. The Project has not met target No. A. A reduced cost of building should have been introduced to meet this target . New Techniques of building should have been tried . Also the training component remains largily unfullfiled .

2. The question of improved cost recovery also remains in doubt.

3. On points # C/D, while it may be too early to answer this question, the Consultants should be more clear, to replicate . The Project, an economic vertical core unit needs to be introduced in the Project built at the least cost with the greatest cost recovery over the shortest time period . The present approach will not meet this need .

4. The issues of Consultant relationships with the JHP/PIU should be stressed. Several problems have arisen over time between the consultants and JHP/PIU which have delayed implementation of the project . These have not been raised in the evaluation . In particular , the role which USAID should play in resolving these issues should also have been raised .

5. The poor timing of needed consultant input which has delayed many portions of the project should have been discussed. The role which AID should have played in assisting consultants find appropriate personnel also should have been raised .

6. The issue of the slow payments by AID in meeting certain project cost and the problem which this has caused in postponing & delaying various parts of the project should be raised .

7. The issue of project management and the need which we feel for some form of joint-venture under " One Roof " also should have been raised by the evaluation .

We realize that it may be too late for all our points to be fully incorporated into the consultant's final evaluation report. If this is the case , we would hope and expect that our point will be appended in the final report .

Mahmoud Zaki Ali 23/3/1982
Arch. Mahmoud Zaki Ali
Vice Chairman
JHP

CC: Mr. Dangler USAID.
Chairman - JHP.
General Manager - PIU.
Mr. I. Shiri -
Mr. S. El Essawy .
CHF .
BWN .

MEMORANDUM

BASIL·WBTL·NASSAR
joint venture

To : Peter Amato
From : John Flanagan
Subject : RRN/MIT Report
Date : 22 Mar 82

HELWAN NEW COMMUNITY
PROJECT OFFICE

Herewith BWN comments on the RRN/MIT Report.

A very important item, BWN considers, is to rectify the statement that public sector companies can construct apartments at the rate of LE 65 per square meter including infrastructure. This point is emphasized in the attached letter to Chairman El Wakeel.

The second item which I would like to draw your attention to is in Chapter II page 6, which discusses the: "chastising of BWN in August 1980 for producing only one plan". As explained in the text, BWN's understanding was that a preferred plan had been indicated in the June 1980 meeting from the ten alternatives presented at that time by BWN. The chief spokesman of the Planning Review Board in June 1980 was Dr. Abdel Baki Ibrahim of COPA. BWN related to his comments and also met with him at his offices in Heliopolis to discuss further his feelings on the preferred plan. To our very considerable surprise, the Planning Review Board which reviewed our work in August 1980 was no longer the same group as in June and Dr. Abdel Baki was no longer a part of the Committee. BWN thus had to relate to virtually a new set of people who had entirely new ideas and as a result of this we had to develop three plans in order to try and include a whole new range of thoughts on the Urbanization Plan that the new members of the Planning Review Committee had.

As stated in our covering letter to Chairman El Wakeel, BWN considers the RRN/MIT Report an excellent document and the best of its kind that we have seen.

With best wishes,

John Flanagan

John Flanagan

HELWAN
NEW
COMMUNITY
PROJECT OFFICE

AL GAZAYER STREET, SIXTH LINE, NEW MAADI, CAIRO
TELEPHONE: TELEX:
ADDRESS REPLY TO: P.O. BOX 322 MAADI, EGYPT

15 March 1982

Arch. Hamid El Wakeel
Chairman JHP

Ministry of Reconstruction
And State Ministry for Housing
And Land Reclamation
Joint Housing Projects Executive Agency

Our ref: 716

Dokki, Cairo
Egypt

Re: Robert R. Nathan Associates
Report dated February 1982

Dear Arch. El Wakeel,

BWN is pleased to have had the opportunity of reviewing the referenced report. It is the best report of its kind that we have seen to date, and we are most impressed with the volume of work accomplished in such a short time.

Attached are BWN's comments on the report, many of which are minor and merely make corrections for the record. However, one very important item that needs clarification is a statement on Page VI-3 that: "GOE currently is constructing five-storey walkups at a total cost, including infrastructure, of LE 65 per square meter. The cost of HNC...would be around LE 110 per square meter".

BWN's cost data suggests that the LE 65 quoted is a direct cost and does not include such items as overhead, profit, Decennial Insurance (because the Government is its own insurer), depreciation of equipment, etc. Discussions with private sector contractors working in the Cairo area confirm that the total cost per square meter, including infrastructure, is at a minimum of LE 100 to LE 110 per square meter: however, a direct cost of about LE 65 was considered realistic.

In view of the foregoing, it is recommended that this section of the Robert R. Nathan Report be revised accordingly.

Sincerely,

BASIL-WBTL-NASSAR

John Flanagan

John R. Flanagan
Program Manager

Enclosures:
As stated

cc: w/encls.
USAID, Mr. Peter Amato
BASIL/Athens, Mr. Pete Boyaci

Helwan New Community

REVIEW COMMENTS ON ROBERT R. NATHAN ASSOCIATES
EVALUATION REPORT, dated February 1982

PAGE	COMMENTS
II-5	The last two lines on the page should read: "That BWN level of effort for Phase I increased by about 100% or 100 manmonths and that the work lasted around 10 months".
II-6	The first paragraph contains, among other sentences, the phrase: "BWN... had expected to receive quick approval of their plans but instead were severly chastised by Chairman of the JHP Bendari...major criticism was that BWN presented only one final plan, rather than a number of alternative plans...".
	In BWN's Report on Phase I (which was issued in February 1981) it was explained that the original Scope of Work did not provide for any review of the Urbanization Plan prior to delivery at the end of the fourth month of work. However, during the April 1980 data-gathering visit to Egypt BWN was advised that preliminary plans, in fact, should be presented. In accordance with this directive ten alternative plans were offered by BWN at the June presentation.
	During the series of meetings between 17 and 28 June 1980, Dr. Abdel Baky Ibrahim of COPA was the chief spokesman of the Planning Review Committee, and BWN reacted primarily to his views and comments. In addition to the meetings with the Planning Review Board, BWN (Danforth W. Toan and John R. Flanagan) met with Dr. Abdel Baki at his offices in Heliopolis to clarify the various comments that had been made on our plans and to discuss in more detail with him what BWN understood to be the preferred plan.
	It should be noted that the majority of the working sessions between BWN and the representatives of MOH took place with the Planning Review Committee rather than the PIU/FCH. At the final definitive meeting on 28 June 1980, neither the PIU nor FCH were represented, yet the review comments which BWN finally received were from the PIU/FCH rather than the Planning Review Committee.

