1986 TECHNICAL REVIEW SUMMARY

Ismaïliyya Demonstration Projects 226.
Ismaïliyya, Egypt EGY.

Date of Completion: 1978 and ongoing

I. OBJECTIVES

To demonstrate as soon as possible and in detail how the policies of the Ismaïliyya Master Plan may be practically implemented, and particularly:

1. to respond to the needs of low-income groups;
2. to support the small-scale and informal housing sector;
3. to rely on minimal external subsidy;
4. to be replicable at other sites in the future.

II. DESCRIPTION OF CONTEXT

A. Geographical background:

Ismaïliyya is situated on the shores of Lake Timsah along the Suez Canal, approximately 135 km from Cairo. Sweet water from the Nile is channeled into Ismaïliyya by means of a canal, which also irrigates mango and palm groves to the south and west. There is a dry, desert-like climate with hot summers (July mean max. 36°), cool winters (Jan. mean min. 8°) and only a few days of rain per year. Prevailing winds are generally from the north (Mediterranean Sea), with the exception of the Khamseen, a strong, hot, dust-carrying wind, which blows up from the south in the Spring.

B. Historical background:

1. The Housing issue:

Ismaïliyya was founded in the second half of the last century. Originally the headquarters of the Suez Canal Authority, it became predominantly a service center.

A annual population increase holding naturally steady at 2.5 percent has recently been on the rise in the city because of external immigration:

Residents numbered approximately: 70,000 in 1955
150,000 in 1977
250,000 in 1985

During the Arab-Israeli conflict (1967-1973), the Suez Canal region became a military war zone, where the population was evacuated for seven years, and the Canal cities substantially damaged.

With the end of the hostilities, the government resolved to reconstruct the Canal cities and to undertake ambitious redevelopment programmes. With exceptional financial assistance from the United Arab Emirates, 17,000 new flats were constructed. Meanwhile, government-funded construction accounted for some 10-15 percent of the existing housing units built on an annual basis, as public rental housing.

A privileged number of Ismaïliyya's citizens, mainly government employees, have access to these forms of housing, while many in the lowest income group are ineligible. For these people, especially those employed on an informal basis or self-employed, housing was possible only in the private rented sector or by squatting.

Almost half of the available housing existed in "informal" areas, most on government-owned land near the desert. The payment of an annual "hekr" rent allowed use of the land which, in turn, provided limited security of tenure.

2. The 1976 Master Plan:

In 1974, the Ismaïliyya Master Plan, funded by the United Nations Development Programme (UNDP), was commissioned to Culpin Planning, U.K. by the Ministry of Housing and Redevelopment. The Master Plan addressed major land reclamation, rural settlement and development, tourism and housing. As for this last issue, a preliminary study deemed inadequate the governmental provision of highly subsidized housing.

Thus, the Master Plan recommended government support adaptable to different public and private agencies, including the informal private sector.

Although considered somewhat radical, the Master Plan proposals were approved in May 1976, but there was no legislation to make them binding.

Demonstration projects were needed quickly to give impetus to the Plan's implementation.

C. Description of sites:

1. Selection of appropriate sites:

Two principal objectives figured in the selection of appropriate sites:

As demonstration projects, they must be successful in the short term;

they should deal with immediate problems.

Two areas appeared to be the most actively involved in urban development, namely:

"El Hekr", now named "Hai el Salam" (Peace neighbourhood), an uncontrolled northern extension of Ismaïliyya;

"Abu Atwa", a former agricultural settlement, 4 km to the south of Imsaïlia.

Although they were different in character, each showed a fairly high proportion of owner-occupation and had open land for future development.

2. Hai-el-Salam

The relatively flat site had acceptable ground conditions of soft sand and a low water table, almost everywhere. The existing area to the south had been developed over a period of some 30 years, being more densely built up along the southern edge. Houses were primarily one-storey in the rest of the built area.

Gross density of the existing settlement was about 280 persons per hectare (or about 50 households/ha).

Nearly all of the land was government-owned. The wide, main north-south streets followed the layout of streets, in the planned city to the south. Having no such example to follow, the settlers themselves laid out east-west streets similar to a traditional village street pattern. Soft sand and unconsolidated street surfaces made movement within the area and into the city center difficult.

