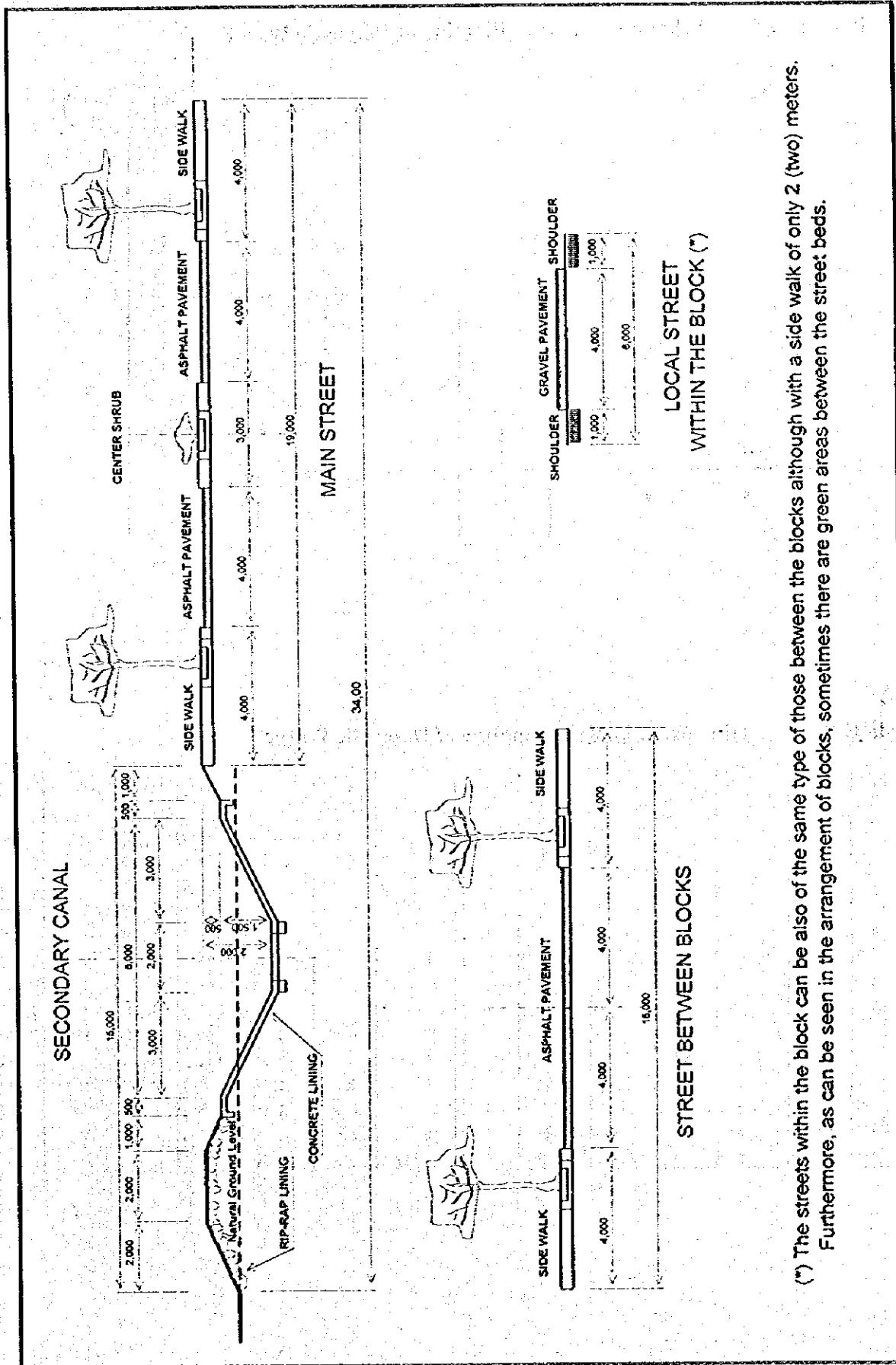
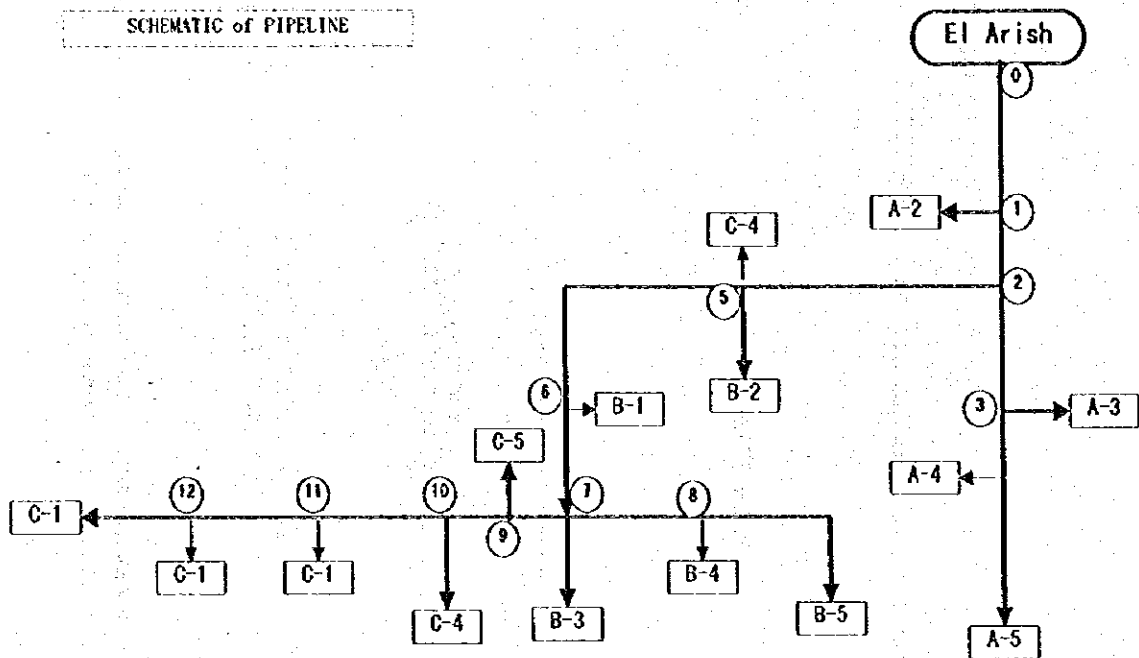


**Figure E-3-3 Typical Road Cross Section**



(\*) The streets within the block can be also of the same type of those between the blocks although with a side walk of only 2 (two) meters. Furthermore, as can be seen in the arrangement of blocks, sometimes there are green areas between the street beds.

**Figure E-3-4 Schematic of Main Pipeline of Domestic Water**

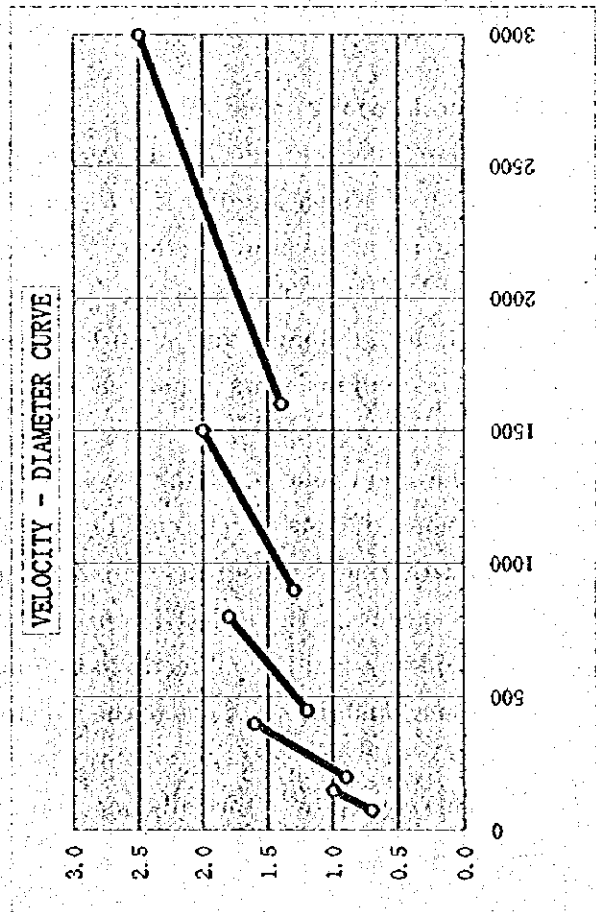
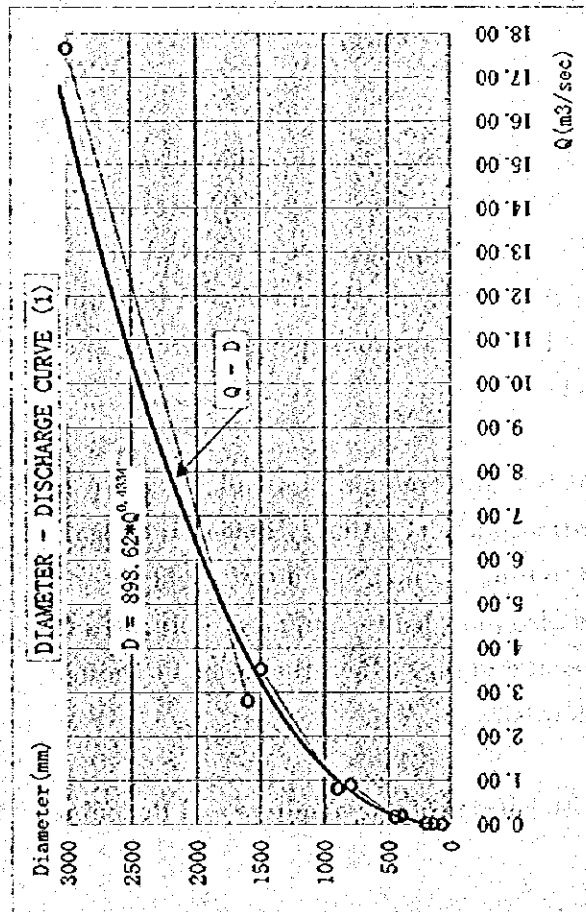
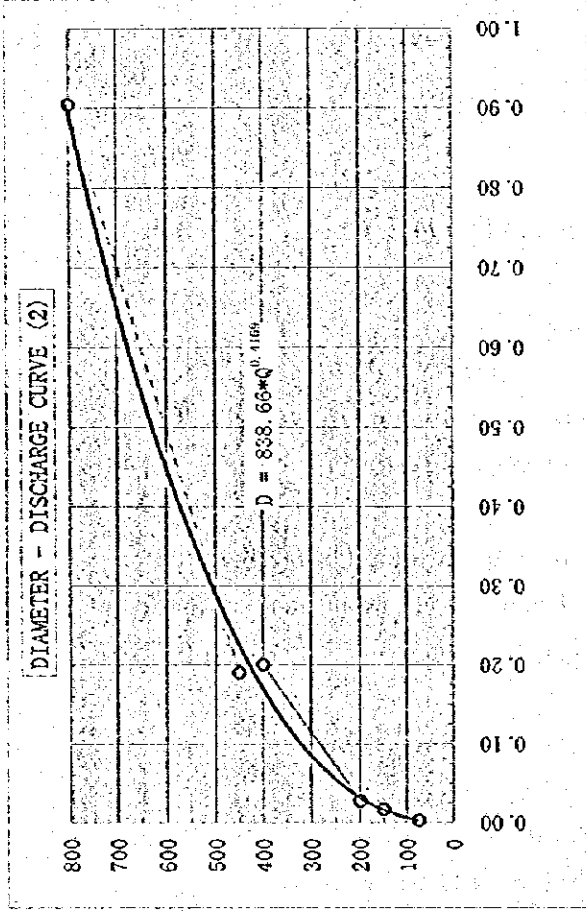


**Table E-3-7 Dimension of Main Pipeline of Domestic Water**

Point Form	Point to	Population	Demand (m <sup>3</sup> /day)	Discharge (l/sec) (m/sec)		Diameter (mm)	Length (km)	Point Form	Point to	Population	Demand (m <sup>3</sup> /day)	Discharge (l/sec) (m/sec)		Diameter (mm)	Length (km)
0	1		23,200	335.7	1.709	500	16.8	5	B-2	9,690	1,940	28.1	0.893	200	6.0
1	2		21,530	311.5	1.586	500	0.8	6	B-1	12,780	2,560	37.0	1.179	200	0.2
2	3		4,190	60.6	1.235	250	5.1	7	B-3	2,990	600	8.7	0.707	125	3.6
3	4		2,800	40.5	1.066	220	7.6	8	B-4	9,850	1,970	28.5	0.907	200	0.2
4	A-5	1,180	810	12.2	0.990	125	8.7	7	9		6,360	92.0	1.302	300	5.6
1	A-2	8,340	1,670	24.2	0.769	200	0.5	9	10		5,470	79.1	1.120	300	6.4
3	A-3	6,970	1,390	20.1	1.138	150	2.1	10	11		4,290	62.1	1.264	250	4.1
4	A-4	9,800	1,960	28.4	0.903	200	0.2	11	12		2,490	36.0	1.147	200	8.7
2	6		17,340	250.9	1.577	450	7.1	12	C-1	6,810	1,360	19.7	1.114	150	5.4
5	6		13,360	193.3	1.215	450	7.2	9	C-5	4,430	890	12.9	1.050	125	1.7
6	7		10,800	156.3	1.243	400	4.1	10	C-4	5,900	1,180	17.1	0.966	150	4.0
7	8		3,840	55.6	1.132	250	7.8	11	C-3	8,990	1,800	26.0	0.829	200	0.2
8	B-5	9,350	1,870	27.1	0.861	200	8.6	12	C-2	5,630	1,130	16.4	0.925	150	0.2
5	A-1	10,220	2,040	29.5	0.939	200.000	0.2	Total		115,930	23,200	335.7			123.1

Figure E-3-5 Relation of Pipe Diameter, Velocity and Discharge

RELATION OF PIPELINE DIAMETER AND VELOCITY, DISCHARGE



Pipe Diameter Range (mm)	Velocity (m/sec)		Discharge (m <sup>3</sup> /sec)	
	Min	Max	Min	Max
75 to 150	0.7	1.0	0.003	0.019
200 to 400	0.9	1.6	0.028	0.201
450 to 800	1.2	1.8	0.191	0.905
900 to 1500	1.3	2.0	0.827	3.534
1600 to 3000	1.4	2.5	2.815	17.671

## E-4 Village Plan

The procedure of village planning is shown in Figure E-4-1.

### E-4-1 Village Distribution

The villages in this Project are planned three (3) central villages and four (4) satellite villages in each central village, total fifteen (15) villages. The village distribution is planned based on the following criteria;

- distance from village to farm lot to be around 3 to 4 km not farther 5 km
- to be located beside the existing (national) roads or planned main or secondary irrigation canals to use their inspection road.
- to adopt the almost existing villages
- to utilize the unsuitable area for cultivation (ignored area)

The image of village distribution, farm allocation, access road distribution and typical road cross section are shown in Figures E-4-2 to E-4-5.

### E-4-2 Village Design.

#### (1) Block Arrangement.

The villages are designed considering the existence of five (5) different types of houses, which are different 5 categories of inhabitants. The lots were arranged into blocks according to the category of the user. As an example in Central Village C - 3, three (3) models of blocks were designed: one for the labourers and Bedouins, one for graduates and small farmers and one for the management official staff and small investors (Figure sE-4-8 to E-4-10)

The main concept of the blocks design was the creation of small green areas among the lots which could create an atmosphere of intimacy among the users. Furthermore, the streets were designed to hinder a high speed traffic of cars and to encourage the pedestrian use. It was also provided two different entrances to the lot: a main one directly to the house and garage (when the lot has a garage space) and the other one to the livestock area.

This concept was specially important in the design of the labourers and Bedouins

block. In some cases, these green areas can be used as parking areas once the labourers lots are not provided with garage space.

The distribution of lots in each block is as follows:

- Labourers and Bedouins Block: 44 lots
- High School Graduates and Small Farmers Block: 88 lots
- Management and Official Staff and Small Investors Block: 60 lots

Although the block arrangement is the same for the same size of lots, the use will be defined according to the category (only Labourers or only Bedouins and so on).

Surrounding each block, it was provided a side walk 4 m wide. The idea is to leave 2 meters for the side walk itself and the other 2 meters for the planting of trees. This will create a green belt around each block to be used as a windbreak (See Figure E-4-5).

## (2) Housing Design.

Five different types of houses were designed following the same concepts. The main idea was to use the traditional courtyard as a converging point of all the rooms, to create an intimacy environment for the family. Besides the intimacy aspect, it will provide a good shade to protect against the strong sunshine. Following the idea of protection against the sun but providing a good ventilation for the rooms, all the houses were designed with an open but covered circulation area, which by its turn, circulates an open space for a garden or any other kind of plants (See Figures E-4-11 to E-4-16).

The houses were designed to be constructed in two stages. The first one to be the minimum necessary space for the family and the second one to be an expansion area, if necessary, completing the idea of the courtyard. For each lot, it was also provided a livestock area at the rear of the lot with a different entrance. All the lots, except the labourers and Bedouins ones, have a space for garage. For the houses of small investors and large investors it is also foreseen a vertical expansion. The main features of the lots are presented in the next table:

**TABLE OF THE LOTS**

Type	Provide for	Lot Area (Dimension)		Construction Area		Live stock Area / Garden	
		(m <sup>2</sup> )	(m)	1 <sup>st</sup> Stage	2 <sup>nd</sup> Stage	Area(m <sup>2</sup> )	Dim.(m)
Type-1	Labour & Bedouin	250	12.5X20	42.5	53.5	72	6X12.5
Type-2	Grad. & S/Farmer	350	14.0X25	65.7	52.5	112	8X14.0
Type-3	Office Staff	400	16.0X25	89.2	42.0	128	8X16.0
Type-4	Small Investor	400	16.0X25	87.5	74.7	128	8X16.0
Type-5	Large Investor	450	18.0X25	111.7	94.5	144	8X18.0

**(3) Building Construction.**

It is proposed that the main material for construction of housing and community facilities is limestone blocks. These are available within Sinai close to the Bitter Lakes and at Maghara and Hosna. Blocks of high density and compressive strength should be used, especially for larger buildings.

For larger buildings such as community facilities, concrete slabs are generally recommended for floors and ceilings since these facilitates vertical expansion. For larger buildings and specially two storey units, it is recommended that a concrete frame is constructed and limestone blocks used for filling the walls.