After the final meeting on 28 June 1980, the BWN Planners returned to their home office and proceeded to develop the preferred plan. This was presented on 18 August 1980 to the Planning Review Committee. However, the Planning Review Committee at the 18 August Meeting was not the same Committee as in the previous June. Dr. Abdel Baki was no longer part of the committee nor was Arch. Gamal Shohayeb nor Arch. Michel Fouad. New members of the Planning Review Committee included two representatives from the Arab Bureau, and the PIU and FCH had become an active part of the Committee.

After the series of meetings in August, the MOH representatives expressed disappointment that there were not a series of alternative plans to choose from. Evidently there had been a misunderstanding at the June meeting because BWN had proceeded on the basis that a preferred alternative had been selected in June and that all subsequent efforts should be concentrated on the selected alternative.

In order to reconcile these various view points, and also to incorporate the new ideas of those memebers who were now part of the Planning Review Committee for the first time, BWN brought their planners to Egypt to work in the BWN Project Office in New Maadi until a plan, acceptable to all parties, could be evolved.

BWN selected three basic philosophies for the plan and developed three alternative designs which were presented on 25 October 1980.

II-22 The last item refers to changes in the design of the electrical system. The term used, "required change", could imply some error in the design of the orginal electrical system.

BWN, in the early days of the job, tried to introduce economy into the utility systems, including the electrical, but without success. As a result of a resistance to the various suggestions made, BWN proceeded to design the electrical system in accordance with standard American practice. The electrical distribution system which BWN designed for the Helwan New Community was comparable to, say, Levit Town in New York or to a large sub-division development in southern California. For many reasons this was not acceptable to CEDCO. As a result the system has been redesigned, at CEDCO's direction, to a rather complex one costing considerably more money.

IV-5 Mid-point in the third paragraph: "AB architects expressed doubts about whether the area (Zone D) should be developed at all".

Certain Arab Bureau architects expressed concern about the problems in developing Zone "D". During the latter part of 1980, BWN made a study which was shown to the AB as to how the area would be developed. A certain scepticism has persisted because, it should be noted, hillsides are generally not developed in Egypt and most communities are located on level ground. Although examples of California hillside sub-division and various developments in Europe were cited, a certain scepticism remains.

IV-6 Development of the Plan was not perceived by BWN to be a routine assignment. BWN reviewed over 30 reports and studies, both socio-economic and demographic, in addition to ES-Parsons studies and the Project Paper. The time deadline of four months was initially considered to be absolutely mandatory, and all work had to be compressed into this time frame. As a result, doing the actual drawing in New York was part of the contractual agreement as being the most cost-effective manner of execution.

The analytical studies referred to in this section involved topics introduced by consultant Egyptian planners and were generally at variance with the Project Paper which had in many aspects been repudiated by MOH in such items as density, lot sizes, numbers of lots, schools, etc.

IV-17 The design development process was impeded by lack of consensus between JHP and AID regarding density, schools, lot sizes, etc. The proposed Egyptian standards inevitably exceed those established by the Project Paper and AID. Further progress was hampered by the late appointment of the Arab Bureau (in August 1980) and the resultant debate about lot sizes which continued to several months.

IV-11 Negative comparisons with the informal sector, which lacks schools and virtually every other public amenity and facility, seem inappropriate.

IV-14 All during the planning phase BWN tried to convince MOH to accept semi-private courtyard clusters as a means of placing additional land in private responsibility. However, JHP and the Planning Review Committee prefered mini-parks as they considered them to be more manageable.

IV_15 BWN does not know where the informal density of 1770 was achieved. Perhaps in Embaba but certainly not in Helwan.

IV-16 Density was the major concern and was a topic of continuous debate for eight months. It will be recalled that Jack Smit (FCH) asked BWN in July 1980 to determine family sizes, etc., estimating that the eventual population would exceed 160,000. The eventual densities finally adopted were accepted principally as a matter of form so that the numbers of schools projected would agree with anticipated school population.

IV-18 The tram relocation was finalized in November 1981, altering the originally approved routing. The new alignment is the best of several alternatives. Its deleterious effect may not be as severe as the reviewer implies, if one considers the extent of bus transportation through the community.

IV-21 The 'left over' space and courtyard which emerged in the final plan were required by PIU/JHP as preferable to the original semi-private courtyards.

IV-23 The semi-private courtyards were not abandoned for reasons of adjustments to the site and lowering of densities, but were thought by MOH to be less manageable.

IV-24 The average block length was also greatly influenced by neighborhood organization of schools, mosque, church, and shipping areas as well as terrain.

IV-25.26 The reviewer might have recognized that the lack of agreement between the various parties as to appropriate lot size etc., left the BWN Planners with an almost impossible disagreement on the essential issue. If we add in the Arab Bureau's desire for lots of 150 M2 and AID's insistance on 50 M2 lots, the magnitude of the disagreement can be appreciated.

It is suggested that the following be incorporated under Section III "THE UTILITY INFRASTRUCTURE" which begins on Page IV-38 of the Report.

IV-38 Concerning the objective of the Project Paper to provide lower but adequate standards of utility services, it should be noted that among the proposals made by BWN in the early days of the Project was to eliminate electric meters and bill the people on a flat rate as is done in many low-cost housing projects in other parts of the world. This is an extremely cost effective method, because it saves in the first instance many millions of dollars worth of electric meters, and further saves the on-going administrative costs of meter reading and billing of individual users. In the system proposed by BWN, the user would buy a ticket from the local representative of the Power Authority which would entitle him to use electricity for a month. A trip breaker would prevent him from using electricity at greater than a certain rate. This idea was rejected by the Electric Power Authority and BWN was told to abandon it.

The second item which again would have resulted in a very considerable savings to the Project would be the elimination of water meters. Here again the charge would be made on a flat rate and a pressure reducing valve provided at each outlet to ensure a reasonable, rather than excessive, rate of water usage. Again, this idea was rejected.