Except for three standpipes along the southern boundary, there were no services in the project area, and families got water mainly from wells, more than half being polluted by cesspool seepage.

3. Abu Atwa

The site, on raised ground, was surrounded by highly cultivated land. It comprised three well established settlements, "Abu Atwa" itself, "Abu Shehata" to the west and "El Sahara" to the south.

Commercial outlets and workshops were located in a thriving local center along the main north-south road.

For the most part, construction followed traditional village style, using a different technique (rammed earth) than most buildings in Hai-el-Salam. A number of two- and three-storey buildings had appeared.

Land tenure was similar to that in Hai-el-Salam.

Settlement layout followed traditional village cluster patterns, having narrow streets and small, semi-public spaces.

D. Local architectural character:

1. Individual houses:

The most common, about 80 percent of "hekr" land houses were of this type. They were built on plots averaging 100 m^2 and consisted of rooms built around a courtyard. In "informal" areas, they are predominantly single-storey, mud-brick or rammed earth; in "formal" areas, they are baked brick, often with a reinforced concrete frame, which allows upward extension at a later date.

2. Rabaas:

These are also single-storey and similar, in many ways, to individual houses, except that since they are primarily built for multi-occupancy, normally there are several single rooms and occasionally two- to three-room units. They are arranged around a courtyard or corridor, and share facilities. Occupants normally have lower incomes than individual-house dwellers.

3. Aimaras:

These apartment buildings usually come about when the owner of a plot builds his own flat, and then, when funds become available, adds vertically as many other flats as possible. Flats other than the owner's are rented.

4. Public rental:

Practically all public housing consists of five-storey walk-ups of two- to three-room flats, 30 to 50 m^2. In general, residents are in low-to moderate-income brackets.

III. DESIGN AND CONSTRUCTION

A. Consultant's brief; functional requirements:

The following population levels were assessed:

	Ismaïliyya City	Hai-el-Salam	Abu Atwa
1977	150,000	37,000	19,000
2000	560,000	90,000	44,000

The proposals covered the following surface areas:

	Hai-el-Salam	Abu Atwa
Upgrading area:	132 ha	114 ha
New development:	94 ha	40 ha
Total:	226 ha	154 ha

Estimated number of plots to be distributed was:

	Hai-el-Salaam	Abu Atwa
Upgrading area:	7,000	3,500
New development:	3,500	1,500*
Total:	10,500	5,000

* Excludes potential new plots arising from phasing out of existing sewerage treatment works.

Both projects had to be self-financed and combine the upgrading of existing low-income areas with the provision of new serviced sites for mixed income groups and mixed-use activities.

The government policies recommended by the Master Plan had to be tested in the following areas:

1. provision of land under suitable tenure;
2. staged provision of public utilities;
3. improved supply and distribution of building materials;
4. establishment of credit terms available to all households;
5. simplification of construction standards and procedures.

To improve local capabilities, the consultants proposed that institutions be set up to plan and direct the development and management of government-owned land.

These semi-independent agencies had to be:

1. set up along existing national administrative and executive guidelines and not require major legal or organizational reform;

2. administered without the need for high sophistication nor continued support from outside expertise.

B. Evolution of concepts:

1. Response to user requirements:

First, in order to understand the local housing system's relation to low-income families, the consultants conducted brief "scanning surveys", followed up by "case studies" in each project area. It was found, for example, that security of tenure was the highest priority among households, followed by piped water, roads and sewerage. Lack of security was prohibitive to individual investment and involvement with the building.

The income groups already living within the Project Areas were defined as the "target population", meaning that families in these income groups had to be able to afford access to the Project. This was vital for the upgrading areas, if the existing population was not to be forced out. In the new development, the aim was to accommodate a mix of income groups, giving low-income groups at least their proportional share.

It was assumed that households would spend 20 percent of their income on housing, including affordable levels of infrastructure provision.