**(4) Village Layout.**

The Central Village C - 3 is divided by the Irrigation Canal and the Main Road which gives it a particular and very defined shape. Three (3) public services facilities areas were provided in the middle of the village in a manner that the distances between each house and them do not exceed 1 km. Also in the middle of the village, it was provided a soccer fields and sports area. The cemetery was placed in one extreme of the Village providing a peaceful area close to the plantations. An area for agro-industry and food processing centre was provided close to the main road in the Southeast corner of the village. Once most of the winds are northerly, this was a measure to protect the village against odours or other undesirable effects which could come out of the industries (See Figure E-4-6).

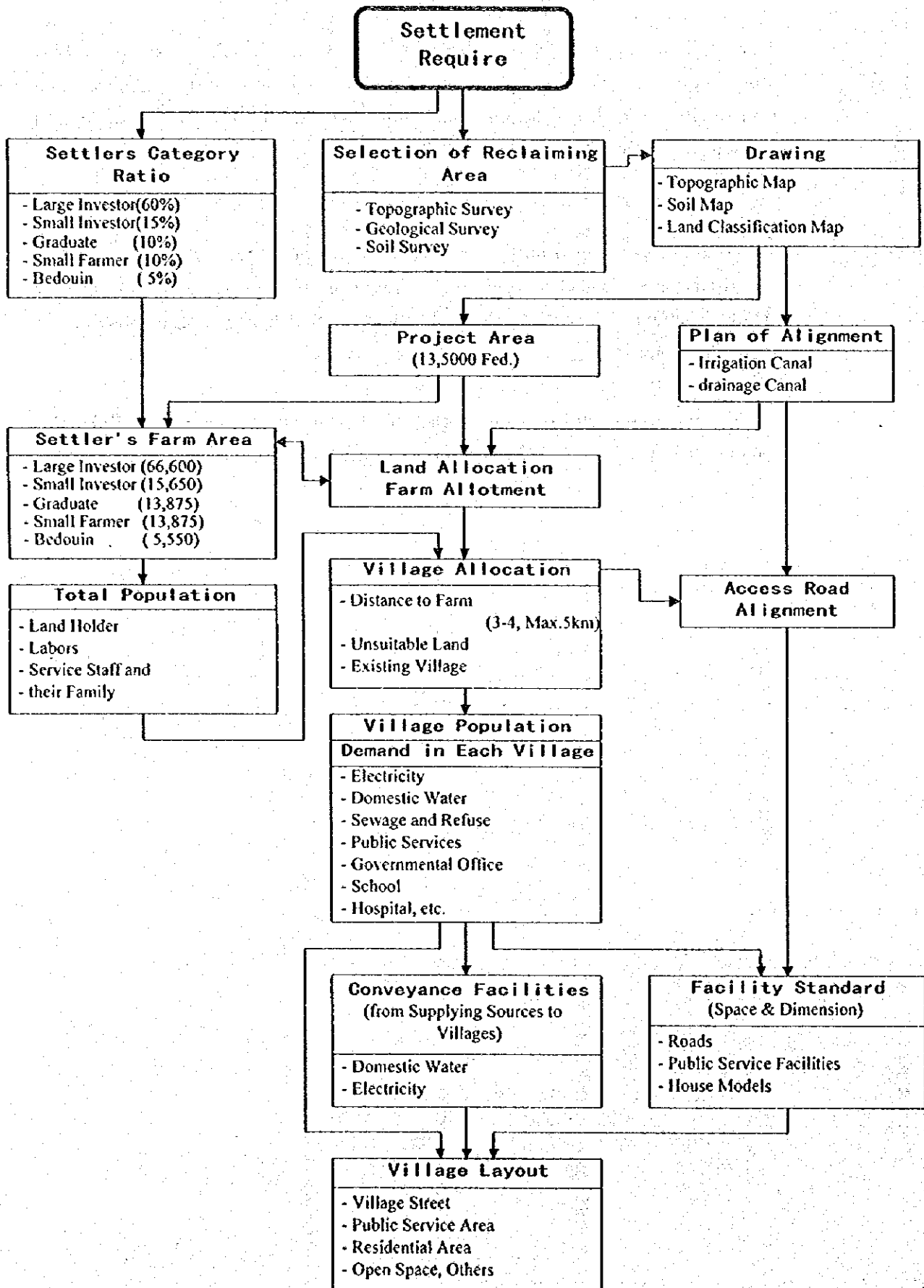
In the larger and more central public services facilities area, it is foreseen the construction of a Mosque, a Social Community center and Cinema Theater,

Market, Shops, Banks and the offices for the Government, Telephone office, Post office and other services. This group of buildings will be surrounding a so called Central Park which can be an open public space area with some gardens and areas paved with stone mosaics.(See Figure E-4-7).

The area most distant from the main road was reserved for the Schools facilities and the Hospital. This was to preserve them from the noise and danger of heavy traffic. They will be closer to the plantations area although with an easy access through a main street.

Besides the green belt provided for each block, the village as a whole will be also surrounded by a green belt for windbreak purpose.

**Figure E-4-1 Flowchart of Village Planning**





**Figure E-4-2 Image of Village Distribution**

Image of Village Distribution

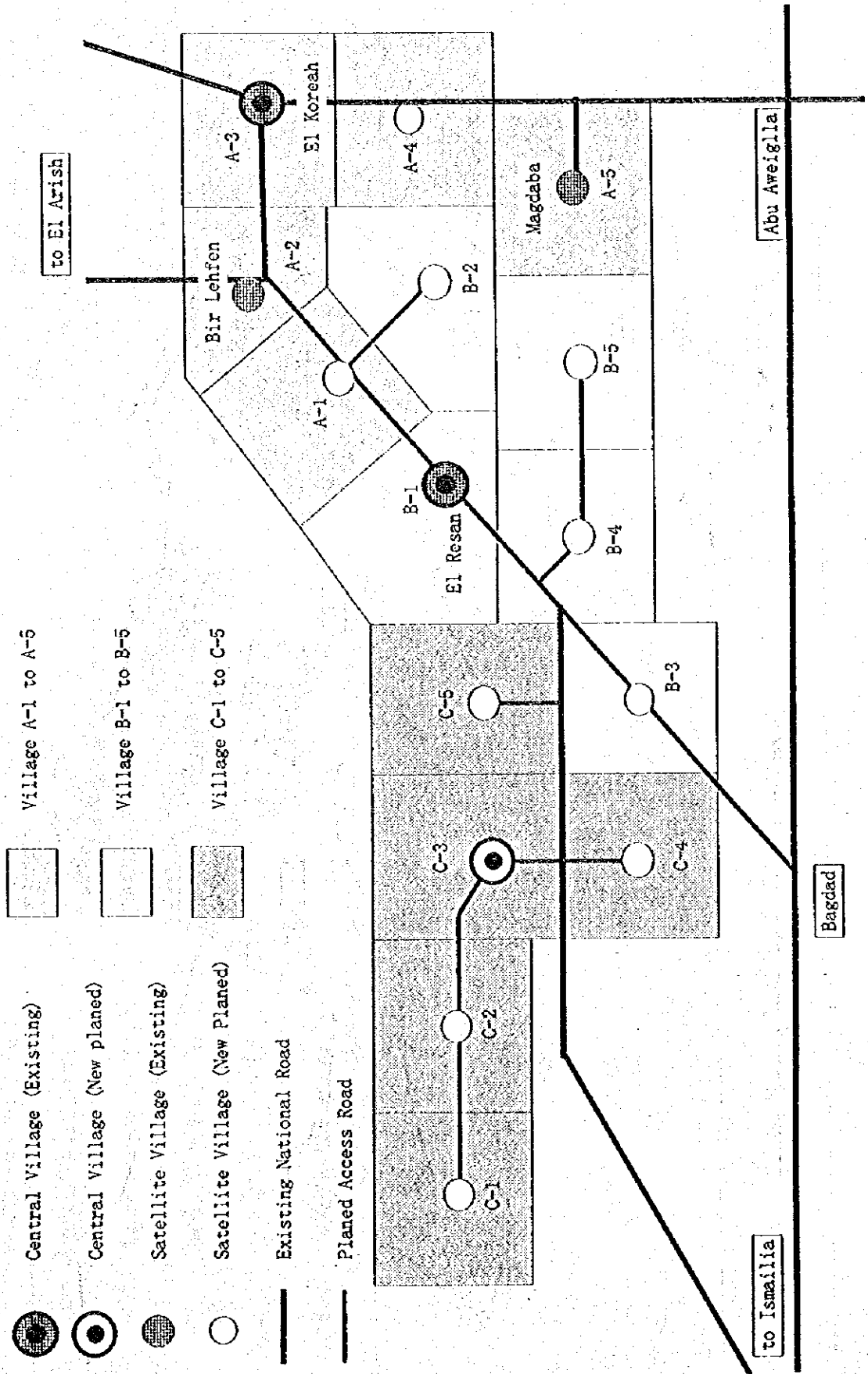
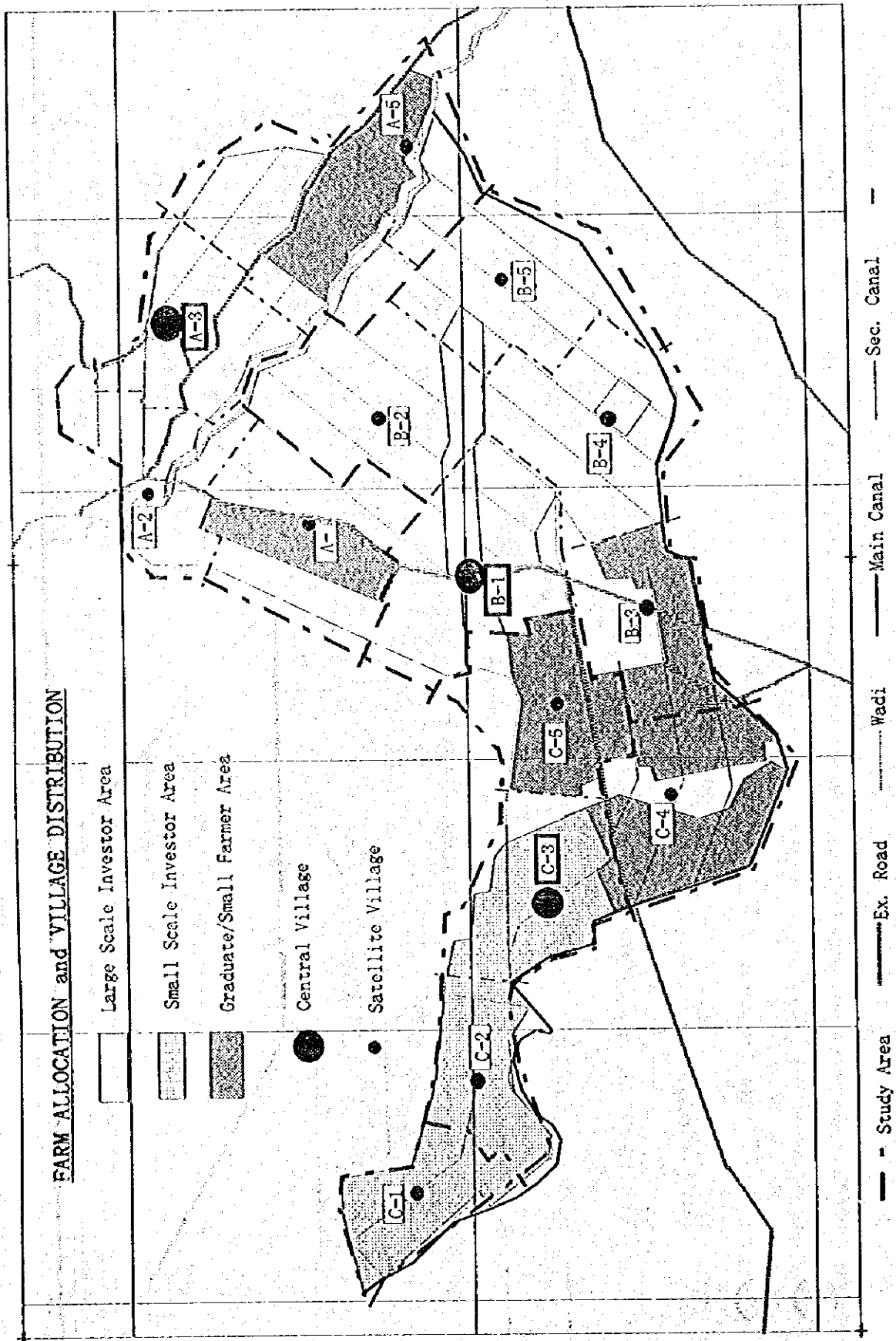