Concerning minimum standards for infrastructure, after much research, BWN evolved a set of minimum infrastructure standards which they considered would meet the requirements of the Project Paper at minimum cost. Ultimately BWN set as their objective the acceptance by the Egyptian Authorities of current American standards for electricity, water, and sewer. However, to date BWN has been unable to gain acceptance by the Egyptian Authorities and as a result, the sewer system is costing 20% more than a comparable American design, and the electrical system is costing upwards of 60% more. Despite repeated meetings, studies, etc. BWN has been unable to overcome this impasse and has proceeded to design utility systems as directed by the local authorities rather than in accordance with what BWN feels is appropriate.

Note: Attached is a copy of the GENERAL ORGANIZATIONAL AND FUNCTIONAL CHART which was part of BWN's Work Management Plan. As can be seen, BWN had no direct access to the Arab Bureau or FCH in accordance with instructions from the PIU.

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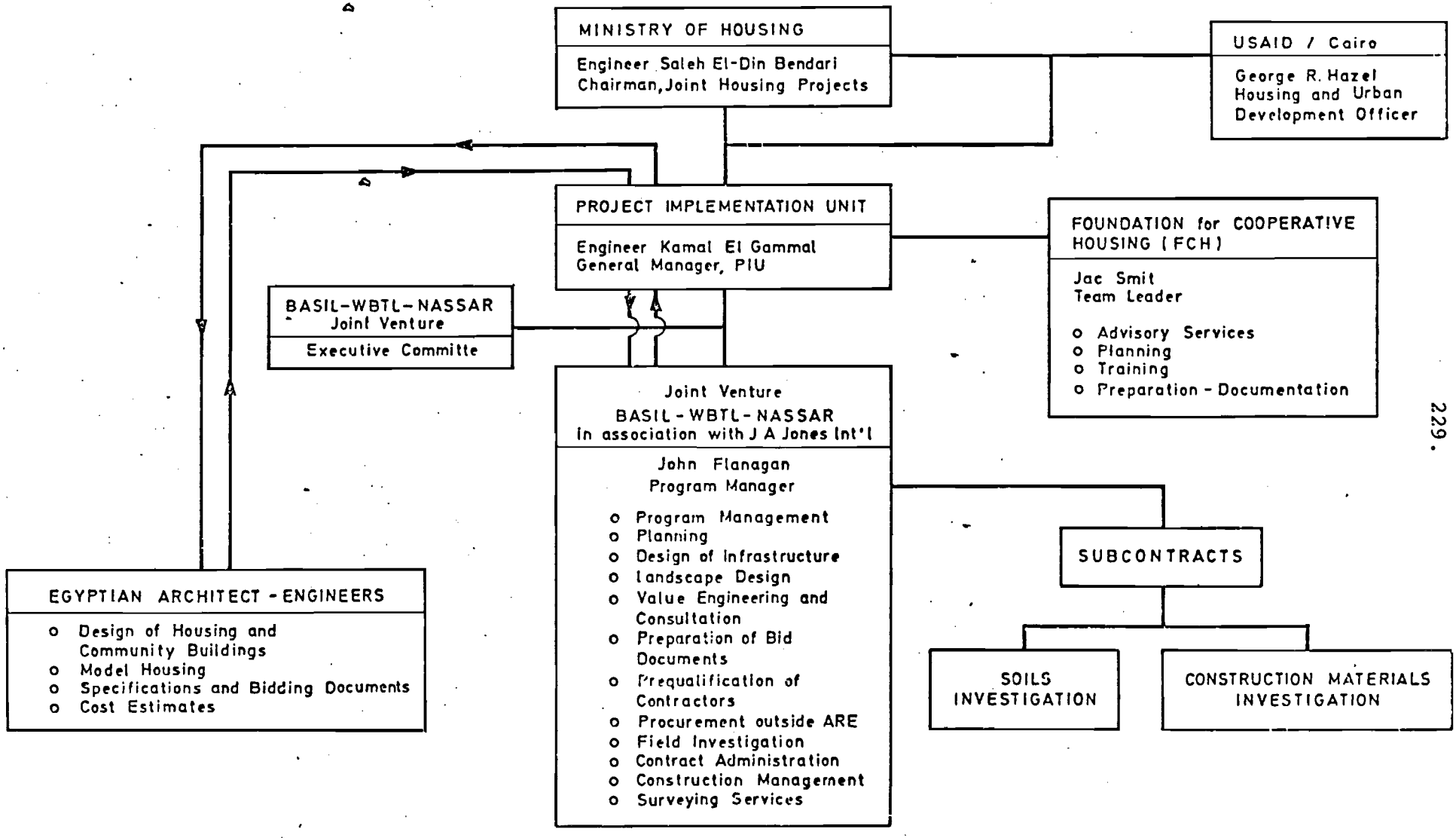
Helwan New Community
4.2 GENERAL ORGANIZATIONAL and FUNCTIONAL CHART
Design Phase



CHF INTERNATIONAL, INC.

Cairo, March 18, 1982

Mr. Peter Amato,
USAID,
Cairo

Dear Peter,

Attached for your reference are edited versions of the CHF team member individual responses to the Evaluation Report.

I personally, very much appreciate your efforts toward assembling a fine study team, establishing a good range of terms of reference, and supporting the team's efforts in carrying out a difficult assignment on a complex project. In general, we find the report to be comprehensive, to the point, and focused upon the proper impediments to more timely implementation. Our more specific detailed analysis and comments are incorporated into the attached individual CHF team member comments.

Of premier importance to us is what are the next steps! The report has served to highlight some issues which demand additional discussions to reach a concensus on the future direction of certain program components. We sincerely hope that these discussions will begin soon.

In the meantime, please let us know if we can assist you on the report in any other fashion.

Very truly yours,

Charles Billand,
Team Leader

cc: Arch. Hamid El Wakeel, Chairman, JHP
Arch. Halim Scander, Acting General Manager, PIU
CHF Staff
CHF Washington

Encl.: Steve Silcox memorandum
Dr. Sawsan El Messiri memorandum
Jeff Stubbs memorandum
Paul Gabele memorandum

CHF INTERNATIONAL, INC.

MEMORANDUM

TO : Charles Billard

FROM : Paul Gabele

RE : Project Interim Evaluation Report - Comments

DATE : March 18, 1982

In general, I find this evaluation report to be an accurate, sensitive and timely assessment of project progress to date. Understandably, the evaluation team has placed a major emphasis upon the HNC, in fact underlining the general interest and controversy generated by this major hardware component of the overall project design.