Based on an average income of £E 25/month (US$ 1 = £E 1.38), the amount available for housing was judged to be equivalent to £E

5/month. The proportion of this income available for housing and infrastructure each month was:

	Housing		Infrastructure	
	%	£E	%	£E
Existing settlers	35	1.75	65	3.25
New settlers	50	2.50	50	2.50

Various alternatives for plot-pricing and payment terms were examined and costed. These included the following categories of plot size:

small	(C)	72 and 90 m^2
medium	(B)	108, 112.5 and 135 m^2
large	(A)	144 and 162 m^2
concession		360, 432 and 576 m^2

Based on detailed costings and on the target population's ability to pay for housing, it was concluded that full infrastructure provision was not affordable and that initially only a minimal level of provision was possible without subsidy. Therefore, it was proposed that full provision be achieved incrementally, over a period of time corresponding to the dominant population's ability to pay for this level of provision.

The surveys also attempted to find local representation for plan development. The involvement of community groups was limited in Hai-el-Salam, but in Abu Atwa key families agreed to act as community representatives.

Residents usually preferred to individually negotiate block upgrading and not delegate important issues. Original proposals were further modified by an increase in minimum plot frontages from 6m to 7.5m. This change arose from the settlers' adverse reaction to developing smaller plots. While the change has not significantly affected overall project costs, it has spawned more plot-development options, improved popularity of the project and increased social and political support. There was also a preference for straight streets. (see section III, letter B.6).

2. Legal and administrative considerations:

The local government of Ismaïliyya did not have administrative, financial or technical structures capable of managing the Projects. Thus, it became necessary for the consultants to set up semi-independent Project Agencies with local officials.

In order to implement the Projects as early as possible, no recommendations or proposals were made which would have required legal or administrative changes at the national level. The proposals were that:

each Project should be managed by a financially independent Project Agency;

each Project Agency should be located on-site;

project agencies should become executive bodies under the control of the Secretary General of the Governorate;

staffing needs should be met by secondment of local government staff or through direct appointment.

Based on the consultant's recommendations, the governor issued a decree which gave the Agencies the right to buy and sell land and to use the proceeds for infrastructure, management and maintenance.

The Agency's responsibilities were to be: the comprehensive and detailed planning of layouts; the survey, allocation and sale of plots; negotiation with those agencies which provided the area's water, electricity and sewerage; representing the needs of the people before those authorities responsible for social facilities; the provision of technical assitance to plot-owners; landscaping and coordination with the city council.

The Agencies were governed by a board of representatives from various

authorities and agencies reponsible for the control of land and utilities.

As soon as was possible, overall management and technical input- initially the consultants' responsibility- were transferred gradually to the Director and his staff.

Of necessity, the Agencies' staffs received on-the-job training from consultants, with detailed work procedures developed according to the needs and abilities of each staff. Furthermore, consultants regularly held seminars to explain why the works were being implemented.

Initially, low government pay scales prohibited architects, planners and engineers from joining Agency staffs. It wasn't until 1981- when Agency staff could be contractually employed- that the Agencies finally obtained engineers.

In 1982, the staffing was already of:

	Hai-el-Salam	Abu Atwa
Technical/managerial	26	17
Support	40	22

3. Economic and financial considerations:

Plot-pricing was varied in order to enable affordable payments at low-income levels, covering a higher standard of infrastructure provision. Good commercial locations commanded higher prices, while open market prices were charged- through auction- for a number of key-location concession plots. This allowed internal cross-subsidy favouring low-priced plots (some 60 percent of the total) and thus increased the level of affordable provision.

The following plot prices, assessed on an £E/m^2 basis, were established:

		Ordinary Plot	Corner Plot
small	(C)	2.25	2.50
medium	(B)	4.00	4.50
large	(C)	10.00	11.00
concession		open market price	

To upgrade areas, land prices were initially set at a deliberately low level (£E 2.25/m^2), with repayment over 30 years. It was proposed that land-sale income be put towards basic infrastructure and also used for administration, services and maintenance.

In new settlement areas, the idea was to provide a basic level of infrastructure which income from land-scale could then pay for. This meant that, initially, infrastructures would be restricted to surveyed plots. All infrastructure systems were designed to allow upgrading at a future date, resources permitting.