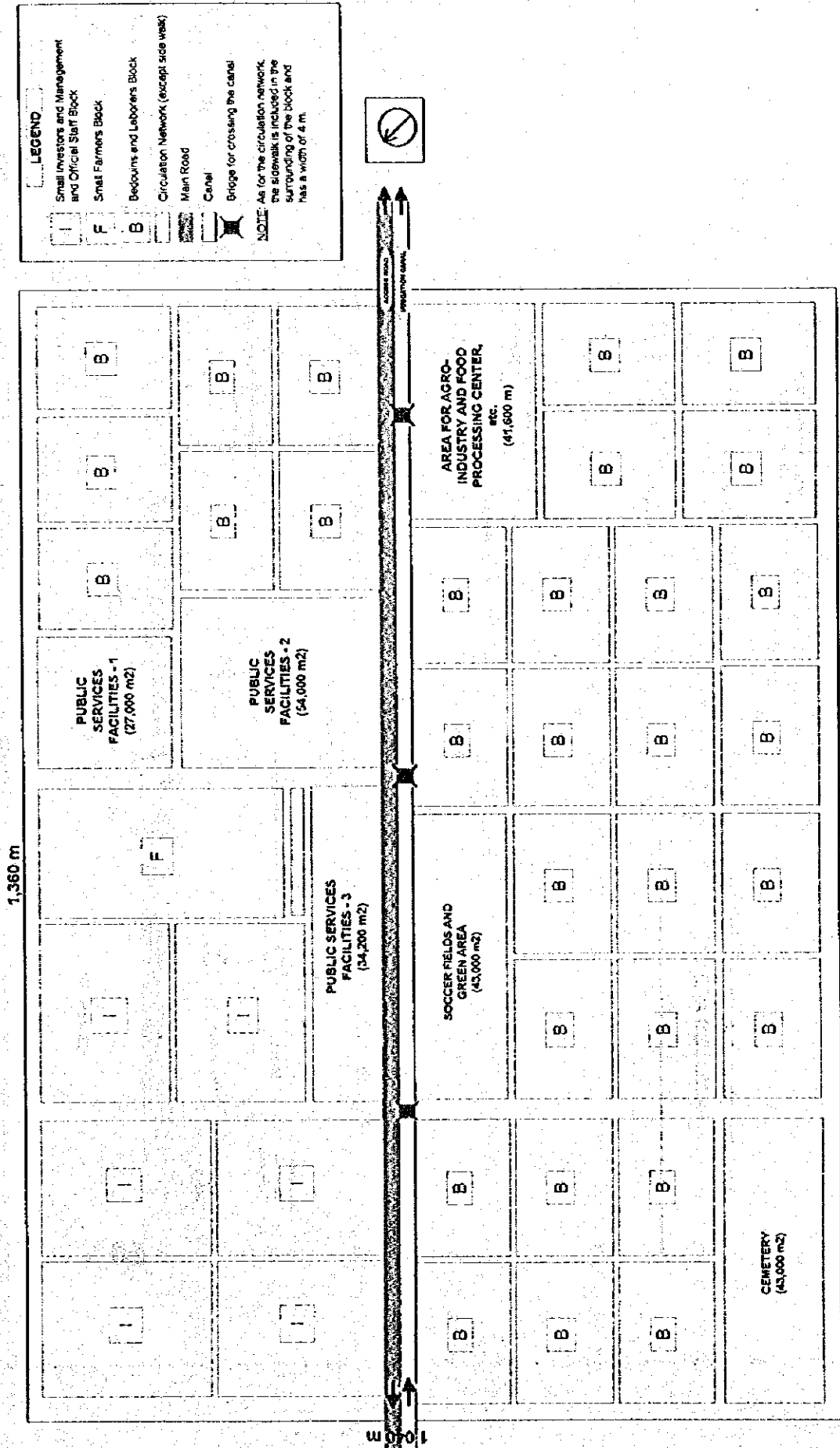
Figure E-4-3

Farm Allocation and Village Distribution

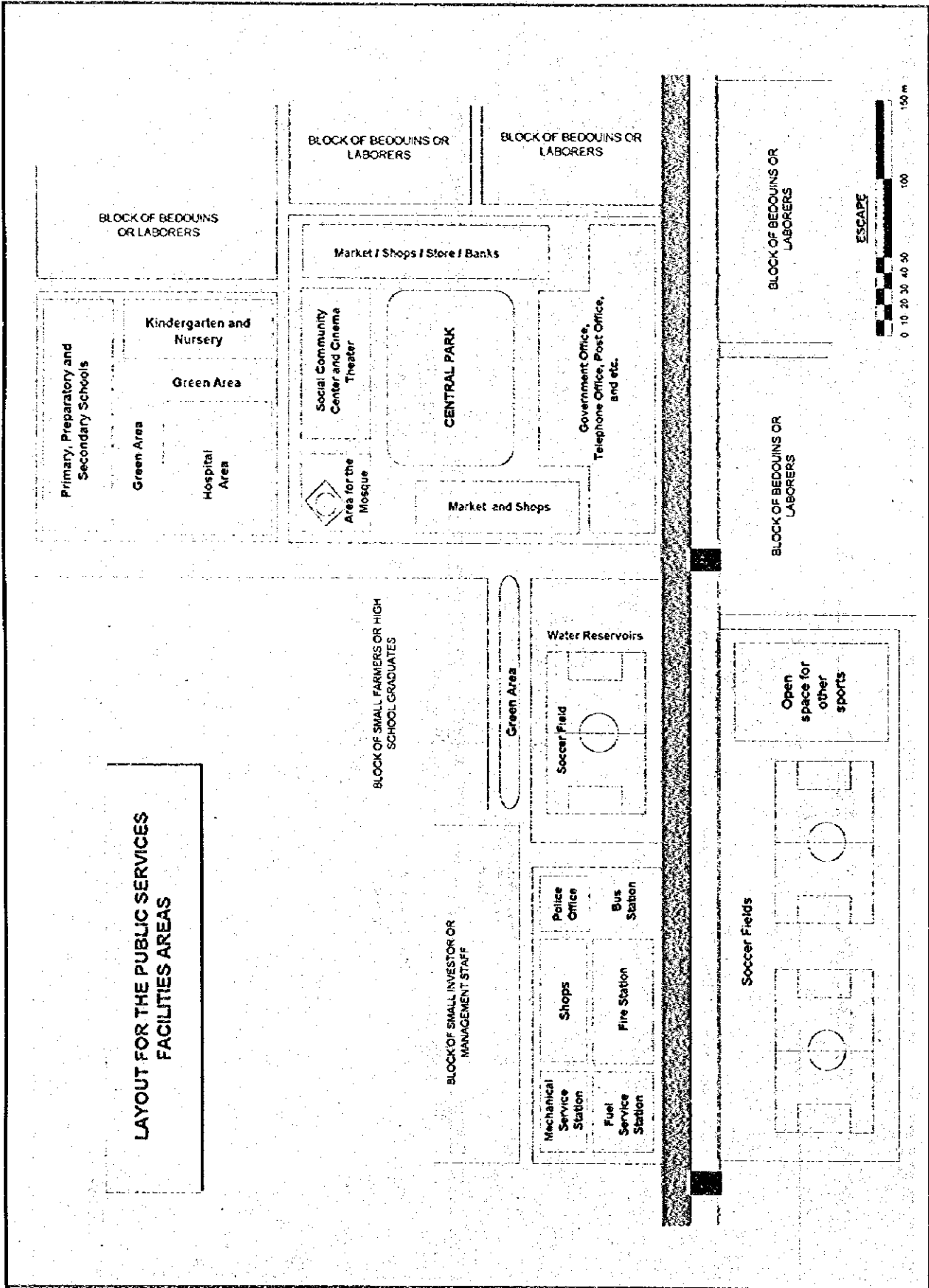


**Figure E-4-4 General Layout of the Central Village : C-3**

**GENERAL LAYOUT OF THE CENTRAL VILLAGE (C - 3)**



**Figure E-4-5 Layout of Public Services Facilities Area**



**Figure E-4-6 Block Arrangement of Labour and Bedouin**

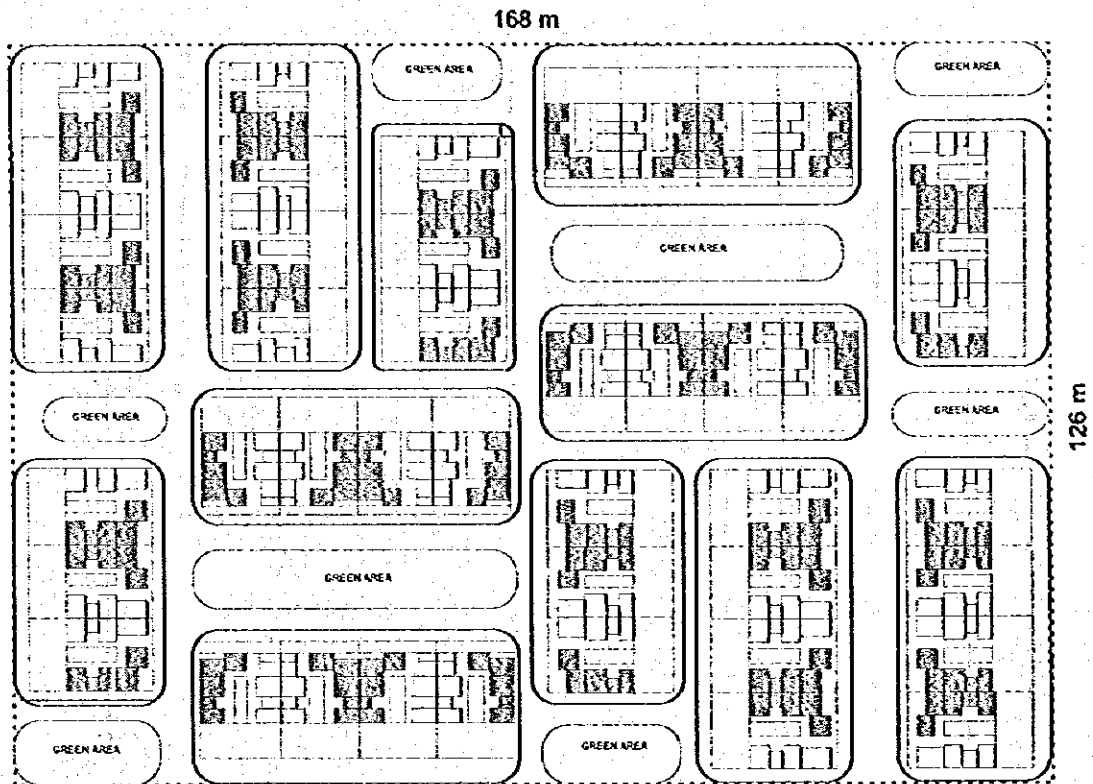
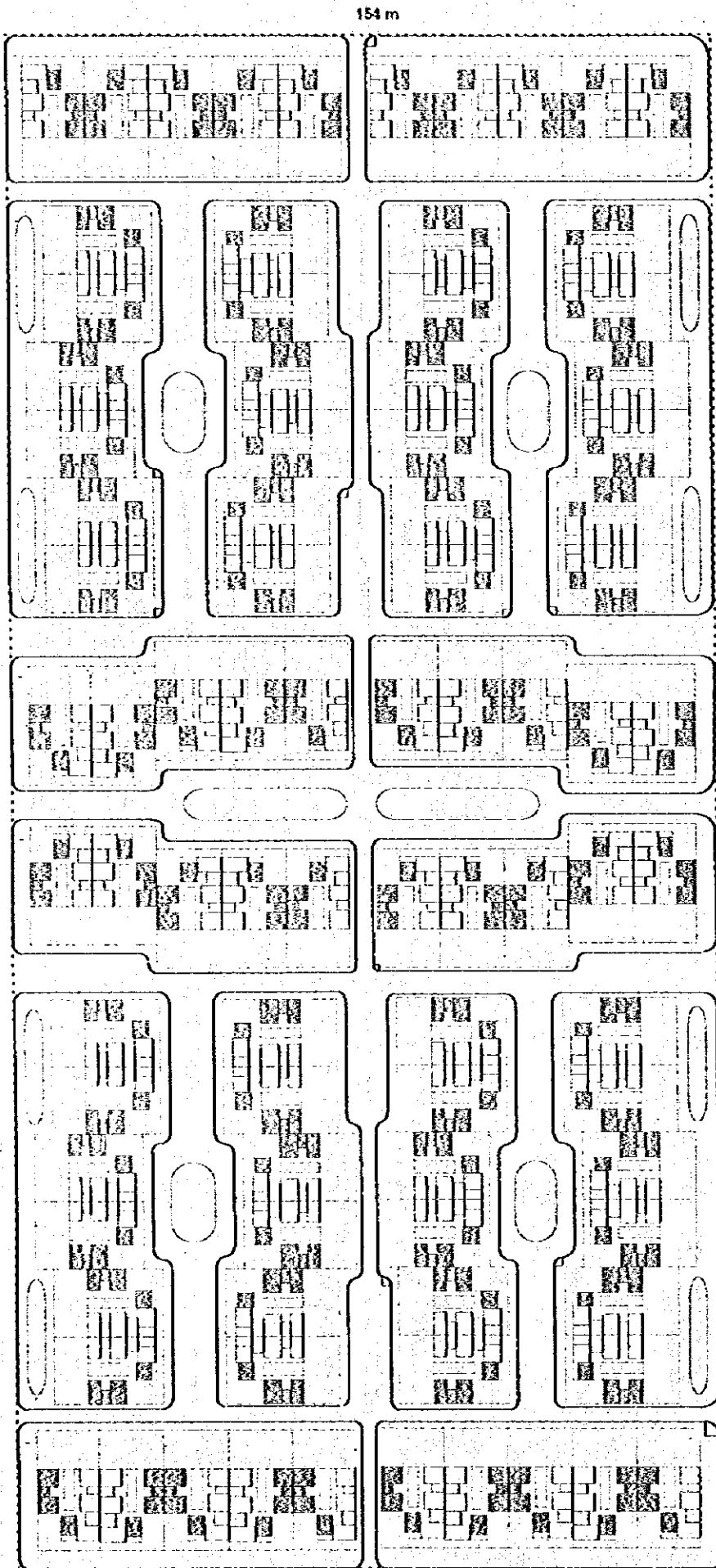


Figure E-4-7 Block Arrangement of Graduate and Small Farmer



**Figure E-4-8**    **Block Arrangement of Official Staff and Small Investor**

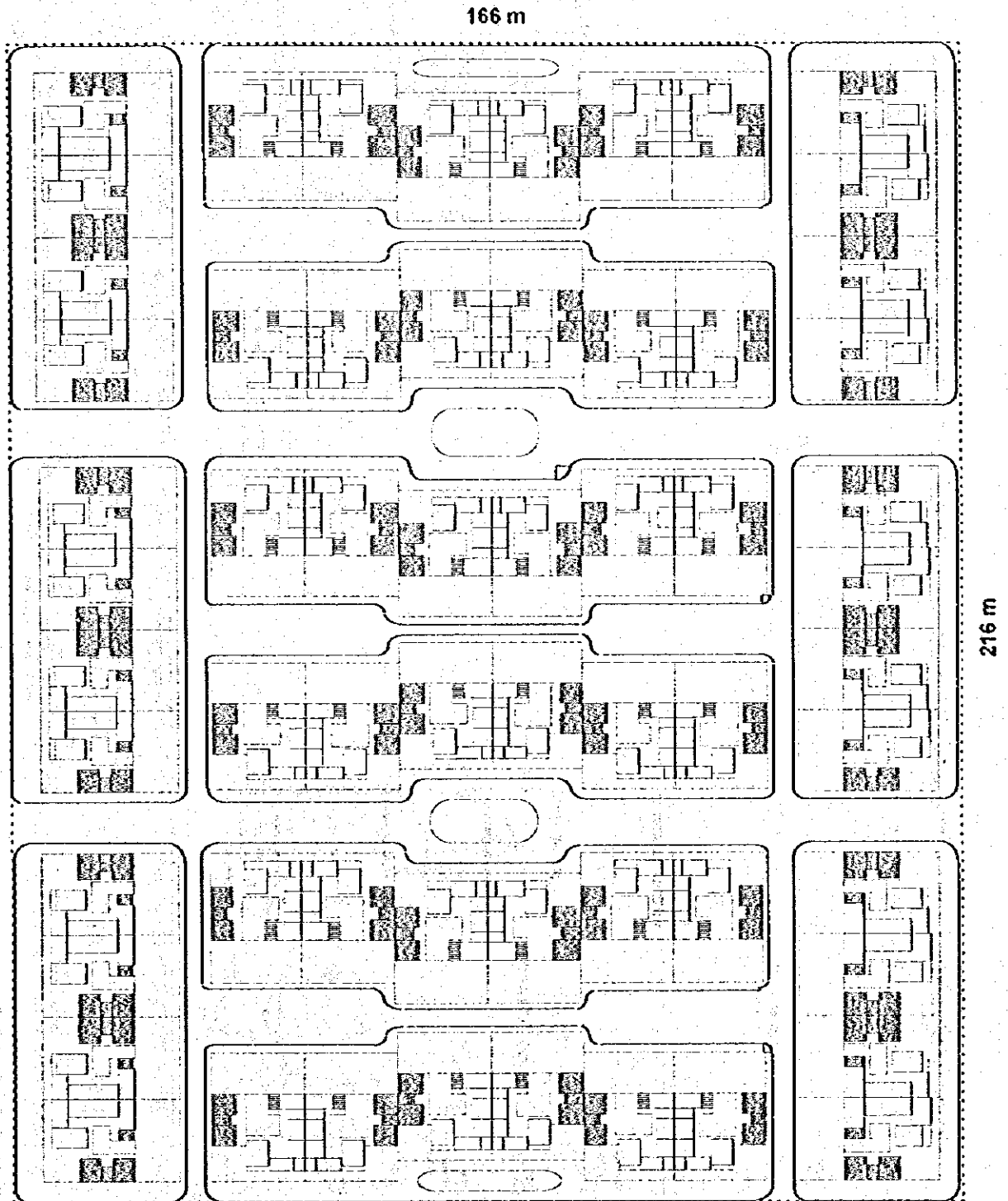


Figure E-4-9 House Model Type-1 (for Labour and Bedouin)

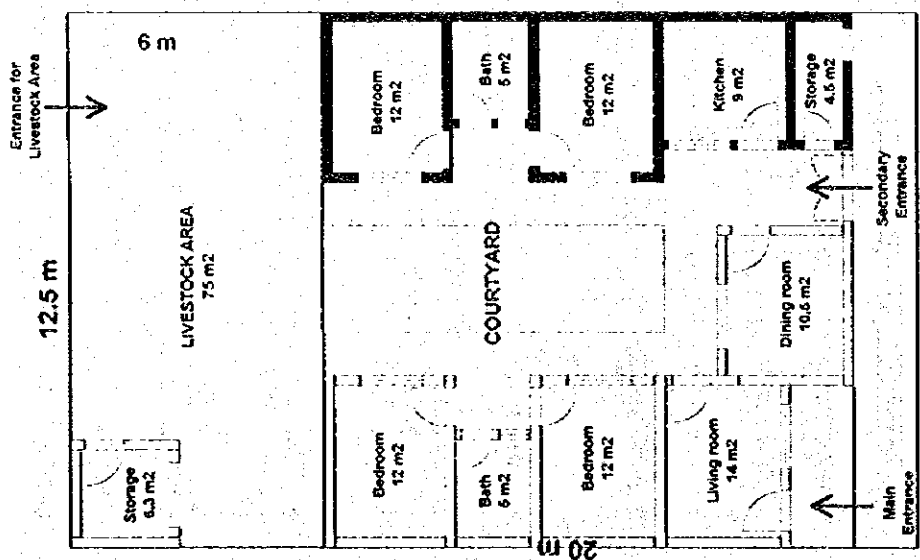
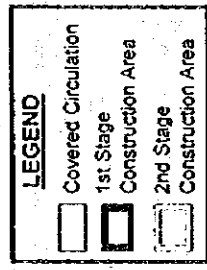
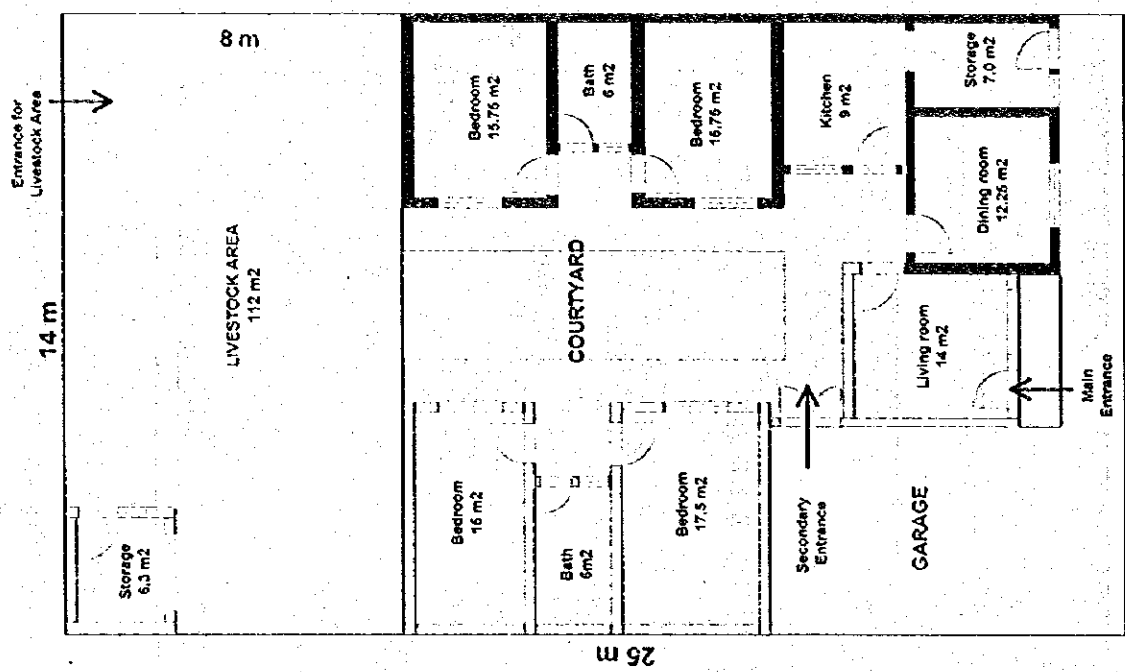


Figure E-4-10 House Model Type-2 (for Graduate and Small Farmer)