Although I find little fault with the EST findings, aside from detail comments, there is one section of the report which, in my opinion, is out of context with all previous project documentation, and contracts. This misinterpretation exists in section V-2, regarding CFE. The entire section (from page V-13 to V-17) leads the reader to believe:

1) The CFE administers the HIP--both in upgrading and in the HNC. (p. V-13, V-14).
2) Reinforces this belief by presenting the PIU technical inspector staffing and reassignment problems, as a problem to be dealt with under the CFE section.
3) The CFE is not permitted a strong enough role in the implementation of the program.

This latter misinterpretation, perhaps, reinforces the first two by indicating what the CFE would prefer as their role in the program.

The following represents my individual comments on various details of the preport:

Page II-18, para 1 - no reference is made to the original June 1980 Implementation Plan for the Community Upgrading Program--this plan contained all the schedules for the CHF scope of work.

P. II-18, para 3 - true, the first individual upgrading implementation plan was submitted in February 1981, but the overall plan was complete in June 1980. Phasing was recommended as a logical approach (and still is) considering the staffing and management problems--there were little or no social or HIP staff within the ranks.

Page II-19, para 1 - "...instances of FCH task accomplishments are difficult to find."... see Implementation Plan referred to above.

Page II-20, para 2 - It is my understanding that the PIU required an Arabic speaking Social Development Advisor.

Page II-21, para 3 - A, B activities were less controversial because simply, their contract was not begun until August 1980.

Page II-24, para 3 - should read: "..and a full scale HIP commenced in Rashed in mid-1981."--after "Izbet Zein".

Page II-25, para 4 - should read: "... community center/vocational training school and primary school are under construction and plans for a health facility are at the implementation stage."

Page II-27 - delete--repeat of pp 24-26.

Page IV-5, para 4 - Is the question of a reduction of infrastructure costs attributable to easier site conditions or of bidding procedures?

Page IV-11, last para - comparing land use observations, upgrading comes on top--why then discuss, cutting the upgrading program?

Page IV-21, para 3, planting was eliminated from the MHE for simplicity of tendering, not for "economic measures."

Page IV-31, para 2 - no mention is made of the Arab Bureau/ECG "new technology" models in the MHE, presently testing new steel pan w/conc. infill floor/roof systems.

Page IV-32, para 3, - should read: "estimated, bearing wall to be a 30% savings over frame construction..." concrete frame has been discarded by JHP and AB as being"too expensive". This was verified by CHF interviews with informal contractor.

Page IV-33 - Nothing is mentioned of the A-B proposed standardized core designs. CHF has always advocated the inbuilt design control limitations of bearing wall construction (3-4 storeys)--questionable whether any further vertical build-out and consequent increase in density is desirable for the HNC.

Page 36 & 37

Page IV-36 & 37 - The expanded MHE was envisaged as a testing ground for neighborhood and community planning concepts and the demonstration of housing buildout potential to which USAID (Dangler letter) agreed.--see files.

Page IV-46 - Home Improvement Loans, Current Estimates--the US$ 4,000,000 is not correct--see CHF comments on USAID Implementation letter No. 14 and derived allocation budget in October 1981 Implementation plan.

Page IV-58, last para - should read: "...Cris Banes".

Page V-2, para 2 - These statements re lack of steering committee by the EST and JHP Chairman are inconsistant with the problems of high standards demanded by the utilities and services agencies.

Pages V-9 and V-10 - there are discrepancies in JHP/PIU staffing numbers here-- "overall strength of 150" yet "PIU staff far short of the 122".

CHF INTERNATIONAL, INC.

MEMORANDUM

TO : Charles Billard, Team Leader

FROM : Sawsan El Messiri (Dr.)

RE : Comments on Evaluation Report

DATE : March 18, 1982

In general, I find this report an objective evaluation of a very complex project. They were rather over-diplomatic in addressing the problems and obstacles in this project, but in a way this is a constructive strategy for an on-going project.

I would like to concentrate my comments on section V-2 "Credit Foncier Egyptien" since I had a very close working relation in HILP since the very beginning.

The common understanding of the role of CFE among all parties in the project (USAID, JHP and PIU) was that CFE was to serve as the Financial Administration Controller for the project as well as to participate in implementing a HILP with PIU. They were the financial advisors to PIU and JHP, while PIU was the actual implementor of the program.

Initially, CFE was hesitant to develop the credit criteria to achieve the objective of reaching the low-income group in processing loans. They continue to have a conventional view and conservative procedures in implementing the program. The only way for the program to proceed was by giving PIU full control of administration. As far as the replicability aspect CFE might not be a good choice. Other banks are less conservative, and other internation experience indicates the necessity of the public sector involvement in implementation.

CHF INTERNATIONAL, INC.

MEMORANDUM

TO : Charles Billand

FROM : Jeff Stubb

RE : Comments on Interim Evaluation Report by Robert A. Nathan and Associates, dated February 1982.

DATE : March 15, 1982

Overall, this is a good report that should be useful in helping the Project move ahead. I found Chapter V, Management and Work Flow Process, particularly good. The design sections were also good as were the action recommendations of Chapter VI.

Without knowing the Terms of Reference, I cannot evaluate the report per se, but I would make the following comments on the factual aspects of the report.

p. II-19 para 1, line 3, should read:

"Other areas of specific FCH task accomplishments include the development of financial arrangements for the home improvement loans, and the preparation of a first implementation plan for the Upgrading program."

p. II-27, last para, last line, is incomplete.

Chapter III, should reference CHF data on Helwan Factory workers.

p.III-4, para 2, last two lines, should read:

"CHF data show Helwan factory workers to have substancially lower household incomes than Cairo as a whole".

p. IV-5, para 3, last 2 lines, dealing with "balanced cut and fill" do not make sense.

p. IV-34, para 1, last 2 lines: Helwan is not in the higher income groups (see above).

p.IV-50, para 1: The HILP funds specified are totally inadequate and should be increased substantially.

P. IV-58, last para, line 1, rate also BWN "Study concerning Affordability, subsidy, etc." based on MHE construction costs that showed possible cost reduction of 37 percent.