The payback period was subsequently reduced from 30 to 10 and then to five years, while down payments of 25 percent were introduced for "C" plots, 50 percent for "B" plots and 100 percent for the others. It was hoped that, this way, the Agencies would have adequate cash flow, and not have to depend on loans during the first few years.

Due to a general aversion towards credit, interest rates decreased from 7 percent to 5 percent. By thus increasing down-payments, effects on cash flow were held to a minimum.

To safeguard against speculation, a proposed "delayed freehold" tenure would give freehold after five years on "A", "B" and "C" plots, provided that project conditions were met.

Upon the granting of a building permit, building materials were also available at official prices.

The following basic policies were formulated:

limited non-residential activities should be allowed on all plots;

all settlers should be allowed to put accommodations up for rent.

4. Response to physical constraints:

The Hai-el-Salam study area is bounded on the west by land irrigated from the adjacent sweet water canal. Existing housing to the south was the only other physical constraint to urban development. Originally, therefore, northern and eastern boundaries were artificial. At present, the project is bounded to the east by Gamal Abdel Nasser Avenue and to the north by the new highway.

A boundary of highly cultivated land surrounds Abu Atwa, within which one finds very large areas, unused for the time being: a cemetary (12.6 ha), sewage works (9 ha) and a small military base.

5. Response to planning considerations:

Both sites were planned and surveyed, with early activity focusing on:

Plot rationalization: existing settlers were given legal rights of occupation, frequently subject to adjusted plot boundaries;

Emergency relocations: the owners of houses sited in road reserves or on sites needed for public purposes were given priority in the allocation of new plots. Public housing was provided for those who could not afford to build.

Provision of new plots: rules for allocation were drawn up and new plots were surveyed, demarcated and offered for sale.

"Rationalization" particularly involved surveying and measuring existing plots, mapping, defining streets and registering plots in the Project Agency offices. Plot boundaries were re-designed to allow a reasonable level of circulation and to keep demolition to a minimum - less than five percent of existing buildings - with, however, 600 buildings and walls demolished in Hai-el-Salam alone.

Faced with designing new plots, it was decided that costs should be reduced by minimizing intitial levels of infrastructure provision, rather than minimizing land area.

More expensive plots (class A) were located along wider avenues and on street corners. Medium-priced plots (B), along normal streets, and the cheapest plots (C), originally along pedestrian lanes.

Public relocation housing was provided at a monthly rent of £E14 per flat and occupied by about five percent of the population. As public housing was not included in the original proposal, the Project Agencies designated several sites as housing blocks so that the central government's annual budget allocation for public housing would be used up.

On a large scale, plans were based on a hierarchical arrangement of streets and avenues, neighbourhoods with sub-centers, and the main center. Shopping needs are met primarily by shops on housing plots. However, more centrally located plots are planned so as to be more efficiently used for commerce. Only the market building includes purpose-built shop units, but special areas cater to "bad neighbor" uses.

There are many advantages to combining upgrading with new development. It allows family relocation (normally unavoidable in upgrading) as near as possible to the original site. It allows social facilities, which may not be possible in densely settled existing areas, to be located in the new area and to serve both. Utility networks can service old and new areas alike. New settlers can use services such as shop or employ skilled workers from older areas.

6. Purely formal aspects

Original layouts situated low-cost plots on six - to nine meters wide, irregular lanes, designed for play and commercial use, but to discourage through traffic. They were patterned after traditional plans. Agency surveyors and other staff argued that people preferred straight streets, considering them more legal and "modern".

Plot development can include one front room as a shop or workshop, rooms can be rented, and additional floors can be built for residents to supplement their incomes.

Agencies provide potential builders with sample execution plans of "Aimara" buildings, drawn on a scale of 1:50. Building permits are then automatically granted. This allows citizens to save time and professional fees. The designs vary along with the plot sizes and present two-storey, vertically expandable buildings with external balconies and sometimes internal light wells averaging 3 x 3m.

Community buildings are either designed locally or, as in the case of the central mosque, a standard Egyptian plan is adopted.