**Figure E-4-11 House Model Type-3 (for Official Staff)**

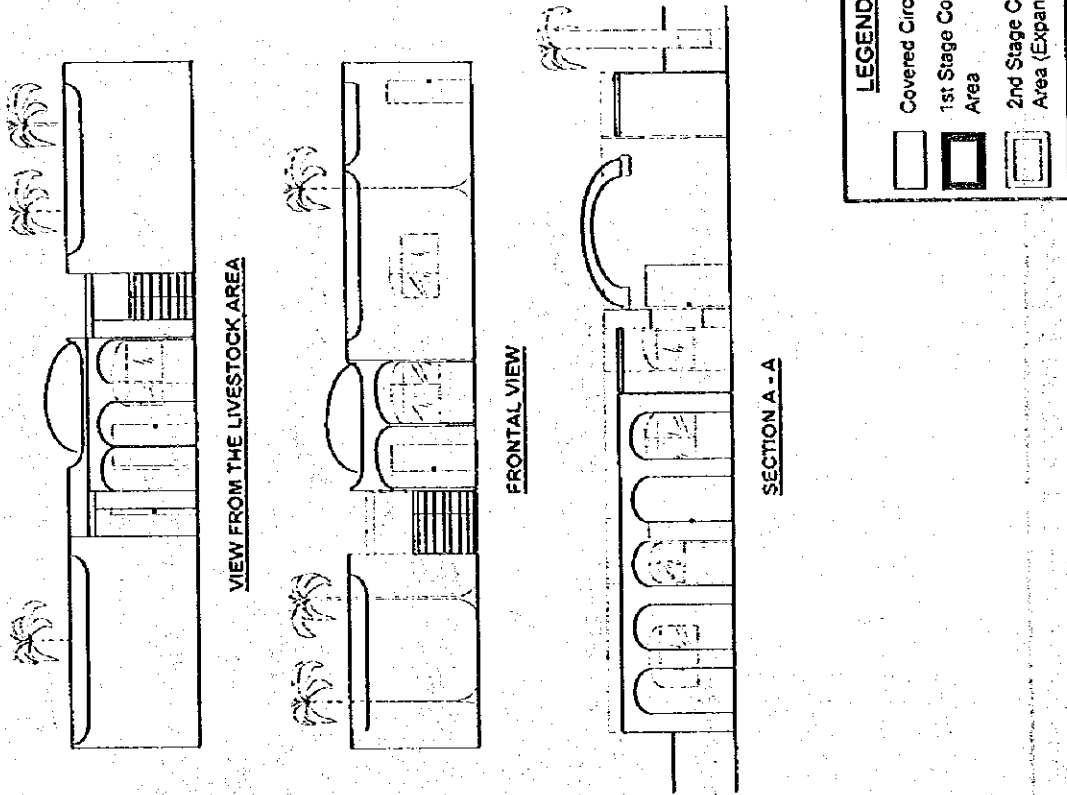
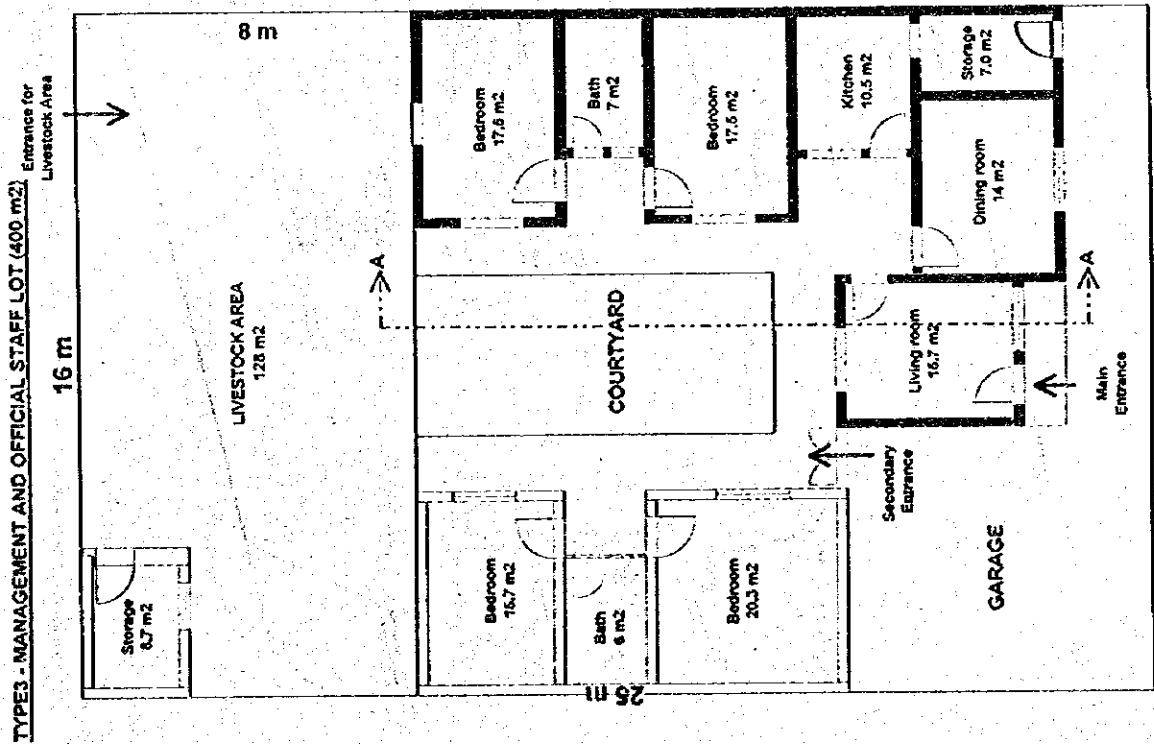
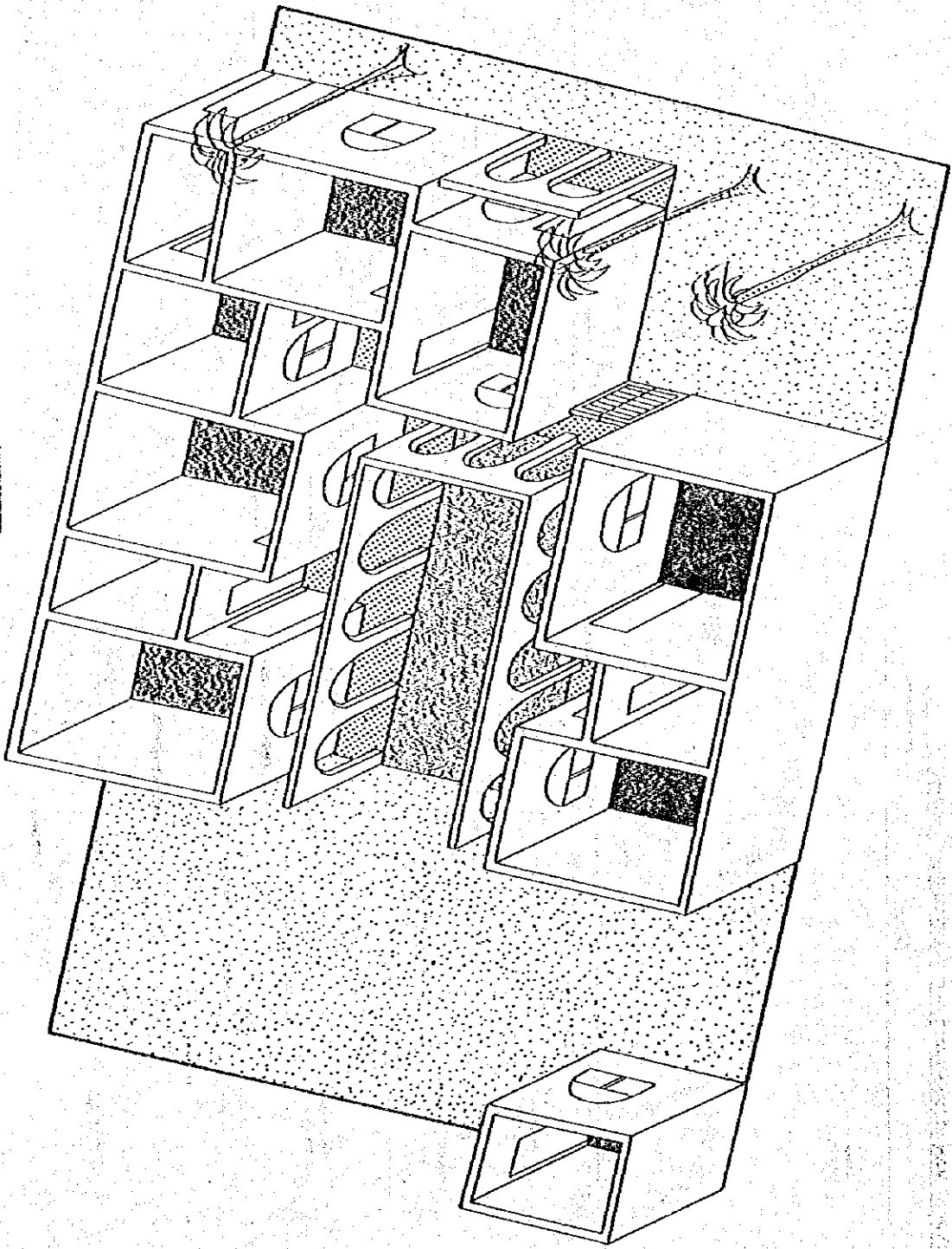


Figure E-4-12 Perspective View of the House Model Type-3

Perspective View of the House of Management and Official Staff



**Figure E-4-13 House Model Type-4 (for Small Investor)**

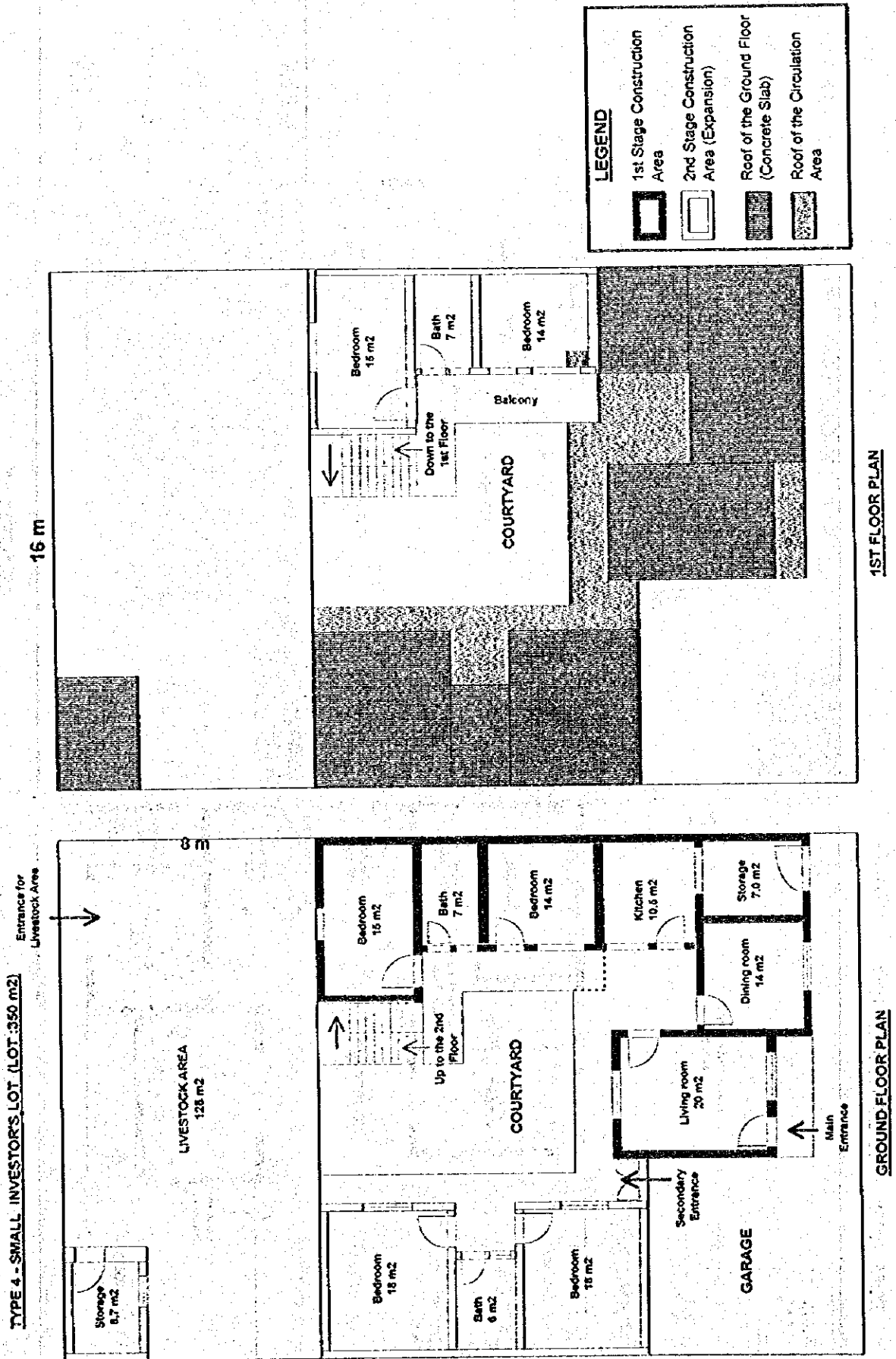
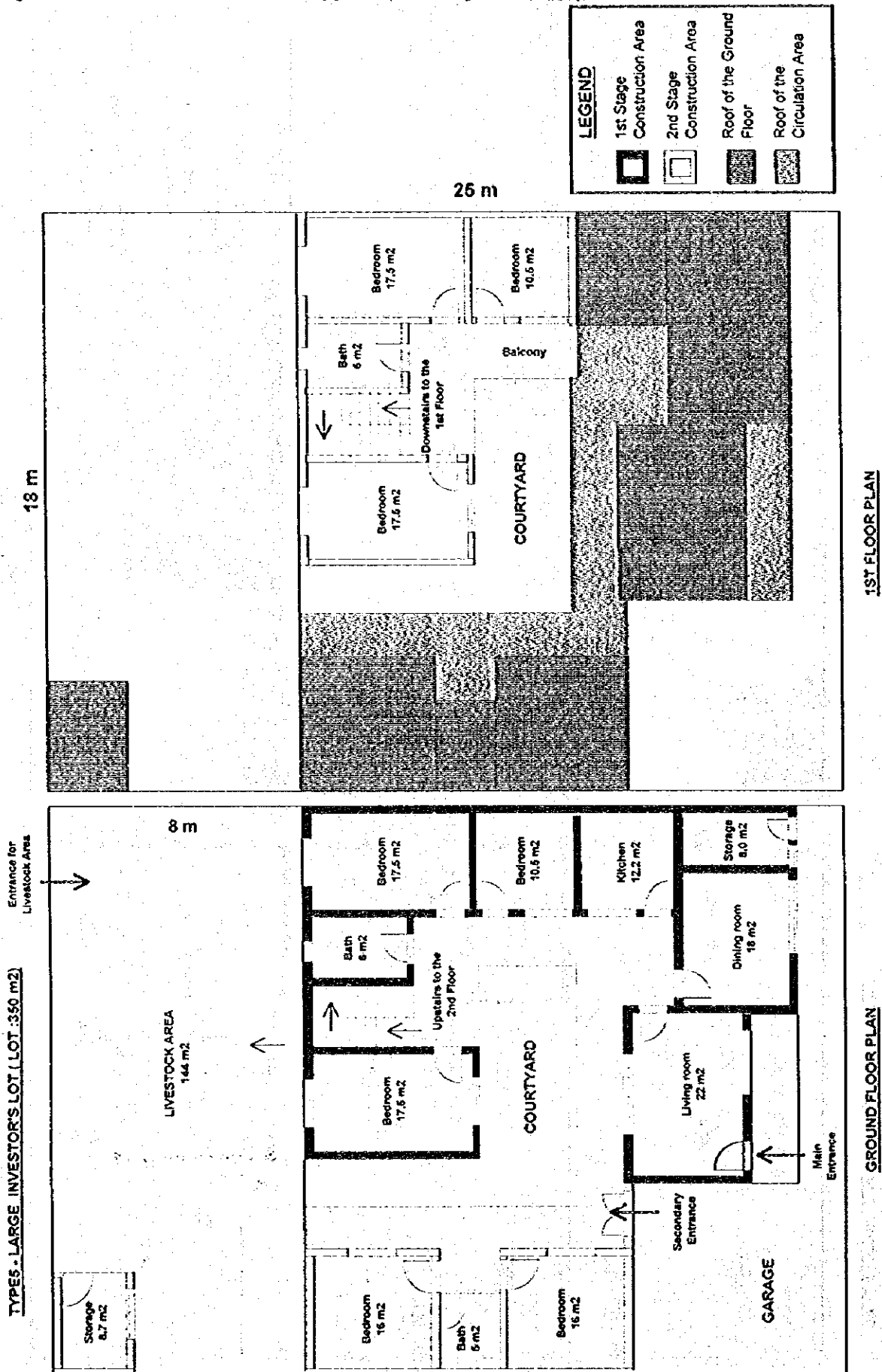


Figure E-4-14 House Model Type-5 (for Large Investor)



**APPENDIX F**

**A**GRICULTURAL DEVELOPMENT  
**S**SUPPORTING SERVICES

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## F-1 Soil and lands

### F-1-1 Soil Survey and Analysis

Soil survey was carried out in order to supplement the previous soil survey results carried out by GARPAD and to obtain first-hand information on soil properties, based on which farming, irrigation and drainage practices are to be planned. The survey was entrusted to an Egyptian consulting firm.

One hundred(100) sites were selected for the observation of soil profiles and sampling of soil materials. The soil pits were dug out to the depth of 1.5m, from which two samples each were collected, totaling 200 samples. Information on the pits and the characteristics of soil profile are described according to 'The Guideline for Soil Profile Description' of FAO/UNESCO.

Following above observation, 100 samples were sent to a laboratory for physical analysis, namely, two samples from the selected 50 pits. Five parameters are analyzed. Those of which are grain size composition, real specific gravity, apparent specific gravity.

For chemical analysis, 50 soil samples were undertaken to analyze the chemical properties such as pH(H<sub>2</sub>O), pH(KCl), electric conductivity (EC, 1:2.5), electric conductivity (EC<sub>e</sub>, saturated extract), soluble salts (Ca, Mg, Na, K, CO<sub>3</sub>, Cl, SO<sub>4</sub>), cation exchange capacity (CEC), exchangeable cations (Ca, Mg, Na, K), organic matter, total nitrogen, available phosphate, total calcium carbonate and gypsum requirement.

Field intake rates were carried out at the selected 10 sites by applying double-ring observation methods. Also, permeability of 10 undisturbed soil samples were tested in a laboratory. The samples were collected from selected 10 pits with stainless core samplers of 100 ml.

### F-1-2 Land Management Categories

#### Land management categories Ia and Ib

Lands of category I, divides into subcategories Ia and Ib, are clay soils which are mostly very saline when uncultivated and have low permeabilities.

Subcategory Ia includes the clayey soils of fluvio-marine origin. The surface is flat with occasional low clay dunes. The soil profile is predominantly fine-textured but medium to coarse textured layers in the subsoil are not uncommon. Clayey subsoil layers are ripe to 50-100 cm depth in most profile but near the southern edge of the fluvio-marine marshes the soils are ripe to well below in depth. Surface textures may be loamy here. The soils are very strongly saline with EC<sub>e</sub> values of 100 mS/cm. Towards the coastal layers the soil surface dips to below the water level. Intensive drainage with pumping will be needed over the whole area. Rice and berseem will be the first crops to plant as soon as desalination of the topsoil allows, the submerged conditions helping in suppressing the salinity. Later on other field crops and vegetables may follow. This land is best reclaimed by small holders or family farms.

Subcategory Ib includes clayey soils found outside the Delta (e.g. New Valley). The ground water table is well below the depth of the root zone. The soils are mostly highly saline

and also contain gypsum. They occur in relatively small extents in association with loamy to sandy soils.

When this type of land is taken into production, rice grown in wet basins is a suitable crop.

Since water resources are much more limited than soil resources here, water earmarked for other crops may better be applied on the loamy to sandy soils of these areas.

#### Land management categories IIa and IIb

The lands of land management category II, divided into subcategories IIa and IIb, include sandy loams to silty clay loam and permeable clays. These soil textures allow basin and hand-move sprinkler irrigation but since they are medium rather than fine textured the infiltration rates will be too high for growing wetland rice with traditional basin irrigation. Improved gravity irrigation using gated pipe is therefore recommended.

Category IIa includes the weakly calcareous sandy loams to silty clay loams. They are found in fairly large extents in East Kom Ombo and in small tracts on wadi plains and in the basins of New Vallay. They have few limitations for crops and farming and are rated as very good arable in the USBR system.