2/...

p. IV-60, para 2, the opportunity for cost reduction due to increasing the proportionate amount of lot area is in my opinion potentially greater than the savings due to increased block length.

p.IV-61, Table 5, Comparison Summary: What is the point of this Table? I am pretty sure, I could push HNC infrastructure costs down still further, through both more efficient layout and reduced standards. (See BWN and Banes studies). Note also this table includes no allowance for design/supervision, overhead or the opportunity cost of capital.

Section IV-4, Affordability Analysis, This section is a difficult one to write, since the "mix" of house types has not yet been decided. Therefore, the paper must deal with potential affordability, given an appropriate "mix" of house types.

The affordability analysis appears in spite of detailed cost estimates in the appendices based upon the statement that costs have escalated at slightly more than anticipated in the PP, while incomes have escalated at a rate equal to or greather than the escalation cost factors in the PP (p. IV-64, para 3). If this is the central argument, it should be documented better.

A very important point is missed. It is that the PP units were expected to be of constant lot size (50-65m2) and variable house design. Presently, the lot sizes vary from 56 to 101m2, and house designs vary also. Thus, the plot standards have crept upwards substantially. Affordability can be maintained only by cross-subsidy from the market rate lots.

p.V-14, para 2, CFE is to provide additional loan funds, which could presumably be used as bridge finance or mortgage/home improvement loan finance. However, CFE has expressed reservations about committing such funds due to questions of recoverability and their provision must be considered problematic.

p. V-17, Title V-3, should read "CHF" not "CFE".

Appendix A - Table A-2, is poorly documented. It is unclear from the table whether the unit costs are costs, or prices. If costs, it is unclear what they include. The cost of the two-room, 32.8m2 HNC house should be LE 3,714 (see Arab Bureau Monthly Report of 12.9.1981), not the LE 3,622 shown.

The four tables for HNC - lot Type "A":

Stage V	(BK2R)
Stage IV	(BKR)
Stage II/III	(B/BK)
Stage I	(MW)

Use unit costs for the dwelling units that are not familiar to me, undocumented in the text, and contradict other figures. For instance, the cost of the Stage V unit of LE 2,374.- is less than the costs of both the Arab Bureau and used in other parts of the text by EST.

Chapter VI, Page VI-3, para 2 and 3, I disagree strongly with the implication that the cost of the project is greater than other GOE projects. It is true that GOE is now developing projects that will be competitive with HNC on a cost basis, but overall the project does not compare unfavorably.

Page VI-3, para 3, The cost of El Birkhha is presented in Table A.2 as LE 79/m2, and that figure may be net of design/supervision costs. It is noted in the text that the reviewer was uncertain whether stairwell area was included. Thus, the cost range could be from LE 63/m2 to LE 105/m2. The data on El Burkka, presented as sound and strong in meetings, appears to be as subject to uncertainty as most such cost data in Egypt.

SUMMARY

Most of my comments are concentrated on the affordability/feasibility sections of the report. In this area, the report needs careful editing and structuring of the argument. The EST team would have benefitted from more contact with ours. The cost comparisons with other projects remain unconvincing--something that I suspect was probably given the time available and lack of familiarity in Egypt of the team members. The cost reduction analyses were good, but could have been more complete. Again, however, without seeing the TOR I cannot comment further.

Since cost comparisons will be a crucial aspect of the project evaluation, for AID, I suggest they recruit a cost analyst to make an appropriate study. Such a study was done in Korea before a program evaluation mission, and it proved a key source of information for the mission.

CHF INTERNATIONAL, INC.

March 14, 1982

To : Chuck Billand, Team Leader, CHF

From : Steve Silcox, Cooperative/Community Organization Advisor, CHF SCS

Re : Comments on Draft R. R. Nathan Interim Evaluation Report

Page No.	Item
II-18	Last sentence - Actually, an upgrading implementation plan for all six areas was written by Mona Serageldin of Nash- Vigier and submitted by FCH in June 1980. It was resubmitted to USAID by Eng El Gammal in September 1980 with changes requested by USAID. However, this plan was never approved by USAID. CHF then decided to submit implementation plans on a site-by-site basis and submitted the first one on Arab Ghoneim in February 1981. Arab Rashed and Izbet Zein were subsequently submitted in May 1981 and June 1981 respectively. USAID did not approve any of the three until September 1981.
II-24	Footnote No 3 - A CHF memo on this issue is currently in preparation and will be submitted to the PIU by April.
II-24	4th paragraph - The Rashed community center expansion is now virtually complete and the vocational training program began this week. The primary school is under construction - foundations are nearly complete.
III-3	2nd paragraph - I believe that the ABT report was accepted in final form by USAID in January 1982.
III-4	2nd paragraph - I believe that the CHF data corroborates the ABT data rather than the NUPS data, although further analysis could be necessary.

IV - 27 — 2nd Paragraph - Please note that the final plan has not 10 but 20 neighborhoods. The JHP made the decision that each neighborhood would have a basic school and would share a mosque with another neighborhood when they accepted the land use plan in December 1980. BWN's labels for the 10 development areas are BN1, BN2, etc. BN stands for Bi - Neighborhood. Section IV of this report should be revised with this in mind.

IV - 63 — 1st Paragraph - I would suggest that the EST check the date the LE exchange rate officially (by the A.R.E.) changed from . 7 L.E. to .8 LE per dollar. I believe that occured late in 1981, not 1978.

V - 11 — 2nd Paragraph - The problem in developing a comprehensive training program is not due to lack of initiative or desire on CHF's part (the CHF contract states in Appendix A- Scope of Work, page 2, under Training, that CHF will "Assist the PIU to identify specific training needs as part of the preparation of the project implementation plan". It is rather due to -

1) The JHP/PIU's refusal in the past to allow a CHF training expert to perform a short-term consultancy to accomplish this task because the JHP/PIU did not see the need for it, and
2) USAID's refusal in the past to approve such a consultancy that would utilize training funds currently under USAID's sole control.

Approval has now been received from both parties as of this month and a CHF consultant will perform this task during March/April 1981.

V - 24 — 2nd Paragraph - To be exact, CHF requested reimbursement for 2 months services for Mills only. I began work with CHF on this project on February 1, 1980 and arrived in Cairo on February 11, 1980.

VI - 20 <u>3rd Paragraph</u> - This paragraph confuses a paper prepared for the HNC with upgrading efforts. A great deal of effort has gone into strengthening community associations in Rashed and Ghoneim. Community organizations in both Rashed and Ghoneim have received direct grants to construct community facilities. These organizations have also been heavily involved in the design and coordination of a number of upgrading activities.