The use of urban and building codes is minimal, and white and blue are mandatory colors.

7. Landscaping:

Despite problematic soil, some private gardens used to flourish with the care and attention of private homeowners. Such landscaping was to be encouraged by providing private, front-garden space within the right of way of streets. Cluster residents would have cared jointly for the landscaping of community spaces. Neither idea was implemented.

Instead, the Agencies now provide a few shrubs for the front of each house which, upon completion, meets building requirements. The care of these shrubs is the homeowner's responsibility. Trees in the main avenues, squares and parks are to be planted and cared for by the Agencies.

The "youth forest", a 1.5km long and 40m wide tree belt, forms the Project's northern boundary. It also plays an important community role as a recreation area for local residents and an important vantage point for visitors.

C. Structure, materials and technology:

1. Structural systems and materials:

Building materials used in Hai-el-Salam and Abu Atwa range from the cheapest solutions for construction to higher standards of the formal sector. Although the following array of classifications is representative of this range, different sections of one house may present different arrays, especially because of the usual incremental construction.

a) Mud-brick array (normally one-story maximum):

Walls: mud-brick (6 x 12 x 25 cm) with earth mortar, 30-40cm thick or rammed earth.

Roofing: split palm or other local wood beams, overlaid with one or two layers of woven matting and topped with a 10-15cm layer of mud and straw.

Floors: beaten sand or cement/sand screed

Rendering: mud plaster, whitewashed inside and outside

Doors and windows: wood, usually recycled, little use of glass.

b) Intermediate array (normally one-storey maximum):

Walls: cement and sand block made on-site, mud or cement mortar; some use of baked brick with cement mortar for thin walls (12 or 24cm wide).

Roofing: wood beams with same overlap as above.

Floors: concrete floor with topping of cement screed, usually 25cm thick overall.

Rendering: as above, but with more use of cement-sand mortar.

Doors and windows: wood, either recycled or new.

c) Baked brick array (normally three-storey maximum):

Walls: baked brick (6 x 12 x 25 cm) with cement mortar, usually 40cm thick, depending on bearing load.

Roofing: as above until additional floor added; then reinforced concrete.

Floors: concrete floor with sand cover and cement tiles.

Rendering: Gypsum or lime plaster and whitewash or oil paint inside; outside usually painted brown or left bare.

Doors and windows: imported wood, some use of iron frames and glass.

2. Construction technology:

Modern building materials were favoured both by the governor, who didn't want the new area of the city to look like a slum, and by the settlers themselves. But a slow rate of construction in low-income areas indicates that modern materials may be too expensive for immediate use. These findings permitted a concession to build in traditional mud-brick, though final freehold title to the land would be granted only if buildings met the full regulations. According to Culpin Planning, approximately ten percent of "C" plots were still built this way.

Baked brick production has recently been forbidden in Egypt, as it uses vegetal earth taken from agricultural land. They have been replaced by cement bricks, which no longer cost more.

Although prefabrication of doors and windows within project sites is restricted, that of major building components is not used. A factory for heavy prefabrication was set up in Ismaïliyya as early as the 1970's, but due to inadequate products it is no longer in operation.

3. Labour employed:

Families usually employ individual labourers or small contractors, while they themselves act as supervisors and do some of the work.

With a part of low-income housing relying on local materials and traditional techniques, some of the new construction is done by families themselves or by semi-skilled labourers.

However, persons who build with more durable, non-local materials, are more dependent upon the expertise of skilled workers and this places them in a significantly higher priced labour market.

4. Site utilities:

Full provision of urban utilities, a long-term goal, was defined according to minimum public health benefits and affordability.

So far, this has included road levelling, sub-base course, some curbs and surfacing; water to standpipes at 150 meter intervals; electricity and most street lighting. To allow upgrading in the future, main water lines, for example, were designed for individual house hook-ups once drainage is installed.

D. Origin of technology, materials and manpower:

1. Technology and materials:

Purely local technology and materials are traditional. Cement and steel-reinforcement production have, however, long existed in Egypt and the technology behind reinforced concrete frameworks is widely diffused. Wood for beams windows and doors is often imported.