Category IIb includes the calcareous sand, loams to silty clay loams of the Nubariya area, such calcareous soils are also found in small tracts in the basins of New Vallay.

Gravity irrigation with gated pipes is to be preferred over sprinkler on these soils, the structure of which is weak so that the topsoil easily seals.

Calcareous soils are not suitable for certain crops such as citrus and cotton, which show nutritional disorders due to the high activity of the lime, but grains, legumes, oil seeds, fodder crops can be grown. Most of these lands are found in the western desert. Rating them on the criteria introduced for the application of the USBR system.

#### Land management category III

Category III includes lands with flat to undulating topography in various desert land-forms. The soils are deep and the texture is predominantly sandy with a total available moisture content of 5-10 % by volume.

Gated pipe irrigation or hand-operated sprinkler systems are the most suitable. Some levelling will be needed. Drainage will often be required but only after a number of years, and the drainage intensity will be average to easy. With the exception of rice and cotton and berseem a wide range of crops is possible, but because of the low moisture content of the soils the lands are rated as moderately good arable, Class III in the USBR system.

Family farms are possible as in the lands of category II. Most of these lands will be economically almost as productive as those of Category II. They differ from the lands of category II in that their management is different and the risk of yield loss because of interruption in water supply is higher.



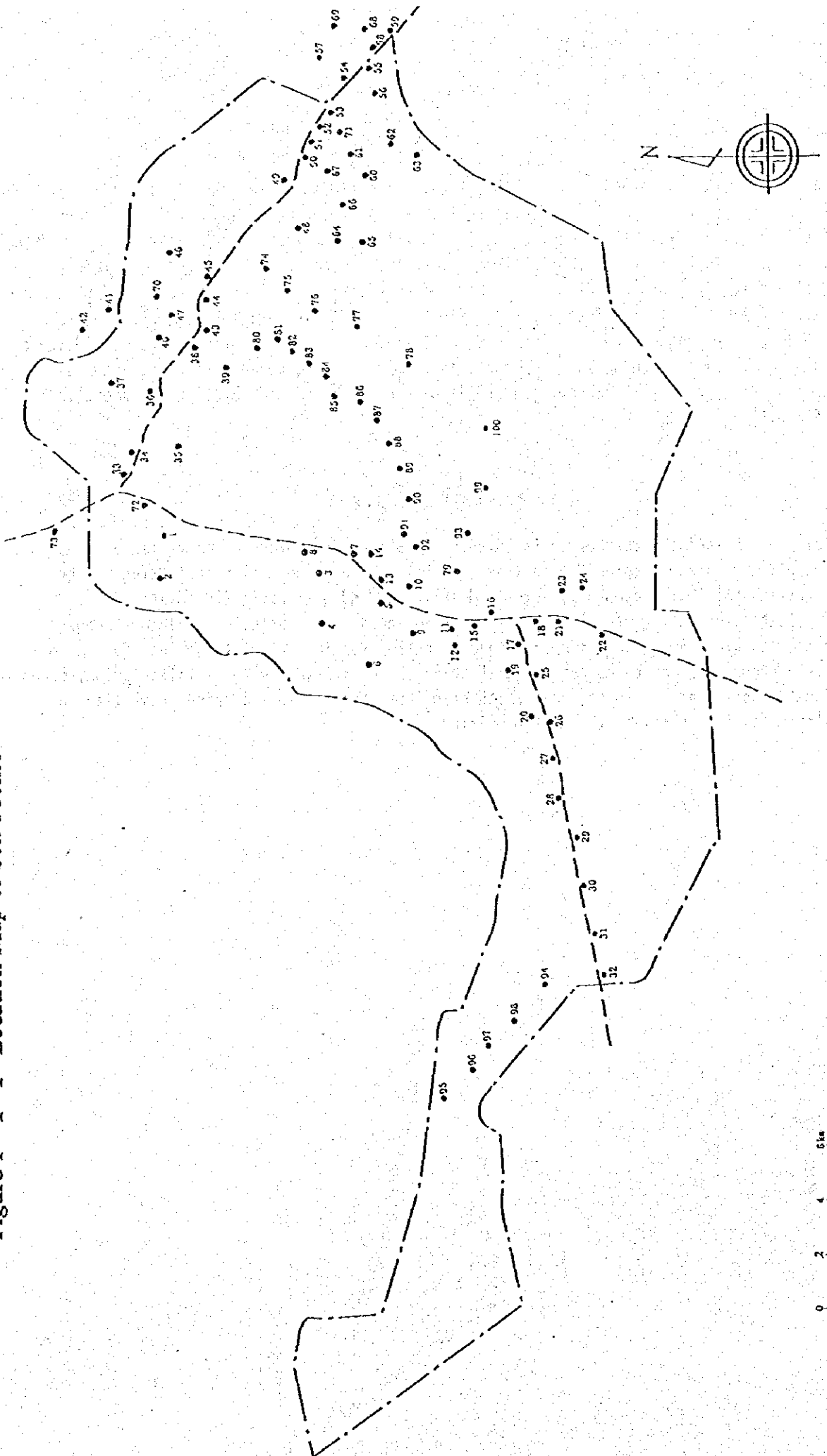
#### Land management category IV

Category IV includes sandy soils with a total available moisture content of 5-10 % by volume, which are situated in undulating topography including low and medium-high dunes (up to 3 m). The levelling requirements are therefore considerable and preclude gated pipe irrigation. The moisture retention is sufficient for hand-operated sprinkler systems. The drainage requirements are similar to those of category III but on the average somewhat more favourable. Small family farms are possible but estates with or without smallholders should also be considered, in which case automated sprinkler and drip may be considered as an alternative to hand-operated systems. The crops that can be grown are the same as on lands of category III. These lands are also rated Class III moderately good arable in the USBR system.

#### Land management category V

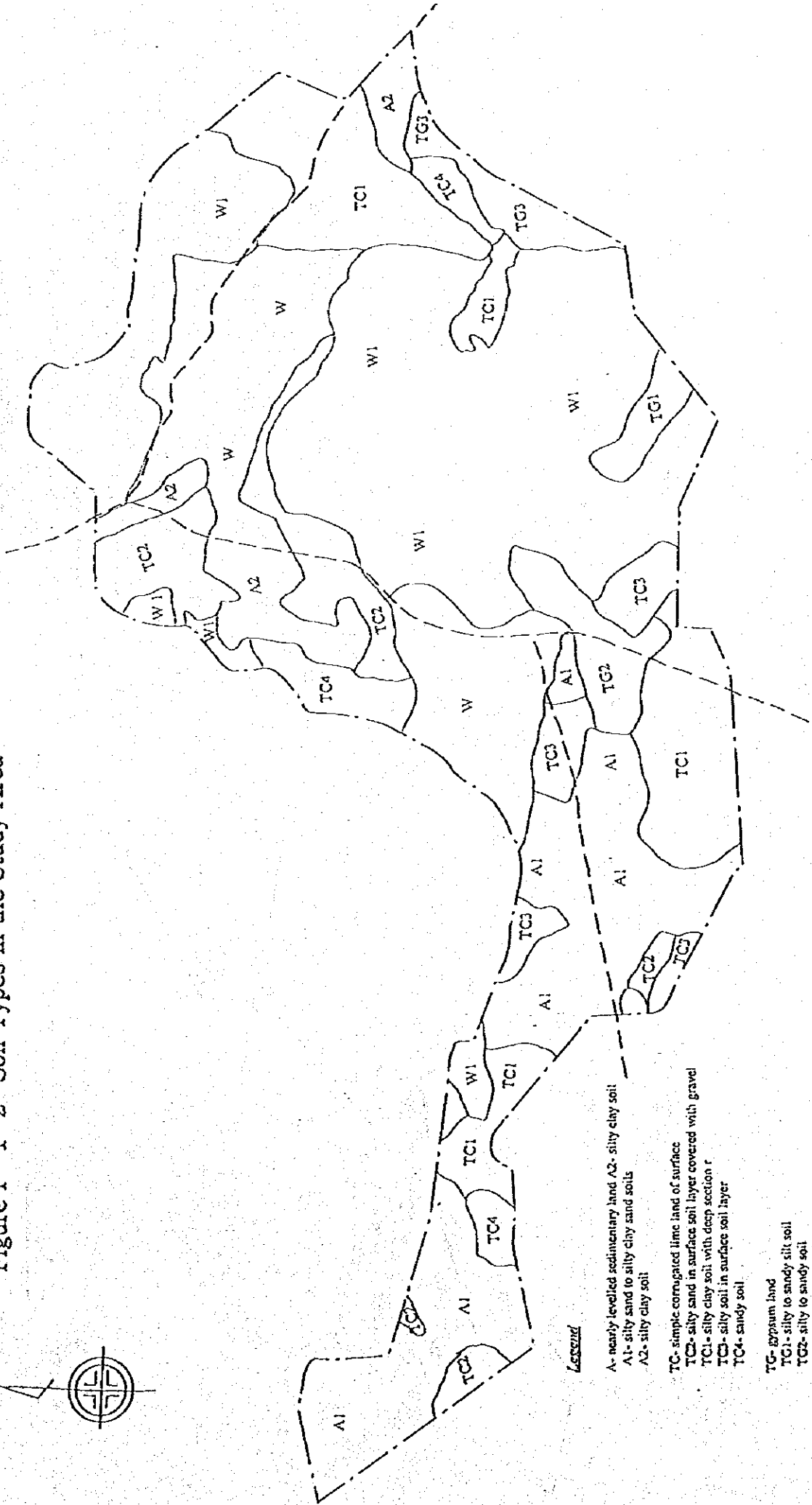
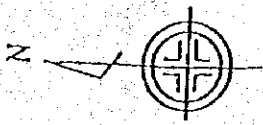
Category V includes the coarse textured soils which may include an appreciable amount of gravel. The moisture retention is less than 5 % and in summer daily irrigation may be required. For that reason only automated sprinkler and drip irrigation systems are applicable, which require high investments and energy costs but have low labour requirements. Estate farming is the most suitable option for this type of farming. Most main field crops will not be compatible with this type of irrigation but alfalfa, onion, beans, tomato and groundnut can be grown. With drip irrigation fruit and grape growing is an alternative which may be the most promising.

Figure F-1-1 Location Map of Soil Profile



0 2 4 6 km

Figure F-1-2 Soil Types in the Study Area



**Legend**

- A- nearly levelled sedimentary land A2- silty clay soil
- A1- silty sand to silty clay sand soils
- A2- silty clay soil
- TC- simple corrugated lime land of surface
- TC2- silty sand in surface soil layer covered with gravel
- TC1- silty clay soil with deep section r
- TC3- silty soil in surface soil layer
- TC4- sandy soil
- TG- gypsum land
- TG1- silty to sandy silt soil
- TC2- silty to sandy soil
- TC3- silty to sandy soil
- W- light to heavy corrugated movable sand formed because of wind
- W1- loose sandy soil

Figure F-1-3 Land Management Category Map

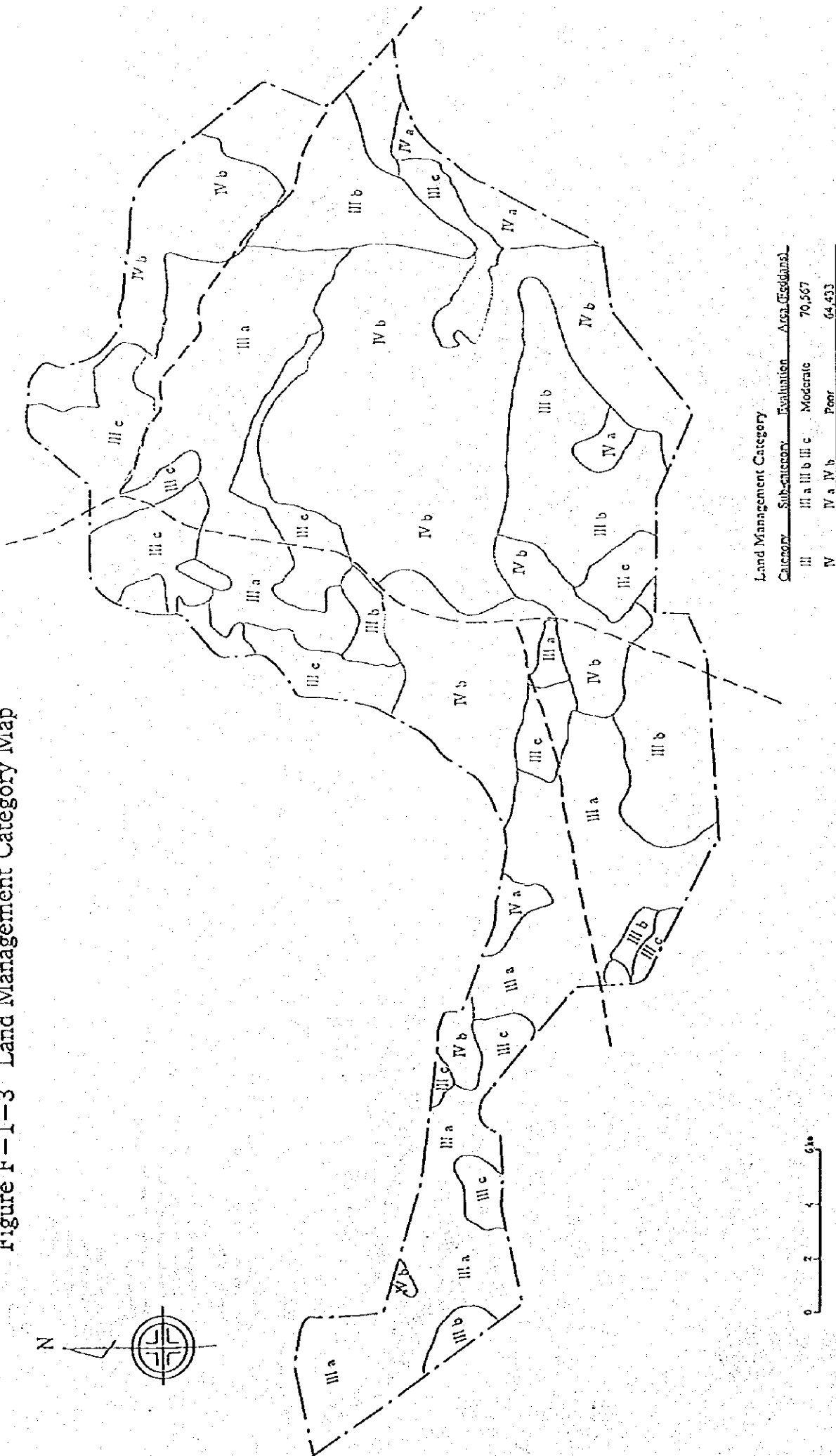


Table F-1-1 Soil Chemical Analysis

Prof. No.	Depth cm	PHw 1:2.5	ECw ms/cm	PHe	ECe ms/cm	CaCO <sub>3</sub> %	Gypsum* meq/100g	Ex. Cations** meq/100g	CEC meq/100g	P*** ppm	Total N %	O.M.**** %	Soluble ions							CO <sub>3</sub>	SO <sub>4</sub>	SAR
													Na	K	Ca	Mg	Cl	HCO <sub>3</sub>	CO <sub>3</sub>			
2	0-40	7.60	0.24	7.30	0.52	2.60	0.16	26.18	3.28	3.30	0.01	0.07	1.29	0.42	7.20	4.02	1.50	1.96	0.49	8.98	0.55	1.18
3	0-15	8.50	0.71	7.40	1.59	4.60	0.00	30.58	3.65	3.30	0.02	0.06	8.88	0.54	17.28	11.03	1.75	2.45	-	33.53	2.43	0.63
4	0-40	8.10	0.59	7.30	2.54	2.00	0.00	30.58	4.41	6.60	0.02	0.07	2.65	0.66	22.56	13.14	2.50	1.23	1.47	28.66	0.66	3.42
8	0-40	8.50	0.59	7.70	2.50	1.40	0.40	26.18	4.80	3.30	0.01	0.12	10.91	0.25	9.60	10.08	2.00	2.45	-	27.11	3.42	1.40
11	0-40	8.50	0.34	7.70	0.90	2.60	0.00	26.18	2.91	3.30	0.02	0.06	2.24	0.41	2.88	2.22	1.25	3.29	-	22.40	0.80	1.40
16	0-50	8.60	0.13	8.00	0.20	1.42	0.00	23.98	2.91	3.30	0.02	0.06	2.74	0.48	14.40	9.32	1.50	5.17	-	1.40	1.36	1.60
20	0-40	8.30	0.27	7.60	0.83	1.50	0.00	23.98	9.56	3.30	0.02	0.06	2.00	0.33	1.44	4.06	1.50	2.45	-	1.09	1.60	1.60
21	0-40	8.30	0.27	7.60	0.83	1.50	0.00	23.98	9.56	3.30	0.02	0.06	2.00	0.33	1.44	4.06	1.50	2.45	-	1.09	1.60	1.60
32	0-40	8.10	0.51	7.70	1.82	9.50	0.56	39.38	3.65	1.60	0.02	0.15	104.13	0.87	33.60	28.88	128.00	0.98	0.98	37.52	18.63	21.30
33	0-40	8.30	0.51	7.70	1.82	9.50	0.56	39.38	3.65	1.60	0.02	0.15	104.13	0.87	33.60	28.88	128.00	0.98	0.98	37.52	18.63	21.30
36	0-35	8.40	0.20	7.80	0.40	1.40	0.17	30.58	4.02	3.30	0.02	0.06	11.68	0.42	2.88	4.77	11.50	2.21	-	6.04	5.97	6.28
41	0-45	8.90	0.14	7.70	0.13	34.00	0.53	28.38	10.51	0.00	0.02	0.06	10.41	0.68	2.98	2.62	11.25	2.45	0.49	2.40	6.28	18.53
45	0-25	7.70	4.76	7.10	8.65	5.60	0.18	67.98	22.19	1.60	0.02	0.06	1.35	0.21	1.92	2.45	1.25	2.94	-	1.71	0.91	0.91
49	0-20	8.50	0.37	7.80	0.90	1.50	0.19	50.38	6.86	0.00	0.04	0.17	148.36	0.75	45.12	34.70	139.00	1.96	-	47.97	23.48	34.68
52	0-40	9.30	0.46	8.40	1.20	38.00	0.30	54.78	3.65	1.60	0.02	0.23	5.84	0.56	29.76	53.88	170.00	1.96	-	145.75	36.13	1.89
55	0-65	8.60	0.18	8.00	0.67	27.00	0.21	41.58	3.65	1.60	0.02	0.06	4.56	0.52	22.56	21.30	20.50	1.96	-	67.57	9.75	6.86
57	0-40	8.80	0.38	8.20	1.41	4.90	0.69	67.98	3.65	3.30	0.02	0.06	7.04	0.54	6.00	1.65	7.50	1.47	-	6.86	3.91	3.33
59	0-35	9.00	1.05	8.20	3.75	24.00	0.48	32.78	21.57	0.00	0.04	0.06	157.87	0.46	22.56	22.32	77.50	2.45	-	121.26	33.33	1.51
65	0-15	8.60	1.41	8.00	4.10	4.60	0.00	43.78	4.80	0.00	0.02	0.10	35.92	0.66	24.00	14.25	17.50	1.96	-	52.37	8.21	5.68
72	0-35	8.70	0.33	8.00	0.68	26.20	0.63	50.38	10.03	1.60	0.03	0.07	18.77	0.25	1.92	3.18	15.50	2.94	-	5.68	1.75	6.64
80	0-40	8.50	0.18	8.20	0.30	18.80	0.29	37.18	19.73	3.30	0.03	0.13	6.28	0.41	2.88	5.28	5.75	2.21	-	6.89	3.11	3.02
85	0-40	8.80	1.66	7.20	10.30	3.00	0.25	52.58	6.43	20.00	0.04	0.31	2.81	0.32	2.40	2.70	3.00	2.21	-	3.02	1.76	1.76
90	0-50	8.70	0.16	8.00	0.70	10.80	0.62	52.58	15.15	3.30	0.04	0.07	2.81	0.18	0.48	1.05	1.00	2.45	-	1.07	3.21	3.21
94	0-50	7.80	2.11	7.40	3.20	2.40	0.02	41.58	15.15	3.30	0.02	0.12	13.72	0.39	20.16	14.52	3.00	1.72	-	44.07	3.29	41.08
98	0-30	8.60	0.20	7.60	0.85	3.20	0.88	41.58	15.15	6.50	0.03	0.09	9.60	0.27	24.00	11.19	2.75	1.23	-	41.08	2.29	41.08
	30-70	8.30	0.65	7.50	2.70	5.20	0.23	41.58	15.15	7.30	0.03	0.28	12.04	0.33	14.40	9.83	1.85	2.45	-	32.30	3.46	32.30