VI - 28 <u>3rd Paragraph</u> - See comments on V - II above.

VI - 28 <u>4th Paragraph</u> - The factory workers income data was first collected in September 1980 (See FCH Financial Analysis and Evaluation of Urbanization Plan Alternatives, October 1980, pp. 7-13). This data was updated in July 1981 and more recently in January 1982. In all cases, the data was obtained directly from the personnel offices of Helwan factories.

VI - 48 <u>2nd Paragraph</u> - Community facilities are already being phased. (See Implementation Plan, Community Facilities, No. of units, p. 33)

VI - 48 Another possible modification would be to cut back on the development of Zone D of the HNC and to use the cost-savings for other successful program elements. The topography and tramway reallignment to the south boudary of the project gravitate toward this alternative.

VI - 51 Immediate Action Issues -

No 1 - CHF has obtained approval from both the JHP and USAID to do this. A CHF short-term consultant shall perform this task in March/April.

No 8 - This item confuses two different papers. The 1st paper on the HNC community organization plan will be approved by the JHP this month and does not require USAID approval. The second paper on upgrading status and recommended future program activity is now in preparation by CHF and will be submitted to the JHP for approval in April.

Conclusion

I found the report to be a very good and useful document overall. It has dealt very objectively with a very complex project with a large number of actors. With some relatively minor exceptions I found the report to be an excellent report on the status of the project and it cited most of the major impediments (past and present) to project progress. I commend the EST on a job well done.

APR 12 1984

Cairo, March 21, 1982

TO : C. Billand

FROM : J. Smit

RE : Draft 263-0066 Interim Evaluation Report ~~(IRE)~~ /ER

I would like to comment on the report's reference to my dismissal (II-19) and CHF's participation in the Helwan New Community (HNC) site plan (Urbanization plan) during 1980 (V-20 and V-21). And to note a few other points for clarity. It is my hope that this memo will be useful to you in preparing the CHF official response to the ~~IRE.~~ ER

II-19 - Smit Dismissal

This subject is thorouly described in the letter of Charles Dean to Jac Smit of late August of 1981 and in the letter of Hamid El Wakeel to Charles Dean of a few days later. I believe it would be considerate to reference these letters and to include them in the annexes. They are in my personal file, with you. also in DC

The significant element of these letters is that neither of these executives have any criticism of Smit's professional work nor is there any hint of Smit behaving irresponsibly. The statement in the report could be misinterpreted.

V-20/V-21 - HNC Site Plan

It was clear to me in June 1980 that the "critical path" to the mortgage program and the housing cooperatives, which are major CHF responsibilities, was through the HNC site plan and the Model House Estate (MHE). I believe that the findings of the evaluation study team, which indicate that the Sites and Services portion of the project is further behind schedule than the Upgrading portion, historically confirm the view which I expressed in June 1980, and thereafter.

Repeatedly from June through October CHF was requested by the PIU and JHP to provide BWN with inputs for their planning and to assist PIU in evaluating the HNC site plan. The JHP and

CHF approved work plans and a short term expert for this effort. The planning and review functions of CHF regarding the site plan from June to October 1980 were responsive to a perception of the strategic importance of this work and to the requests of JHP and PIU.

In addition to the concern for project progress (along the critical path) was a concern that if the site plan were not appropriate, that the detail engineering would proceed to a point where changes could not be made and project objectives would have to be abandoned. Central to the concerns were CHF responsibilities for affordability, cost-recovery, cooperatives and community services. These concerns directly relate to the professional and contractual assignments of the Urban Economist/Planner Advisor, the Cooperatives/Community Organization Advisor, and the Branch Banking Advisor.

Small Notes:

II-21 - AB activities were controversal in 1980 but their first submittals were made in late November or early December.

II-28 - Some of this discussion might well be included in the Introduction.

II-29 - The vertical core concept was informally agreed to be included in the MHE by JHP, PIU, CHF and BWN, in March 1981 (prior to the move to Dokki). There are meeting notes in the file.

It was accepted as an experimental effort and was to be included in the PIU/CHF MHE Sales Program. No delay was necessary if it was developed as an option rather than an alternative. USAID did not support this flexible approach.

II-30 - The Upgrading of six areas may depend upon PIU capacity and local contracts (like P.B.S.) rather than the size of the CHF team. The increase in the CHF team may be more related to greater HNC activities.

II-31 - "Standards" as an issue is overlooked here but is mentioned in IV.

IV-1 - Upgrading construction in Ismailia (ODA), Manshiet Nasr (IBRD) and Helwan (AID) has been going on for over two years and good data is available.

IV-39 - The Banes' Report was in direct response to the Chairman of JHP's request of January 1981 for CHF to assist him to reduce the HNC costs and make the Project affordable. JHP had already commissioned a local consultant in this function.

The Banes' Report was submitted in time to save costs on 80 percent of the HNC (Zones B, C & D) and all of the Upgrading areas.

VI-37 - Even if Zones A and B may not be replicable, given the current schedule it is still possible to design Zones C and D so that they are replicable.

VI - 51 - It seems an oversight that Upgrading is not mentioned here.

cc: Mr. P. Amato
Mr. J. Fay

Helwan Housing and
Upgrading Project
Evaluation.

To : Mr. P. Amato
From : Dr. H. El Karanshawy

Subject : El Salam Town (El Berka)
Construction Cost

Cost Figures per square meter quoted in the report regarding the above mentioned Project was obtained during a visit to the Contractor Site by the Evaluation Team.

A meeting was held with the site Project Manager of one of the Contractors (Full reference in the report). The meeting was attended by the Contractor's Consultant and some site Engineers. The Company, it was mentioned, is carrying out the infra structure construction and finishing of the Five Storey walk ups at sq.m. price LE 65. This includes a profit margin of around LE 8-10 per sq.m. Subsidized cement and iron are used in the site, however the Engineers estimated that use of subsidized materials would result in additional cost of LE 4-5 per sq. m. saving on construction cost. It was explained was due to the introduction of some labour saving techniques, use of concrete walls instead of brick walls, P.V.C. piping. Obviously low finishing standard is another element in the above mentioned cost figures.

The above mentioned total Contractors cost figures was later confirmed verbaly by officials in the Ministry of Housing.