2. Professionals and labour force:

A British team of consultants was backed up by British (economists), and Spanish (agricultural economists) sub-consultants. The Agency staff was Egyptian, as were the architects, engineers and contractors. The construction workers were also all domestic.

IV. CONSTRUCTION SCHEDULE AND COSTS

A. History of project:

Since 1974, Culpin Planning has been continuously involved with programmes in Ismaïliyya. By deciding to base itself in Ismaïliyya from the start, Culpin Planning was able to understand community desires as well as the social, economic and political framework within which it had to work.

Also, they had the support of both the Egyptian Minister of Housing, Osman Ahmad Osman, and the Governor of Ismaïliyya, Abdel Moneim Emara.

1. Ismaïliyya Master Plan Study

Duration: 1974-1976
Client: Ministry of Housing and Reconstruction, A.R.E.
United Nations Development Programme
Expatriate Technical Assistance: 12.5 persons/yr.

2. Ismaïliyya Demonstration Projects

Duration: 1977-1978
Client: Ministry of Housing, A.R.E.
Ministry of Overseas Development, UK
Expatriate technical assistance: 5.3 persons/yr.

3. Ismaïliyya Technical Assistance Programme

Duration: 1979-1982
Client: Ministry of Reconstruction, A.R.E.
Overseas Development Association, UK.
Expatriate Technical Assitance: 2.5 persons/year

4. Ismaïliyya Planning and Land Development Agency

Duration: 1981-1983
Client: Ministry of Development, A.R.E.,
United Nations Development Programme
Expatriate Technical Assitance: 2.3 persons/yr.

5. Suez Canal Regional Centre of Development

Duration: 1983-1984
Client: United Nations Development Programme
Expatriate Technical Assitance: 1 person/yr.

The histories of the two Project Agencies, similar but not identical, could be summarized as follows:

Project Agencies	Hai-El-Salam	Abu Atwa
Established	12/1978	7/1980
Effectively operating as proposed	7/1979	4/1981
Fully staffed	7/1980	12/1981
Independent of technical assistance	4/1981	3/1982

B. Present state of implementation:

1. Levels of population:

As no extensive surveys have been taken recently, all figures are based solely on estimations:

1985 Population	Ismaïliyya City	Hai-el-Salam	Abu Atwa
Consultant's prediction (1978)	275,000	58,000	NA
Consultant's estimation (1985)	250,000	63,000	27,000
Agencies' estimation (1986)	NA	75,000	35,000

According to estimations and various information, the population increase in Project Areas might have, therefore, ranged between 35 percent and 100 percent between 1977 and 1985. The true figure probably falls somewhere in between. It can be estimated that nearly 100,000 persons have benefitted from the two Projects.

2. Plot allocation:

The latest available figures on plot distribution are:

	Hai-El-Salam	Abu Atwa
Upgrading area	4,700	2,817
New development	3,230	685

The breakdown for new development plots was:

	Hai-El-Salam	Abu Atwa
New	2,250	260
Relocation	800	332
Concession	180	64

n.b. figures for Abu Atwa were Agency-provided and given by consultant for Hai-El-Salam, as the Agency-provided table appeared incomplete.

3. Infrastructure (provision from Agency revenue):

Roads	Hai-El-Salam	Abu Atwa
Surfaced	25km	1km
Consolidated	35km	14km

Water	Hai-El-Salam	Abu Atwa
Pipes laid	30km	0.6km
Public taps	37	15

n.b. Sewerage works are finally financed by a grant from US AID.

Electricity and Lighting	Hay-El-Salam	Abu Atwa
Implementation	90%	75%

n.b. Main electrical distribution (11kv) complete.

4. Community facilities (provided by Agency revenue):

	Hai-El-Salam	Abu Atwa
Mosques (national)	2	-
Youth Centers	1	-
Trade Markets	2	1
Bakeries (public)	2	1
Workshops	-	20
Cafeterias	-	1
Tree planting (ha)	22	1

n.b. The Agencies have also been providing some funds for the construction and/or maintenance of private mosques.