PHw: PH in 1:2.5 Soil; Water ratio  
 ECw: Electrical conductivity in 1:2.5 Soil; Water ratio  
 PHe: PH in soil paste  
 ECe: Electrical conductivity in soil paste  
 \* Gypsum requirements  
 \*\* Total exchangeable bases  
 \*\*\* Available Phosphorus  
 \*\*\*\* Organic Matter

Table F-1-2 (1) Soil Physical Analysis

Prof. No.	Depth cm	Color	Texture	Structure	Hardness	Root	Bulk Density Db	Real Density Ds	Pore %	Initial Intake-Rate cm/hr	Final Intake-Rate cm/hr
1	0-30	Brownish yellow (10YR 6/6) moist	Sand	Single grain	Slightly hard	Moderate small fine dead	1.53	2.67	42.7	-	-
	30-80	Brownish yellow (10YR 6/6) moist	Sand	Single grain	Slightly hard	Few small fibrous dead	1.63	2.66	38.5	-	-
2	0-40	Brownish yellow (10YR 6/6) moist	Sand	Single grain	Slightly hard	Few small fine dead	1.73	2.68	35.3	-	-
	40-65	Brownish yellow (10YR 6/6) moist	Sand	Single grain	Slightly hard	Few small fine dead	1.75	2.66	34.3	-	-
3	0-15	Brownish yellow (10YR 6/6) moist	Sand	Single grain	Slightly hard	Few small fine dead	1.92	2.68	28.4	-	-
	15-52	Brownish yellow (10YR 6/6) moist	Sand	Single grain	Slightly hard	Few small fine dead	1.77	2.69	34.2	-	-
4	0-60	Yellowish brown (10YR 5/6) moist	Loamy sand	Massive	Slightly hard	Few small fine dead	1.81	2.67	32.1	-	-
	135-170	Yellowish brown (10YR 5/6) moist	Sandy loam	Massive	Hard	None	1.56	2.71	42.6	-	-
5	0-50	Yellow (10YR 7/6) moist	Sand	Single grain	Slightly hard	Few small fine dead	1.67	2.64	36.8	-	-
	100-150	Yellow (10YR 7/6) moist	Sand	Single grain	Soft	None	1.56	2.68	41.9	-	-
7	0-25	Yellowish brown (10YR 5/6) moist	Sand	Single grain	Soft	Few small fine dead	1.72	2.67	35.6	-	-
	50-70	Yellowish brown (10YR 5/6) moist	Sand	Single grain	Hard	Few to few small fine dead	1.57	2.69	41.5	-	-
8	0-40	Yellowish brown (10YR 5/6) moist	Sand	Single grain	Slightly hard	Few fine dead	1.87	2.68	30.1	12.83	41.06
	70-100	Brownish yellow (10YR 6/6) moist	Sand	Single grain	Slightly hard	None	1.88	2.66	29.6	-	-
11	0-50	Brownish yellow (10YR 6/6) moist	Sand	Single grain	Slightly hard	Moderate fine dead	1.84	2.65	42.1	-	-
	70-150	Brownish yellow (10YR 6/6) moist	Sand	Single grain	Slightly hard	Moderate small fine dead	1.86	2.68	30.3	-	-
16	0-30	Dark yellowish brown (10YR 4/6) moist	Sandy loam	Massive	Very hard	Few small dead	1.52	2.66	42.9	23.93	0.94
	20-50	Dark yellowish brown (10YR 4/6) moist	Sandy clay loam	Massive	Very hard	None	1.61	2.63	38.1	-	-
17	0-50	Light yellowish brown (10YR 6/4) moist	Loamy sand	Moderate fine sub angular	Hard	None	1.64	2.67	40.2	-	-
	90-150	Light yellowish brown (10YR 6/4) moist	Silty loam	Massive	Very hard	None	1.59	2.71	41.1	-	-
20	0-20	Yellowish brown (10YR 5/6) moist	Sandy loam	Massive	Slightly hard	None	1.59	2.64	40.7	55.74	4.45
	40-100	Brownish yellow (10YR 6/6) moist	Loamy sand	Weak fine granular	Slightly hard	Few to moderate fine dead	1.82	2.70	32.3	-	-
21	0-40	Strong brown (7.5YR 3/5) moist	Sandy loam	Weak fine granular	Hard	Few small fine dead	1.61	2.66	39.4	-	-
	40-100	Light Gray (10YR 7/1) moist	Loam	Massive	Very hard	None	1.53	2.61	41.5	-	-
26	0-45	Brownish yellow (10YR 6/6) moist	Sandy loam	Massive	Slightly hard	Few fine dead	1.52	2.67	43.2	-	-
	45-120	Yellowish brown (10YR 5/6) moist	Clay loam	Massive	Slightly hard	None	1.55	2.64	41.6	-	-
29	0-70	Yellowish brown (10YR 5/6) moist	Clay loam	Massive	Slightly hard	None	1.70	2.63	35.3	-	-
	70-150	Very pale brown (10YR 8/5) moist	Clay	Single grain	Hard	None	1.70	2.69	16.8	-	-
32	0-40	Strong brown (7.5YR 3/6) moist	Sandy loam	Massive	Very hard	Few small fine	1.74	2.65	33.0	-	-
	40-150	Strong brown (7.5YR 4/6) moist	Loamy sand	Massive	Very hard	None	1.77	2.67	32.5	-	-
33	0-20	Light yellowish brown (10YR 6/4) moist	Sandy loam	Single grain	Soft	Few small fine dead	1.52	2.69	43.3	29.55	1.99
	20-85	Light yellowish brown (10YR 6/4) moist	Sandy loam	Massive	Hard	Few small fine dead	1.80	2.69	44.2	-	-
35	0-60	Light yellowish brown (10YR 6/4) moist	Sandy clay loam	Massive	Very hard	None	1.59	2.62	39.2	-	-
	60-150	Light yellowish brown (10YR 6/4) moist	Silty clay loam	Massive	Very hard	None	1.52	2.71	43.9	-	-
36	0-35	Yellowish brown (10YR 5/4) moist	Sand	Single grain	Soft	None	1.60	2.67	40.2	61.56	25.09
	35-60	Yellowish brown (10YR 5/4) moist	Sand	Single grain	Hard	Few small fine dead	1.66	2.69	38.3	-	-
38	0-20	Yellowish brown (10YR 5/6) moist	Sand	Single grain	Soft	Few small fine dead	1.76	2.68	34.3	-	-
	20-150	Yellowish brown (10YR 5/6) moist	Sand	Single grain	Soft	Few small fine dead	1.56	2.67	41.9	-	-
41	0-45	Yellowish brown (10YR 5/6) moist	Sand	Single grain	Slightly hard	Few small fine dead	1.64	2.68	38.9	-	-
	45-75	Yellowish brown (10YR 5/6) moist	Sand	Single grain	Slightly hard	None	1.65	2.66	38.0	-	-
45	0-25	Light yellowish brown (10YR 6/4) moist	Loam	Weak coarse play	Slightly hard	Few small fine dead	1.52	2.74	44.7	-	-
	25-80	Light yellowish brown (10YR 6/4) moist	Loam	Massive	Hard	None	1.59	2.67	42.2	-	-
47	0-30	Light yellowish brown (10YR 6/4) moist	Sand	Single grain	Slightly hard	Few small fine dead	1.66	2.59	35.9	-	-
	30-150	Light yellowish brown (10YR 5/6) moist	Sandy loam	Massive	Hard	None	1.50	2.70	44.4	-	-
48	0-40	Brownish yellow (10YR 5/6) moist	Sandy loam	Massive	Very hard	None	1.55	2.60	40.1	-	-
	40-100	Yellowish brown (10YR 5/6) moist	Sand	Single grain	Hard	None	1.55	2.66	41.5	-	-
49	0-20	Brownish yellow (10YR 5/6) moist	Loamy sand	Single grain	Slightly hard	Few small fine dead	1.62	2.63	38.3	-	-
	20-45	Brownish yellow (10YR 5/6) moist	Clay loam	Moderate medium play	Hard	None	1.55	2.72	47.1	-	-
50	0-50	Yellowish brown (10YR 5/6) moist	Sandy loam	Moderate medium play	Hard	Few small fine dead	1.63	2.63	38.2	-	-
	50-150	Yellowish brown (10YR 5/6) moist	Sand	Single grain	Slightly hard	None	1.60	2.69	40.4	-	-
52	0-40	Brownish yellow (10YR 5/6) moist	Sand	Slightly hard	Slightly hard	Few small fine dead	1.58	2.62	39.6	-	-
	40-75	Light yellowish brown (10YR 6/4) moist	Silty clay loam	Weak medium sub angular blocky	Very hard	Few small fine dead	1.74	2.74	30.5	-	-
55	0-55	Yellowish brown (10YR 5/6) moist	Sand	Single grain	Slightly hard	None	1.58	2.66	40.4	100.68	43.58
	65-150	Light yellowish brown (10YR 6/6) moist	Loam	Massive	Very hard	None	1.73	2.74	36.7	-	-

Table F-1-2 (2) Soil Physical Analysis

Depth cm	Color	Texture	Structure	Hardness	Root	Bulk Density Db	Real Density Ds	Porosity %	Initial Intake-Rate cm/hr	Final Intake-Rate cm/hr
57	Yellowish brown (10YR 5/6) moist	Sand	Single grain	Slightly hard	Few fine dead	1.66	2.68	38.0	-	-
58	Brownish yellow (10YR 6/6) moist	Clay	Massive	Hard	Few small fine dead	1.66	2.71	38.8	-	-
59	Yellowish brown (10YR 5/4) moist	Loam	Massive	Moderately hard	Few medium small fine dead	1.52	2.72	44.3	-	-
60	Yellowish brown (10YR 5/4) moist	Sandy loam	Massive	Moderately hard	None	1.59	2.61	39.3	-	-
61	Brownish yellow (10YR 6/8) moist	Loamy sand	Massive	Hard	Few small fine dead	1.58	2.60	39.0	-	-
62	Brownish yellow (10YR 6/8) moist	Loamy sand	Massive	Hard	Few small fine dead	1.59	2.68	40.7	-	-
63	Very pale brown (10YR 7/4) moist	Loam	Massive	Very hard	Few small fine dead	1.52	2.66	42.9	-	-
64	Very pale brown (10YR 7/4) moist	Silty loam	Massive	Very hard	Few small fine dead	1.61	2.71	40.5	-	-
65	Brownish yellow (10YR 6/6) moist	Sandy loam	Massive	Slightly hard	None	1.58	2.56	38.4	-	-
66	Yellow (10YR 8/6) moist	Loamy sand	Weak fine sub angular	Slightly hard	None	1.50	2.65	43.3	-	-
67	Yellow (10YR 8/6) moist	Loam	Massive	Hard	None	1.51	2.59	41.5	-	-
68	Brownish yellow (10YR 5/6) moist	Sand	Single grain	Slightly hard	None	1.56	2.67	41.5	-	-
69	Brownish yellow (10YR 5/6) moist	Loamy sand	Massive	Hard	Few small fine dead	1.62	2.59	37.5	4.94	1.05
70	Brownish yellow (10YR 6/6) moist	Clay loam	Massive	Hard	Few fine dead	1.52	2.58	41.2	-	-
71	Brownish yellow (10YR 6/4) moist	Loamy sand	Single grain	Slightly hard	Few small fine dead	1.62	2.58	37.3	-	-
72	Light yellowish brown (10YR 6/4) moist	Sand	Single grain	Hard	None	1.53	2.59	41.1	-	-
73	Light yellowish brown (10YR 6/4) moist	Clay loam	Massive	Very hard	None	1.54	2.70	43.0	-	-
74	Yellowish brown (10YR 5/6) moist	Clay loam	Massive	Very hard	None	1.59	2.68	40.6	-	-
75	Yellowish brown (10YR 5/6) moist	Sandy loam	Weak fine sub angular	Hard	None	1.59	2.60	39.6	12.86	0.62
76	Light yellowish brown (10YR 6/4) moist	Sand	Single grain	Slightly hard	Few medium fine dead	1.60	2.69	40.6	-	-
77	Light yellowish brown (10YR 6/4) moist	Silty clay loam	Massive	Very hard	Moderate medium fine dead	1.59	2.63	39.7	-	-
78	Light yellowish brown (10YR 6/6) moist	Sand	Single grain	Slightly hard	None	1.67	2.68	40.4	-	-
79	Light yellowish brown (10YR 6/6) moist	Sand	Single grain	Slightly hard	None	1.67	2.68	37.7	-	-
80	Yellow (10YR 7/6) moist	Loamy sand	Single grain	Slightly hard	Few small fine dead	1.71	2.65	35.5	-	-
81	Yellowish brown (10YR 5/6) moist	Sand	Single grain	Slightly hard	Few small fine dead	1.76	2.68	34.3	-	-
82	Yellowish brown (10YR 5/6) moist	Sand	Single grain	Slightly hard	Few fine dead	1.65	2.68	38.4	-	-
83	Brownish yellow (10YR 6/6) moist	Sand	Single grain	Hard	Few small fine dead	1.51	2.67	43.4	-	-
84	Brownish yellow (10YR 6/6) moist	Sand	Single grain	Hard	Few small fine dead	1.66	2.66	37.7	-	-
85	Brownish yellow (10YR 6/6) moist	Sand	Single grain	Slightly hard	Few small fine dead	1.68	2.69	37.5	-	-
86	Brownish yellow (10YR 6/6) moist	Sand	Single grain	Soft	None	1.64	2.68	38.8	-	-
87	Brownish yellow (10YR 6/6) moist	Sand	Single grain	Soft	None	1.51	2.67	43.3	-	-
88	Yellowish brown (10YR 5/6) moist	Sand	Single grain	Soft	Moderate small fine dead	1.64	2.67	38.6	-	-
89	Yellowish brown (10YR 5/6) moist	Sand	Single grain	Soft	Few small fine dead	1.78	2.69	33.6	-	-
90	Brownish yellow (10YR 6/6) moist	Sand	Single grain	Soft	None	1.58	2.66	40.6	-	-
91	Brownish yellow (10YR 6/6) moist	Sand	Single grain	Soft	Few fine dead	1.64	2.67	38.3	-	-
92	Brownish yellow (10YR 6/6) moist	Silty clay loam	Massive	Very hard	Few fine dead	1.58	2.65	40.5	-	-
93	Brownish yellow (10YR 6/6) moist	Clay	Massive	Very hard	None	1.53	2.71	43.7	-	-
94	Brownish yellow (10YR 6/6) moist	Sand	Single grain	Slightly hard	Few fine dead	1.54	2.67	42.4	157.73	54.52
95	Brownish yellow (10YR 6/6) moist	Sand	Single grain	Slightly hard	Few fine dead	1.50	2.70	40.8	-	-
96	Dark yellowish brown (10YR 4/6) moist	Sandy loam	Massive	Hard	None	1.61	2.60	41.8	10.17	1.31
97	Yellowish brown (10YR 5/6) moist	Sandy loam	Massive	Very hard	None	1.60	2.59	38.3	-	-
98	Strong brown (7.5YR 4/6) moist	Sandy loam	Massive	Hard	None	1.83	2.62	30.2	-	-
99	Strong brown (7.5YR 4/6) moist	Loamy sand	Massive	Hard	None	1.82	2.61	30.3	-	-
100	Yellowish brown (10YR 5/6) moist	Loamy sand	Massive	Hard	Moderate small fine dead	1.71	2.61	34.6	-	-
101	Yellowish brown (10YR 5/6) moist	Loamy sand	Massive	Hard	Moderate medium dead	1.71	2.59	34.0	-	-

Table F-1-3 Summary of Soil Types in the Study Area

Soil type	Area (Feddan)
A. Silty/silty clay soil	80,418
1. Silty clay soil	3,520
2. Deep section of silty soil	46,540
3. Deep section of silty lime soil	30,358
B. Sandy soil	73,438
1. Rough sandy soil of deep section, flat surface	12,450
2. Free sandy soil mixed with small ratio of silty sand	58,204
3. Definitely deep section of sandy soil, deeper than 100cm	2,784
<b>Total Area (Feddan)</b>	<b>153,856</b>

Table F-1-4 Gross Area of the Different Soil Types in the Study Area

Soil type	Gross area (Feddan)
A. Silty/silty clay soil	70,567
B. Sandy soil	64,433
<b>Total Area (Feddan)</b>	<b>135,000</b>



## F-2 Agricultural Cooperative Structure

The cooperative structure is composed from the agricultural cooperative societies and the general Agricultural Cooperative Union.