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APPENDIX D

Detailed Description of Circulation Length/Area Ratio

Appendix D

CIRCULATION LENGTH/AREA RATIO

As indicated in the text (see Basic Evaluation Index: Circulation Length/Area Ratio in Chapter IV) this index provides an approximate indicator of the efficiency of the lineal elements of a layout, particularly of the utility networks and streets, both in initial capital investment and continuing operating costs. The index gives a more accurate indicator of estimating project costs than the standard practice of using square meter costs. It provides a tool to assist in the design of projects and in the evaluation of layouts. It is of particular use when evaluating alternatives in the early stages of a project.

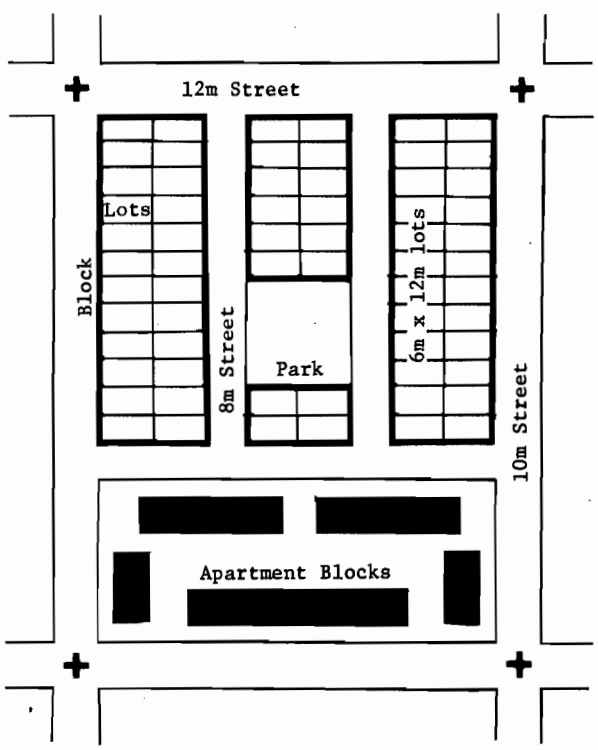
DETERMINATION OF m/ha. INDEX

1. Identify circulation lines.
In gridiron layouts (regular blocks determined by lots) the streets are the circulation lines. In parks and open spaces, lines generally follow walkways and are dependent on the dimensions of the park and physical controls (fences, etc.). In apartment block layouts, lines are generally determined by the buildings themselves, but are also dependent on physical controls.

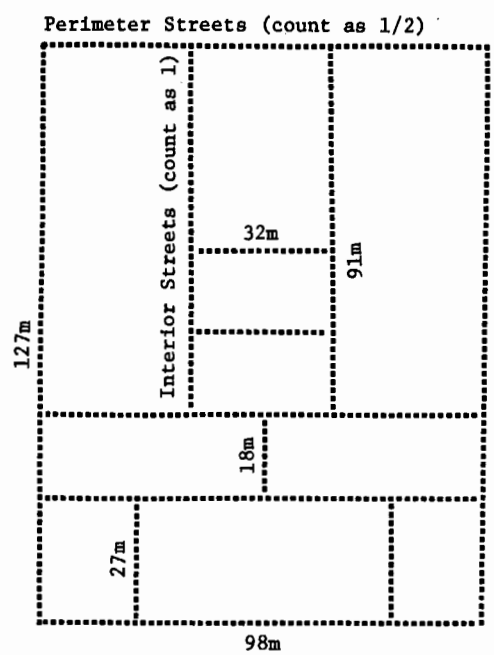
2. Determine total network length.
Add lengths of all network lines, counting interior lines as 1, and perimeter lines as 1/2, since they are shared with adjacent area. By convention lengths are expressed in meters. (Total length in example = 721m)

3. Determine total area of layout.
Measure the area from centerline to centerline of perimeter streets. By convention, area is expressed in hectares (ha.). (Total area in example = 1.2446ha.)

4. Calculate index.
Divide the total circulation length by the total area served, to get the length per unit area ratio. By convention, the unit is expressed in meters per hectare. (Length/area ratio in example = 579m/ha.)



BASIC LAYOUT



CIRCULATION LAYOUT

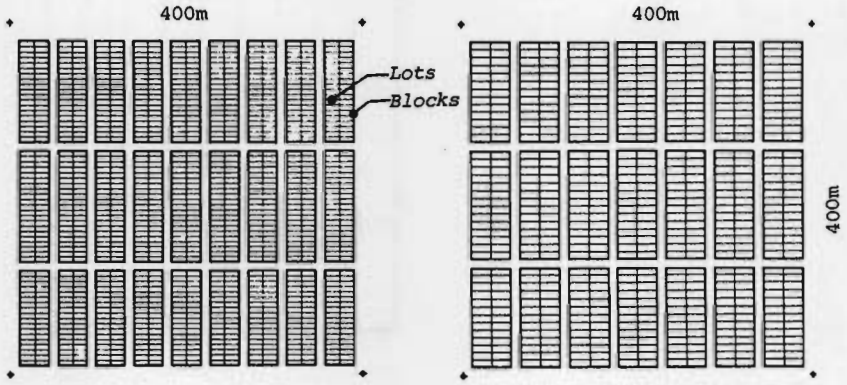
GEOMETRIC FACTORS IN LENGTH/AREA INDEX

The following examples indicate the sensitivity of the index in various situations. All of the model layouts are 400m x 400m, 16 hectares. Interior streets are 10m wide, and perimeter streets are 20m and 30m.

BASIC LAYOUT

CHANGE IN LOT AREA

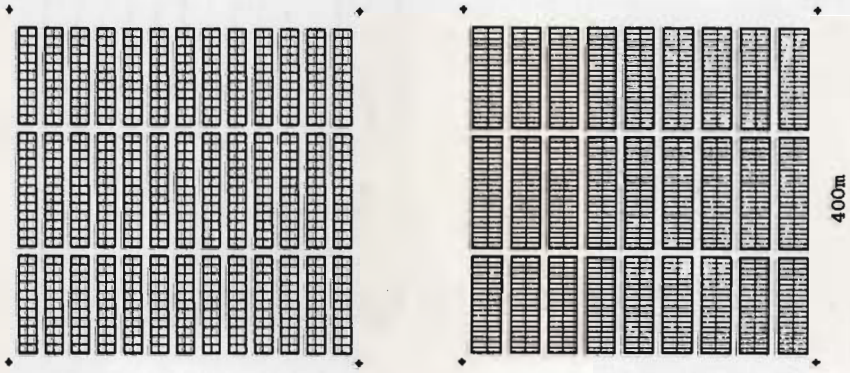
The example shows the effect of doubling the lot area, from $100m^2$ to $200m^2$, holding other parameters constant.