5. Community facilities (land provided by Agency):

	Hai-El-Salam	Abu Atwa
Mosques (private)	25	13
Churches (private)	2	0
Schools	5	8
Youth Centers	2	4
Social Centers	1	1
Health Centers	1	1
Fire Stations	1	1
Police Stations	1	1
PTT Offices	1	1
Bakeries	7	-

6. Other services:

- the Hai-El-Salam Agency runs a waste disposal service
- the Abu Atwa Agency runs a public transportation service with two purchased mini-buses.

7. Master Plan:

Other aspects of Ismaïliyya's Master Plan are starting to be implemented: an industrial zone, touristic areas, small university sites, a park, some public housing, etc. However, a large military base to the west has not yet been relocated and the university will probably not fill a large site north of Hai-El-Salam.

C. Total costs:

In 1982, the consultants arrived at the following breakdown of total project costs, in £E:

	Total Costs	Share of Project Agencies	Costs attributed to other funding
Land	325,000	---	325,000
Administration	300,000	250,000	50,000
Professional fees	650,000	---	650,000
Infrastructure	5,400,000	2,400,000	3,000,000
Public facilities	1,570,000	570,000	1,000,000
Housing stock	85,000,000	---	85,000,000
total	93,245,000	3,220,000	90,025,000

Private investments appear to be significantly higher than those provided by Agencies or government.

However, these figures are quite difficult to estimate and verify since there are countless sources of finance to consider, including for private investments.

D. Main sources of finance:

"Inception capital", in the form of a sterling 100,000 grant (£E 170,000) from the British Government, covered starting-up costs for both projects, including new developments.

Total revenue from the sale of plots between 1979 and early 1986 has been evaluated as follows:

	Hai-El-Salam	Abu Atwa	Total
Agencies' revenue	2,100,000	1,383,000	3,483,000

In the first three years, overall income in Hai-El-Salam was almost £E 2 million, and Agency expenditures £E 1.2 million. Hai-El-Salam encountered more problems when addressing how to spend revenue than in collecting it.

On the other hand, Abu Atwa could not count on the sale of large areas of new, vacant land. Thus, to raise Project capital, it had to sell by auction (concession plots) a large proportion of its limited vacant land.

Agencies' loans to citizens amounted to £E 250,000 in Hai-El-Salam and only to 5,000 in Abu Atwa.

Although the government is responsible for street lighting and sewers, and the Suez Canal Authority for water, the Project Agency took care of most costs for street lighting and water. The city normally pays for the main sewerage lines, but this was ultimately provided by a US AID funded water and waste-water extension project, although US AID standards raised the cost.

Another unforeseen expense borne by the Agencies is for the community facilities (see IV-B above). The Agencies also had to repay some money to the Governorate. However, as most staff members are paid by the government, this could be seen as being in lieu of payment.

B. Comparative building costs:

As of last March, there was a 25 per cent difference between cement at subsidized prices and on the free market. It was 100 per cent a few months earlier and even 200 per cent on the black market a few years before.

Current construction costs are, therefore, not much different between the free and subsidized markets.

	Subsidized	Free ordinary	Free luxury
Construction Costs	120 £E/m^2	150 £E/m^2	250 £E/m^2

V. TECHNICAL ASSESSMENT

A. Functional assessment:

The functional organization seems well balanced. Traffic is light, with traffic jams and parking problems not expected soon. Without parking lots, parking along the 20-meter wide east-west avenue might eventually become difficult, but cars could easily park along smaller streets nearby.

B. Climatic performance:

Since the design of the urban fabric does not seem to have purposefully taken climatic factors into consideration, it is especially fortunate that the results have been positive.

The continuation of the existing north-south road pattern allows a northern sea breeze. The northern green belt might also have some cooling and filtration effects. Lake Timsah, south of downtown Ismaïliyya, might have a similar effect on dust-laden Khamseen winds.

Limited rainfall meant that only minor attention had to be devoted to surface water drainage, thus making the infrastructure less expensive.

Thick walls of traditional materials would have been climatically more suitable. However, lower floors will not suffer too much from the heat since new buildings are built closely together.