The agricultural cooperative societies are either multi-purpose or specialised. These societies are formed as to the need and according to the nature of the activity of each in serving the following activities.

- a - Plant production.
- b - Livestock production.
- c - Aquatic resources (fisheries)
- d - The Agrarian Reform - Whose societies are established according to law No.178/1952 of the Agrarian Reform.
- e - Land reclamation, development and settlement, whose societies are established according to the rules of Law No. 100/1964 regulation the rent of the real states owned by the State within a special ownership and their disposition.

There must be a branch cooperative structure for every one of the areas to serve its activity with a General Society at its apex.

The Central Agricultural Cooperative Union is considered the apex of these branch structure.

The establishment of the societies which undertake one activity or more of the mentioned activities in the previous article within the government areas as follow :

- a - A multi- purpose Local Society may be formed to work on one village level or more of a suitable economic size, according to the conditions of every area and its activity and according to what is stipulated by the executive statute. The local society is formed 20 members at least, from persons working or producing in one of the agricultural sectors.
- b - A specialized society may be formed to be specialized in rendering its service for the good of its members on the village level or on the governorate level.
- c - A multi-purpose Joint Society may be formed on the administrative district level to serve its members from the local societies existing in the administrative district area.
- d - One multi-purpose Central Society is formed on the Governorate level to server its members in the different development fields and all the multi purpose local and joint co-operative societies existing within the scope of the governorate participate in its membership.

Figure F-2-1 Organization of Ministry of Agriculture and Land Reclamation

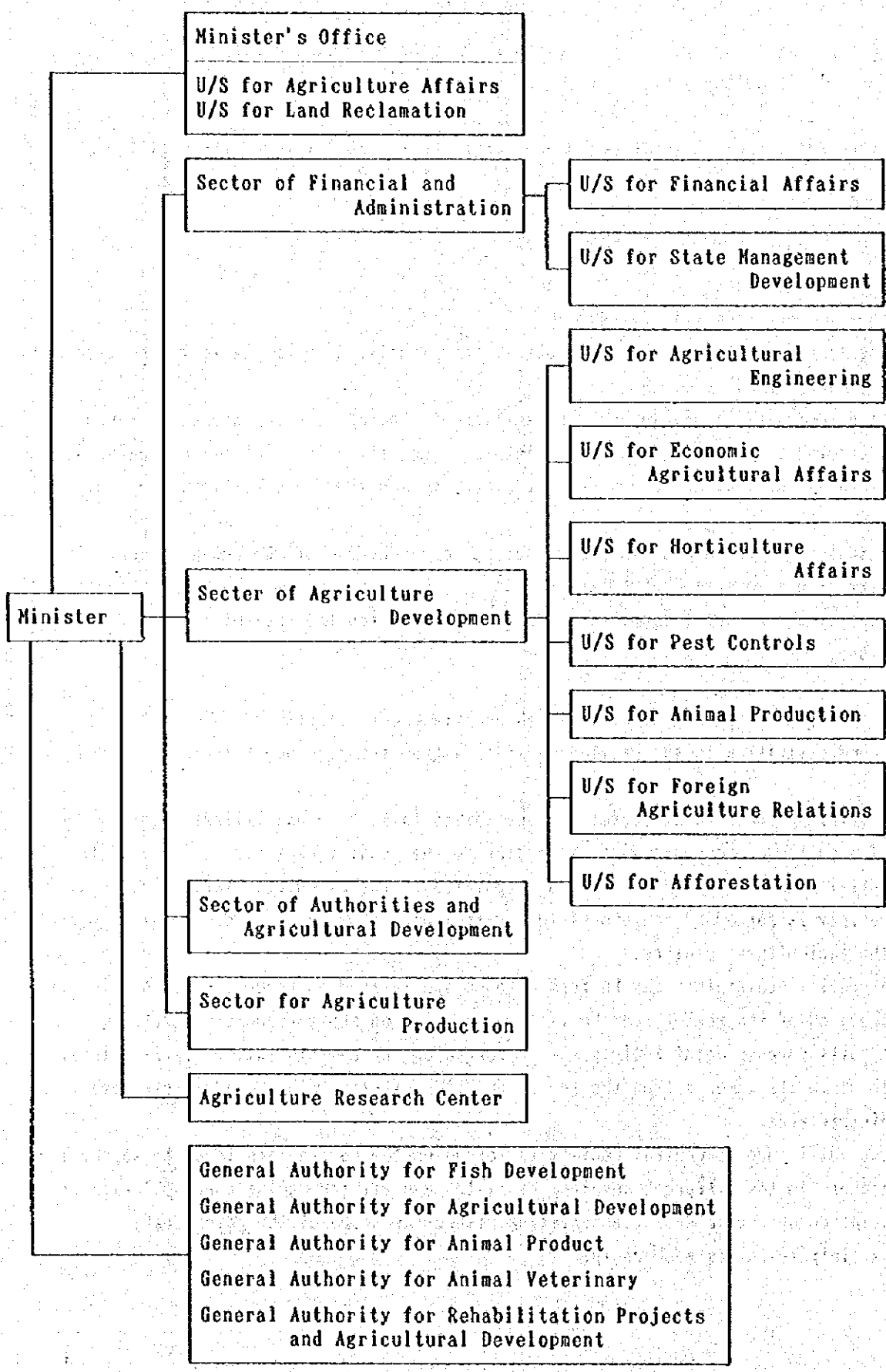




Figure F-2-3 Organization of Agricultural Cooperatives in Egypt

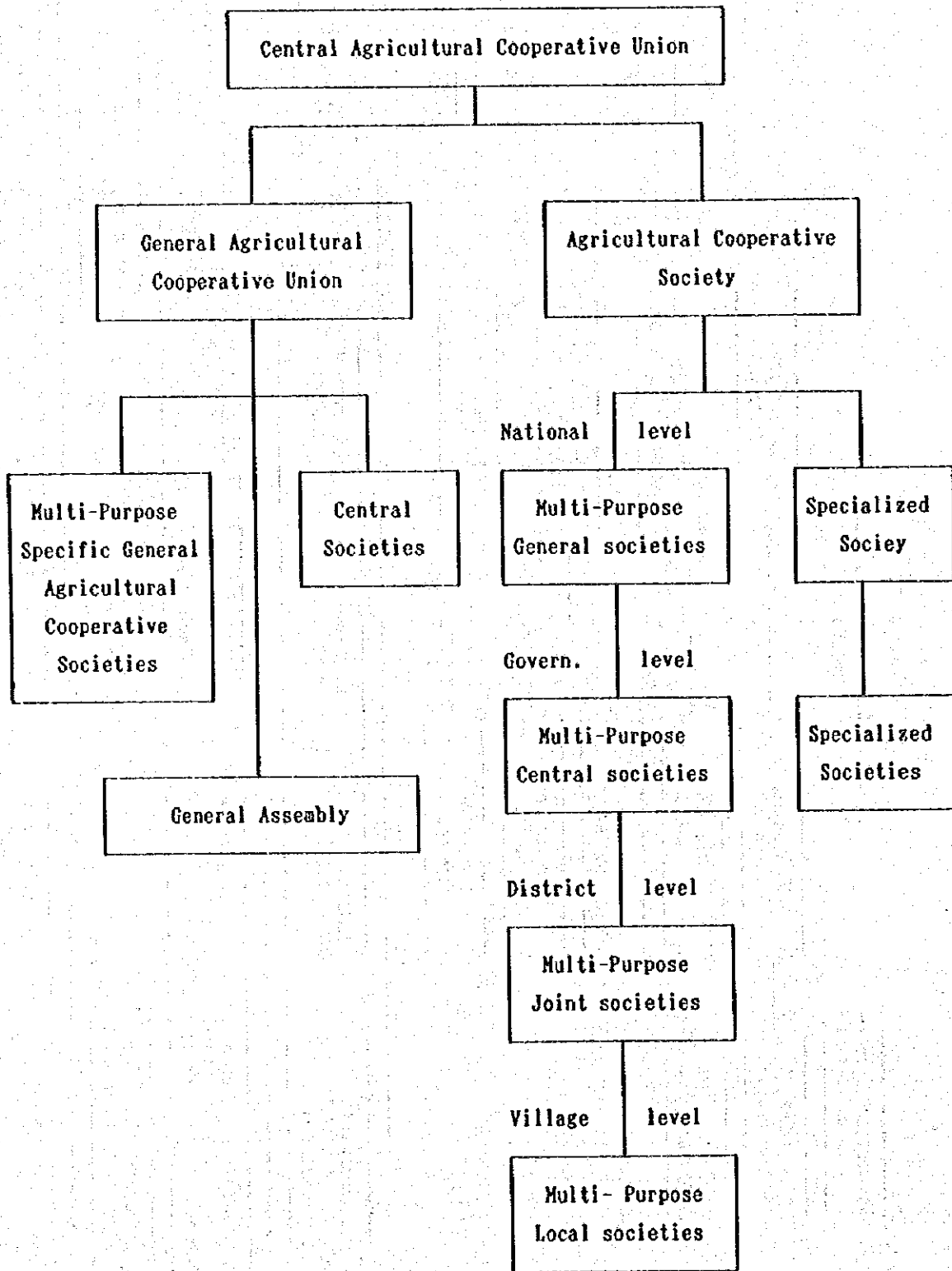


Figure F-2-4 Agricultural Extension Network in the North Sinai

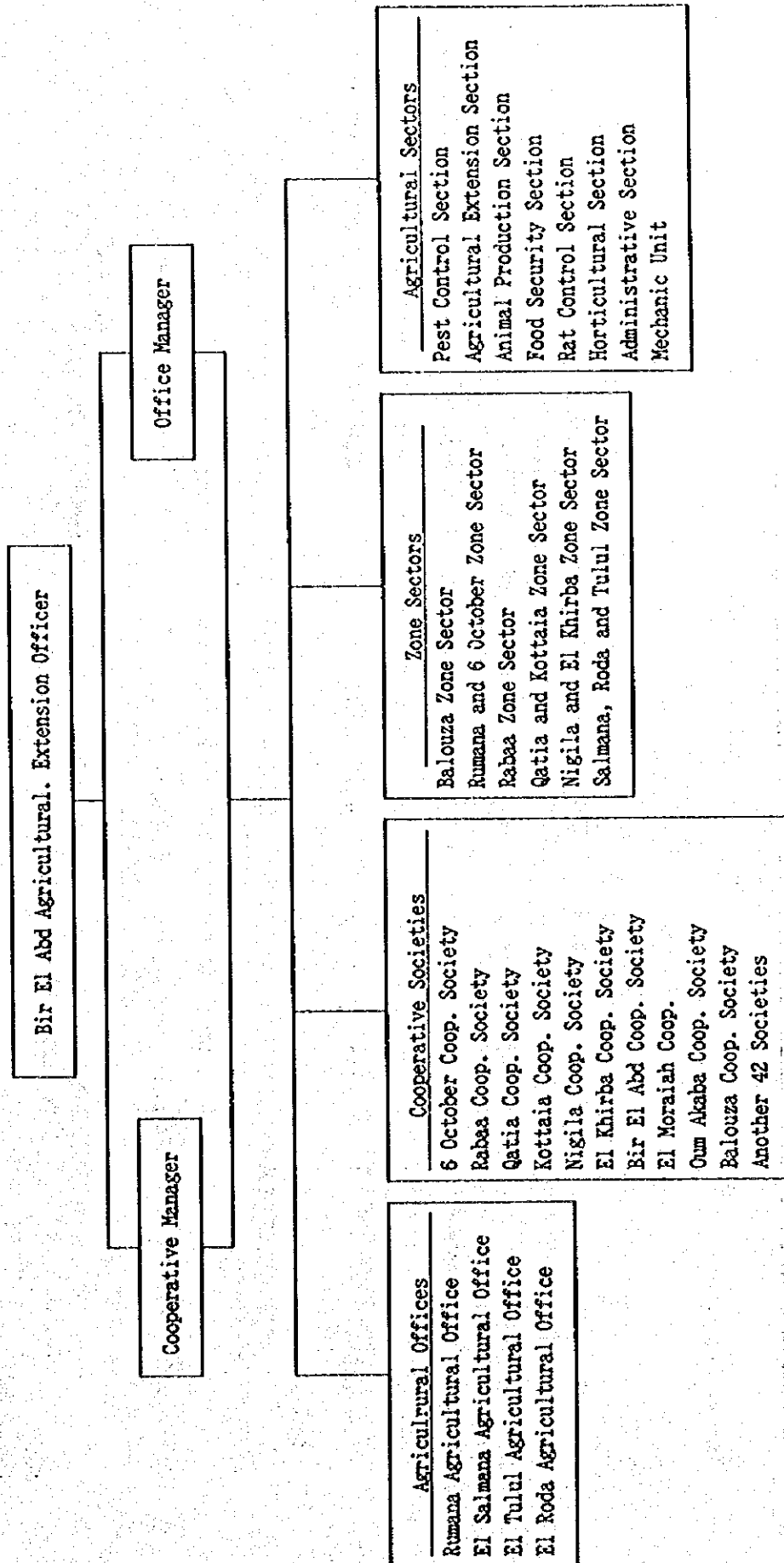


Table F-2-1 Number of Agricultural Cooperatives, by Type and Year in Egypt

Type of Cooperatives	Year					
	1989	1990	1991	1992	1993	1994
All Cooperatives	5298	5270	5277	5242	5199	5214
Local cooperatives:	4357	4368	4381	4384	4384	4397
Specialized cooperatives:	941	902	896	858	815	817
Marketing	48	46	57	59	61	64
Livestock	770	743	78	744	703	705
Others	123	113	61	55	51	48

Source: Statistical Year Book, Arab Republic of Egypt, 1995

Table F-2-2 Types of Agricultural Cooperatives in the North Sinai

District	Multi-Purpose Cooperative Society				Specialized Society			
	Local Society		Joint Society	Central Society	Agr. Machine	Vegetables and Fruits	Livestock Cooperative	Silk
	Credit	Construction						
El Arish	3	2						
Bir El Abd	10	3						
Rafah	5	3		1		1		1
El Shak Zawiad	8	6						
El Hasnah	8	1						
Nakl	3							
Total	37	15	0	1	0	1	0	1

Figure F-3-1 Organization for Farmers' Credit

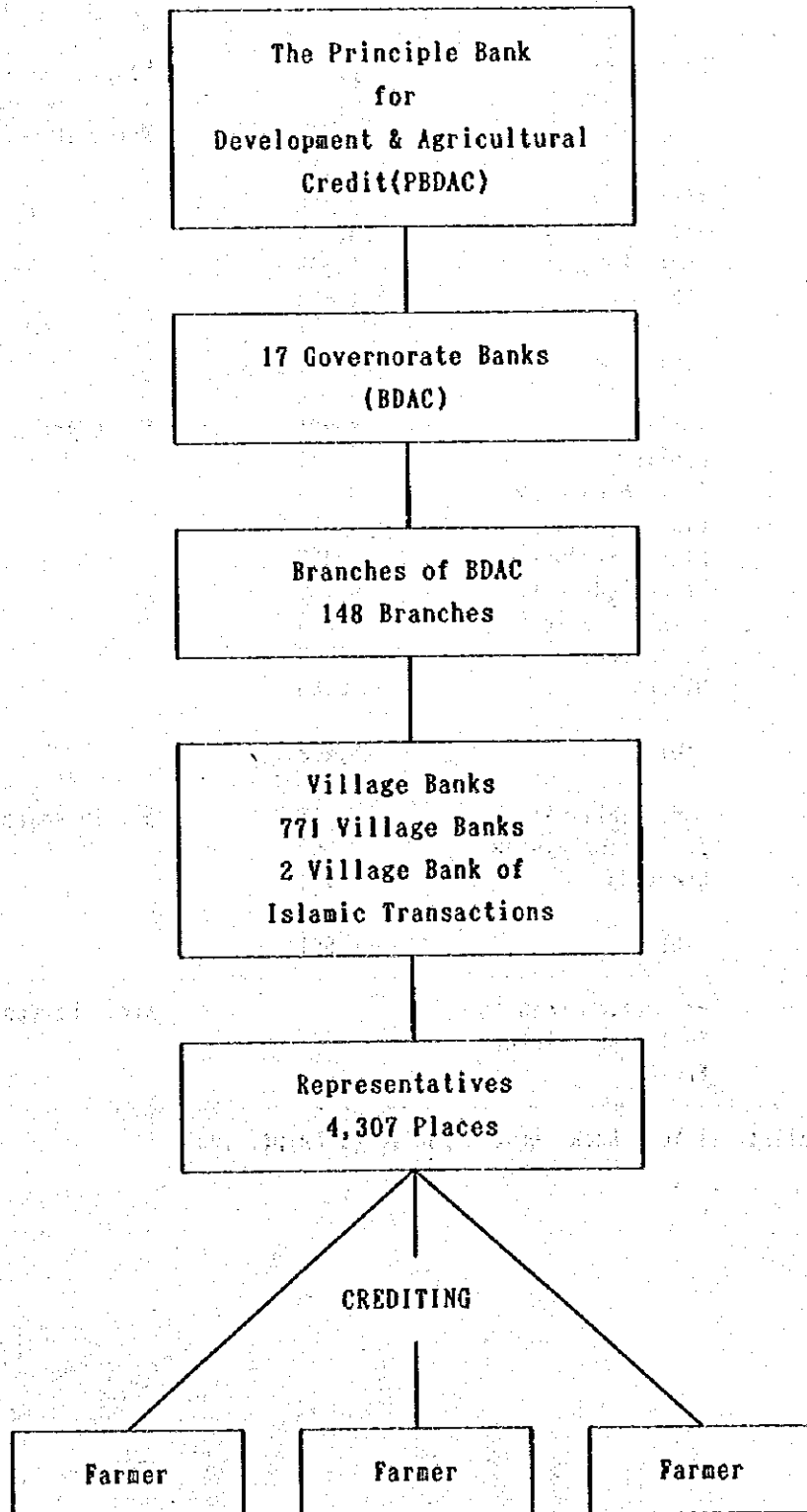


Table F-3-1 Types and Loans of Credit in North Sinai

(Unit: '000 EL)

Credit	Objectives	Loans	Repayment Period
Short Term	-Animal	12,661	Below 12 months
	-Poultry	1,452	
	-Fish	665	
	-Related to Agri.	14,189	
	-Youth Debts	1,308	
	-Others	1,839	
	TOTAL	32,114	
Medium Term	-Animal	2,281	1 - 5 years
	-Poultry	41	
	-Agri. Machinery	3,569	
	-Fish	874	
	-Plants Production	417	
	-Produced Agri.	16,737	
	-Related to Agri.	1,549	
	-Youth Debts	0.08	
	-Others	0.60	
TOTAL	25,469		
Long Term	-Land Reclamation	75	5 - 15 years
	-Irrigation System	392	
	-Orchards	184	
	TOTAL	651	
Seasonal	-Production Loan for Summer and Winter Fruits	-	After harvesting

Source: Statistical Year Book, Arab Republic of Egypt, 1995



**Table F-3-2 Mubarak's National Project for New Graduates**

The Mubarak's National Project was initiated in 1987 aiming to form new societies on the new lands by redistributing the population and to invest the youth's power to reach higher level of production by using modern technology and information.