Lot Area	$100m^2$	$200m^2$
Total Circulation Length	4800m	$4000m^2$

CHANGE IN LOT PROPORTION

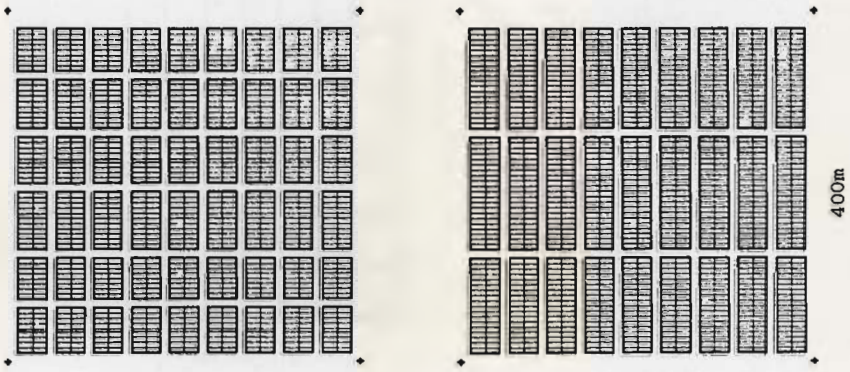
The example shows the effect of changing the lot from a square to a rectilinear shape. All other parameters are held constant, including the lot area of $100m^2$.



Lot Area	$100m^2$	$100m^2$
Total Circulation Length	6400m	4800m

CHANGE IN BLOCK LENGTH

The example shows the effect of varying the length of the block. The width of a block is set by the lot area and proportion, but the length can be chosen by the designer. The average block length is approximately halved in the first example.

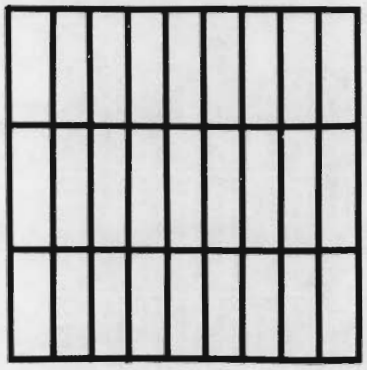


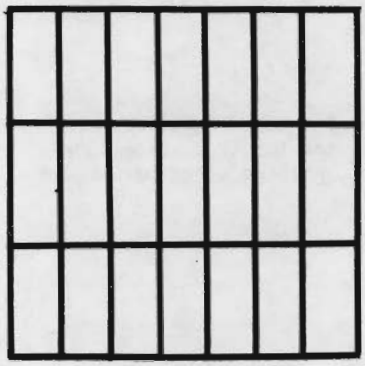
Lot Area	$100m^2$	$100m^2$
Total Circulation Area	6000m	4800m

References: The models are from pages 166, 168, and 172, "Urbanization Primer", MIT Press, 1978, except for the first model in the block length example. See also page 88, same source. Another reference suggested is "A Method for the Evaluation of Urban Layouts", by Horacio Caminos, Industrialization Forum, No. 3, December 1971. It is noted that the "t" value in the Bertaud Model ("A Model for the Analysis of Alternatives for Low-Income Shelter in the Developing World", PADCO/World Bank, December, 1981) is the same circulation/area index, although called "network length per m^2."

CIRCULATION LAYOUT

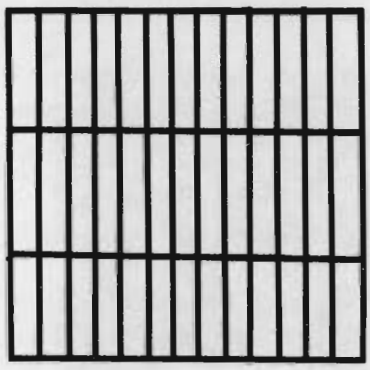
Comments: The decrease in total length is 800m, 17% less. In general, the larger the lot area, the shorter the network, and the lower the cost.

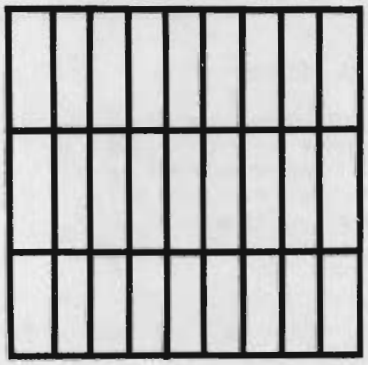




Lot Area	$100m^2$	$200m^2$
m/ha. Index	300	250

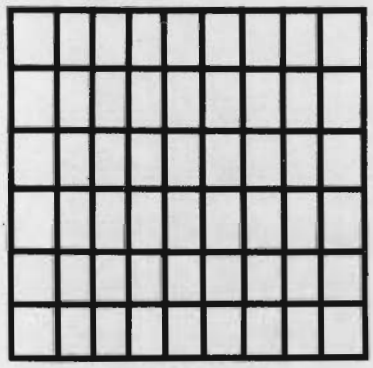
Comments: The decrease in total length is 1600m, 25% less. In general, the narrower the lot, the shorter the network, and the lower the cost.

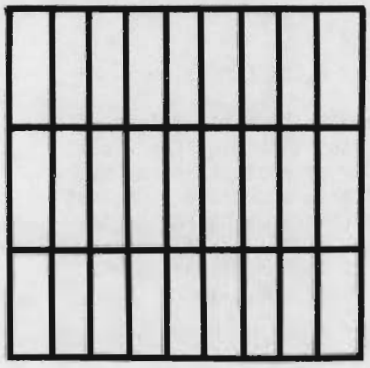




Lot Proportion	Square	Rectilinear
m/ha. Index	400	300

Comments: The decrease in total length is 1200m, 20% less. In general, the longer the block, the shorter the network, and the lower the cost.





Average Block Length	53m	117m
m/ha. Index	375	300