Courtyard houses, one particularly well adapted, may loose all privacy in multi-storied constructions; this is why light wells found in newly constructed "aimaras" have only limited advantages.

C. Choice of materials and technology:

Although the consultants favored mud-brick, authorities encouraged contemporary Egyptian building techniques, which have, for the most part, replaced local, traditional ones.

No serious steps were taken towards reuse or improving traditional materials and technology. In any case, this was not an immediate objective and would have proved overly time-consuming at moments when speed was essential.

D. Maintenance problems:

Some services, including waste disposal, would have to be the responsibility of either the government or the city (if its administrative boundaries expand) when the Agencies could no longer rely on income from the sale plots.

Last March, sewerage mains were being buried in at least one of Hai-El-Salam's asphalt-topped streets. One would have expected more coordination of infrastructure implementation.

E. Design features:

Authorities and citizens alike rejected communal lanes, the only spatial feature provided by the consultants which recalled local urban tradition.

Streets and buildings are not very different from those in other Egyptian urban developments. Streets, however, are more regular than

those normally found in "informal settlements". Public outdoor areas are much better landscaped, thanks to the consultants' recommendations and perhaps also to local tradition.

VI. USERS

According to the 1977 consultants' surveys, the population which had already settled in the Project Areas had the following characteristics:

1. Age:

Age distribution was somewhat similar to that in the City of Ismaïliyya. The under-15 group was especially notable:

Age %	Hai-El-Salam	Abu Atwa
Under 15	41.7	42.9
15-64	55.7	54.6
65 +	2.6	2.5

2. Household sizes and occupancy rates:

Single-household dwellings represented between 80 and 85 per cent of the total.

Persons/household	Hai-El-Salam	Abu Atwa
Average household size	5.6	6.5
Single-household dwelling	6.0	6.5

3. Employment:

In Hai-El-Salam, a high proportion of people worked as government or public-sector employees, while in Abu Atwa, a large majority were agricultural workers.

% Earners	Hai-El-Salam	Abu Atwa
Government and public sector	51.4	33.6
Private sector - formal	7.8	10.1
Private sector - informal	30.3	26.0
Agriculture	-	21.0
Unspecified	10.5	9.3

4. Income level:

The perceived income level of the Hai-El-Salam and Abu Atwa target populations fell within the lowest 30 per cent of the national figures for urban population, with a median income of £E 290 per annum compared with £E 625 per annum nationally.

% Earners by income	Hai-El-Salam	Abu Atwa
Less than £E 25	70.4	82.7
£E 25-40	25.6	11.7
£E 40-70	4.0	5.2
£E 70 +	-	0.4

5. Between 66 and 70 per cent of dwellings were either owner-occupied or owner-occupied with renters.

6. Social surveys:

Social surveys taken in Hai-El-Salam indicated that families tended first to rent accommodation, then move, if finances permitted, onto a new plot or purchase a house within the area.

In Abu Atwa, some strong family groupings could be tied to the settlement's origins. Upper-Egyptian workers, who had helped dig the Suez Canal, had settled there, with other settlers from the same villages arriving later on. Abu Atwa was, in fact, a collection of villages in the midst of loosing their rural identity.

7. Criteria for the selection of settlers:

The Agencies rejected income-based selection of settlers on new plots, considering it difficult to control effectively.

Criteria they adopted were the length of residence and the stipulation that the applicant not already own land or property. Residents in the Project Areas are given first priority, with residents elsewhere in Ismaïliyya given second priority. There is only a slight chance for people to be allocated a plot if they settled in Ismaïliyya later than 1967.

VII. AESTHETIC ASSESSMENT

The streets, "aimaras", public housing and community facilities are not really more aesthetically successful than what may be found in most other parts of Egypt (see aforementioned remarks in V-E).

A rooftop view of the area reveals a gigantic construction site, where nothing is completed - not surprising in the case of incremental building. In this context, the buildings (or floors) painted the official white and blue look awkward and dispersed. A much stronger character and unity is evoked by uncoated concrete structures with brick infill. However, a few remaining mud-brick constructions are paradoxically a threat to this aesthetic homogeneity.

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