During the period from 1987 to 1992, the number of graduates who have got lands were about 34,000 and lands distributed to them amounted to about 182,000 Feddans on 100 new villages, about 5.4 feddans per person. During the current tilth plan period, 50,000 feddans of lands will be distributed to 10,000 graduates. The graduate receives about five(5) feddans of land and a house at a cost of LE.12,000.

Experiences gained from this project will give useful information about planning of settlement and agricultural development on new lands. The Mubarak's project is being implemented with various supporting programmes as summarized below:

<b>1) World Food Program</b>
-Supply of food for first four(4) years -Financial aid for housing and farm machinery -Financial aid for development of social service facilities
<b>2) General Fund for Animal Wealth Development</b>
-Supply of livestock -Repayment term of five(5) years
<b>3) Mariut International Center for Cultivated Land Development</b>
-Training of village leaders
<b>4) Cooperative Training Project(IL0)</b>
<b>5) Mamora Agricultural machines Training Center</b>

Table #1-1 Farm Economic Survey - General Information of Farmers nearby El Arish Area

Farmers No.	Category of Farmers	Method of Obtaining Land	Settle Years Ago	Land holding		Activities of Cooperative		Members of Family		Education Level	Working on Farm Status	Day per Week	Land Use		Agricultural Credit
				Area (Fed)	Value (EGP)	Memberships in the Community	Price of a Stock	Major Activities	Male				Female	Total	
1	Big Scale	Land Return	4	3	10,000	-	-	2	1	3	Head	3	Crop Land	3	Sufficient with own resources
2	Big Scale	Others	6	35	10,000	-	-	4	1	5	Head	5	Crop Land	20	Sufficient with own resources
3	Big Scale	Government	80	17	170,000	250	0.5	1	1	2	Head	2	Orchard	17	Sufficient with own resources
4	Big Scale	Inheritance	40	20	240,000	-	-	1	1	2	Head	2	Crop Land	30	Sufficient with own resources
5	Big Scale	Government	14	3.5	33,334	340	10	4	2	6	Head	6	Crop Land	3.5	Sufficient with own resources
6	Big Scale	Inheritance	80	10	500,000	180	-	2	3	5	Head	5	Orchard	10	No Village bank
7	Big Scale	Inheritance	50	35	150	150	5	3	3	6	Head	6	Orchard	20	Sufficient with own resources
8	Big Scale	Purchase	50	15	6,000	-	-	2	3	5	Head	5	Crop Land	40	Village bank
9	Big Scale	Inheritance	60	50	500,000	150	10	3	4	7	Head	7	Crop Land	20	Village Bank
10	Big Scale	Private	7	119	10,000	-	-	3	2	5	Parent	5	Crop Land	18	Sufficient with own resources
11	Small Scale	Purchase	9	4	-	-	-	3	1	4	Head	4	Orchard	82	Sufficient with own resources
12	Small Scale	Inheritance	70	5.5	88,000	-	-	5	2	7	Head	7	Crop Land	3	Sufficient with own resources
13	Small Scale	Inheritance	60	7.5	90,000	150	Free	7	1	8	Head	8	Crop Land	7.5	Village bank
14	Small Scale	Inheritance	14	4	40,000	150	Free	4	1	5	Head	5	Crop Land	4	Sufficient with own resources
15	Small Scale	Purchase	2	8	-	200	5	4	4	8	Head	8	Crop Land	8	Yes.
16		Private	4	8	80,000	-	-	5	2	7	Other	7	Crop Land	3.5	No.

Note: #1 Government Land Reclamation #2 Private Land reclamation #3 Productive Water Area

Table E-2-2 Farm Economic Survey - General Information of Farmers in the East of Suez Canal Area.

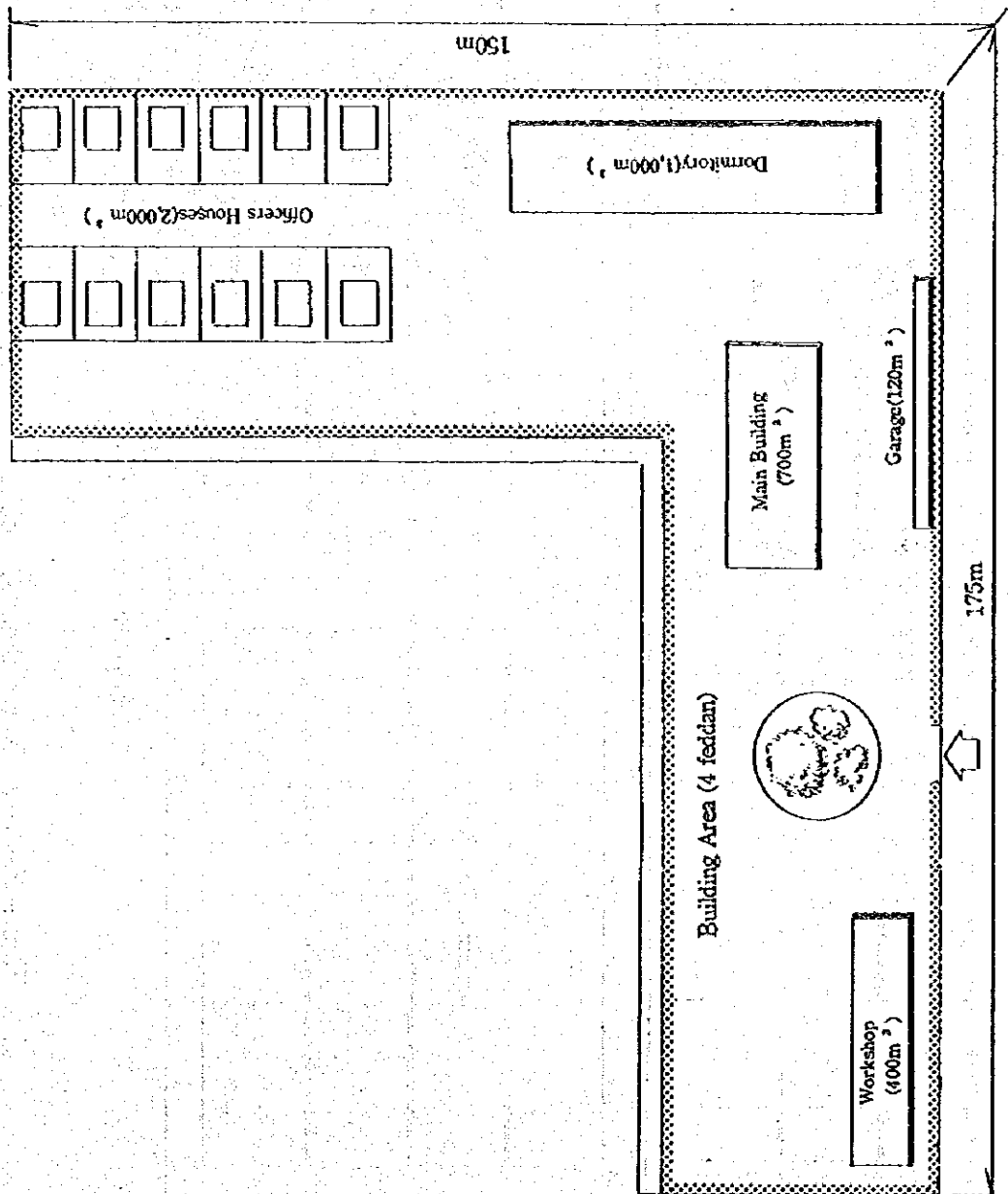
Farmers No.	Category of Farmers	Method of Obtaining Land	Settled Years Ago	Land Holding		Members of Family			Activities of Cooperative		Working on Farm		Land Use		Agricultural Credit			
				Area (Fed)	Period of Land (Year)	Value (LE)	Member-ships in the Community	Price of a Stock	Major Activities	Male	Female	Total	Family Status	Education Level		Status	Day per Year	Owned/ Rented
1	Bedouin	Squat	35	12	7,000	-	-	Supervision Chemical fertilizer	7	7	14	Son	Primary	Regular	Owned	Crop Land	1	
2	Bedouin	Squat	40	6	8,500	-	-	None	7	8	15	Son	Primary	Regular	Owned	Crop Land	6	Cultivation is not sufficient to repay
3	Bedouin	Purchase	8	5	20,000	-	-	None	3	4	7	Son	None	Regular	Owned	Crop Land	5	No. Interest is High
4	Bedouin	Squat	13	5	8,500	-	-	None	5	3	8	Parent	None	Temporary	None	Crop Land	5	No. No. need
5	Bedouin	Purchase	6	3	7,500	-	-	Chemical fertilizer	4	3	7	Head	None	-	-	Fallow/Idle	3	No. No. need
6	Big Farm	Purchase	6	30	15,000	-	-	Chemical fertilizer	11	6	17	Son	Secondary	Regular	Owned	Crop Land	19	Agricultural Development Bank
7	Small Farm	Purchase	5	9.5	15,000	-	-	None	3	3	6	Head	Secondary	Regular	Owned	Crop Land	6.5	No. Interest is High
8	Army Retiree	Government	13	10	120,000	300	-	Agri. chemical Insecticide Tractor, Sprayers	4	4	8	Head	Primary	Regular	Owned	Crop Land	5	Village Bank
9	Army Retiree	Government	12	10	8,000	-	-	None	5	2	7	Son	Primary	Temporary	Owned	Fallow/Idle	6	
10	Graduate	Government	2	6	5,000	-	-	None	3	2	5	Parent	Secondary	Regular	None-farm	Crop Land	8	Agricultural Development Bank
11	Graduate	Government	3	5	5,000	-	-	Chemical fertilizer	1	0	1	Head	Secondary	-	None-farm	Crop Land Productives	1.5	Sufficient with own resources
12	Graduate	Government	3	5.5	11,000	364	Free	Technical assistant Agri. chemical Agri. insecticide	1	1	2	Head	University	Regular	Owned	Crop Land	1.25	No. No. membership
13	Graduate	Government	3	5	11,000	364	Free	Agri. chemical Technical assistant Insecticide	1	1	2	Head	Secondary	Regular	None-farm	Crop Land Olive	1.5	Sufficient with own resources
14	Graduate	Government	3	5	11,000	364	Free	Agri. chemical Insecticide	1	1	2	Head	Secondary	Regular	Owned	Crop Land Olive	5	Sufficient with own resources
15	Big Farm	Government	20	15	25,000	-	-	Technical assistant Insecticide	2	2	4	Parent	Primary	-	Owned	Olive	15	Sufficient with own resources
16	Big Farm	Purchase	2	4	32,000	-	-	Chemical fertilizer	5	2	7	Head	None	Regular	Owned	Crop Land	4	Sufficient with own resources
17	Small Farm	Others	25	4.5	24,000	-	-	None	3	3	6	Head	None	Regular	Owned	Crop Land Fallow/Idle	1.5	Sufficient with own resources

Note: #1 Government Land Reclamation #2 Productive Water Area

Table P-8 Farm Economic Survey - General Information of Farmers in the West of Suez Canal Area

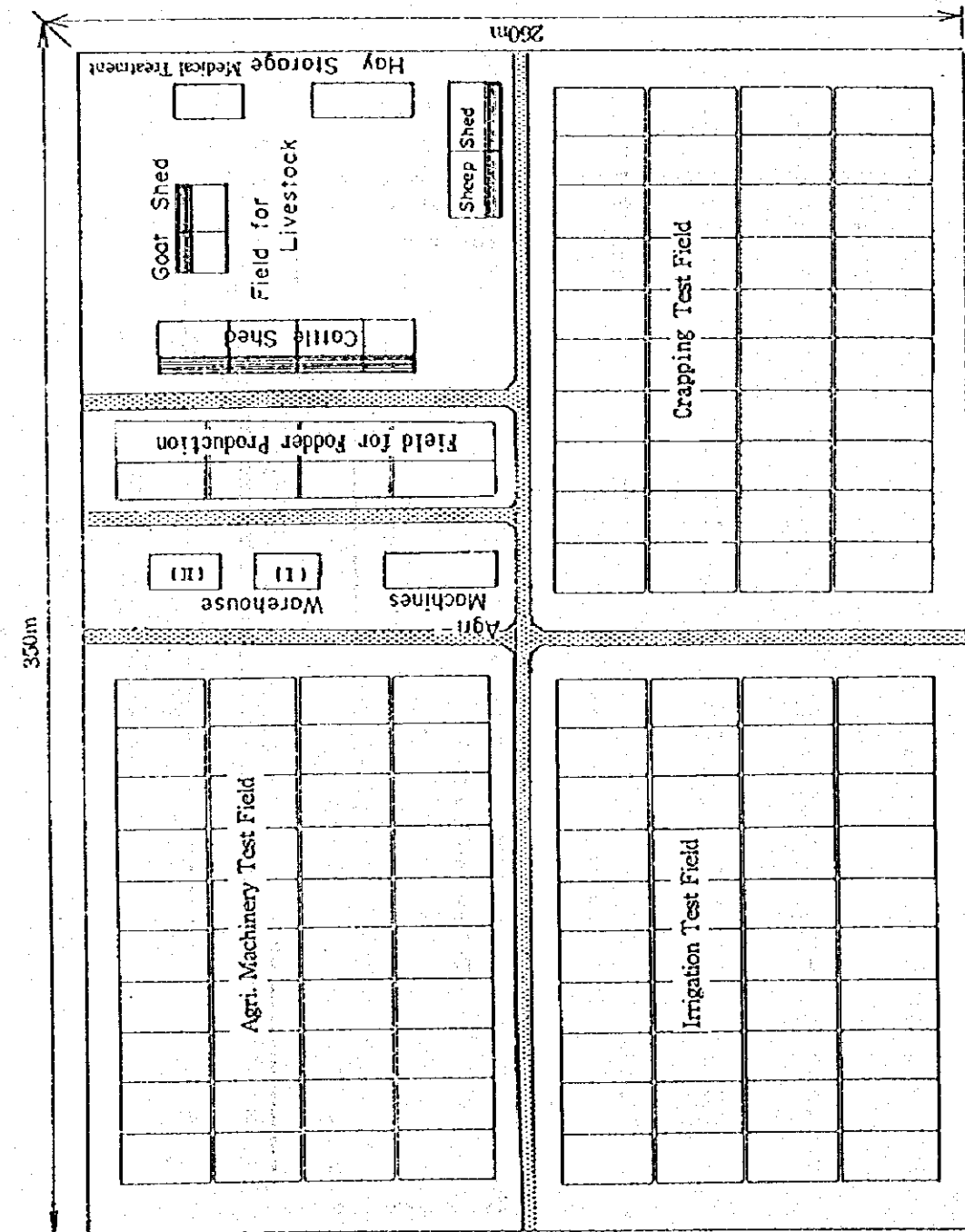
Farmers No.	Category of Farmers	Method of Obtaining Land	Settle Years Ago	Area (Fed)	Period of Land (Year)	Value of Land (LE)	Memberships in the Community	Price of a Stock	Major Activities	Members of Family		Education Level	Working on Farm		Planted Crops	Unit (Fed)	Agricultural Credit	
										Male	Female		Status	Day per Year				
1	Graduate	Government	5	5	5	11,000	200	Free	None	2	2	Secondary	Regular	300	Owned	Crop Land	5	Father's help and finance
2	Graduate	Government	4	4	4	11,000	200	Free	None	1	1	University	Temporary	180	Rented	Crop Land	5	Father's help and finance
3	Graduate	Government	6	5	6	11,000	200	Free	None	2	1	Secondary	Temporary	160	Owned	Crop Land	5	Cultivate land in Bahariya
4	Graduate	Government	6	5	6	11,000	200	Free	None	2	2	Secondary	Temporary	180	Rented	Crop Land	5	Family's help and outside job
5	Graduate	Government	2	5	2	11,000	373	Free	None	1	3	University	Per day basis	60	Owned	Crop Land	5	Father's support and finance
6	Fish Farm	Purchase	70	8	-	69,000	500	Free	None	1	4	University	Regular	300	Owned	Fish	8	Sufficient with own resources
7	Fish Farm	Purchase	80	15	-	128,000	500	Free	None	2	2	University	Regular	300	Owned	Fish	15	Sufficient with own resources
8	Big Farm	Others	25	10	15	8,000	370	Free	Chemical fertilizer Sprayers the crops	1	4	None	Regular	330	Owned	Crop Land	40	Sufficient with own resources
9	Big Farm	Inheritance	70	20	50	200,000	370	Free	Agric. Extension Technical assistant	7	2	Primary	Temporary	100	Owned	Crop Land	20	From village bank
10	Graduate	Government	4	5	-	5,000	-	-	-	4	3	University	Per day basis	90	Rented	Crop Land Fallow/Idle	2	No success
11	Small Farm	Inheritance	45	5	2	25,000	-	-	Chemical fertilizer	4	1	None	Regular	200	Owned	Crop Land	6	Agricultural Development bank
12	Small Farm	Inheritance	50	6	26	40	-	-	Chemical fertilizer	3	3	Primary	Regular	200	Owned	Crop Land	8	Agricultural Development Bank
13	Small Farm	Land Reclam	2	2	1	30,000	500	Free	Seed Chemical fertilizer	1	2	Secondary	Regular	200	Owned	Crop Land	6	Sufficient with own Resources
14	Small Farm	Government	7	5	7	4,000	-	-	Insecticides Tractors, Sprayers	3	2	None	-	-	Owned	Crop Land	5	No ownership
15	Small Farm	Government	6	5	6	7,000	-	-	Tractor service	2	3	University	Temporary	208	None-own	Crop Land	5	No ability for payment
16	Big Farm	Private	37	23	-	10,000	-	-	Chemical fertilizer	2	6	Secondary	Regular	180	Rented	Crop Land	23	Agricultural Development Bank
17	Big Farm	Private	24	60	24	8,000	-	-	None	4	1	Primary	Regular	200	Owned	Crop Land Fallow/Idle	20	-

Note: 01 Government Land Reclamation 02 Working on Other Farm 03 Private Land Reclamation



Applied Examination Farm

Figure F-5-1 Layout of North Sinai Agricultural Development Center(1)



Applied Examination Farm

Figure F-5-2 North Sinai Agricultural Development Center(2)