

REPORT OF THE COMMUNITY  
ORGANIZATION COMMITTEE

E.A.R.I.S.

The Committee was set up by the EARIS General Committee to develop the community organization aspect of the total EARIS Program.

It was composed of the following members:

Mr. Mahmoud Fahmy, Director General,  
Fellah Department - Chairman.  
Mr. Salah El Abd, Head, Social Service Section,  
Fellah Department.  
Mr. Mohammed Kamel, Head, Land Settlement Section,  
Fellah Department.  
Mr. Mahmoud Snerif, Head, Social Research Section,  
Fellah Department.  
Mr. Hosny El Said, National Production Council.  
Mr. Afif Tannous, T.C.A.

The Committee held four meetings on July 5, 7, 8 and 13, 1953, and was represented on a joint inter-committee meeting held on July 15, 1953.

During the first meeting agreement was reached on the major topics to be discussed, as shown in the attached report. Individual members were requested to study these topics and submit recommendations.

During the second meeting the topics were discussed and specific recommendations agreed upon.

During the third meeting the project budget was discussed and agreement was reached on its items.

At this point a draft report was prepared and discussed with pertinent people from various committees.

On July 15 an inter-committee meeting was held, in which agreement was reached on the coordination of various community services.

On July 18, the Committee held its fourth regular meeting and agreed on modifications in its draft report, in the light of suggestions received from various sources.

An up-to-date draft of the Committee's Report is attached.

Mahmoud Fahmy  
Chairman

July 20, 1953.

REPORT OF THE COMMUNITY  
ORGANIZATION COMMITTEE

E.A.R.I.S.

(Translated and abbreviated from the Arabic original)

I. Principles and Objectives

This project involves the reclamation of land in the two provinces of Buheira and Fayoum, with a view to relieving some of the increasing population pressure in Egypt.

Its central objective is the development of new communities with effective citizens who will help themselves by shouldering responsibilities, and by participating in the solution of their problems in a cooperative manner.

Landless families from congested areas will be selected for settlement, after thorough investigation of their conditions, and after they have become convinced of moving.

Simplicity, practicality and minimum cost must be adhered to in developing the program.

Gradual evolutionary development must be the guiding policy in planning and in implementing the program.

The Committee recommends that improvement projects in various fields be undertaken concurrently, as aspects of a unified and integrated program.

II. Study of Similar Resettlement Projects.

The Committee arranged for a study trip to the Kafr Sa'd Resettlement Project in the northern part of the Delta, on July 17, 1953. Members of other committees participated. All were convinced of the value of such studies.

The Committee recommends that Kafr Sa'd and similar projects be studied and appraised, with a view to utilizing past experiences for the benefit of the new endeavor.

III. Factors That May Influence  
The Project In The Future.

The plan for the development of the neighboring city of Alexandria must be studied carefully, and its possible growth into the reclaimed areas watched.

The Committee recommends that a decree be enacted with a view to restricting the use of the reclaimed areas to agricultural activities.

The expected growth of population in the new settlements could be absorbed by the growing industries of Alexandria.

#### IV. Land Use.

The Committee recommends that a portion of the land be used for the production of vegetables. Similarly dairying and other agricultural industries should be encouraged. This will serve three purposes: (1) to supply the settlers with better food; (2) to satisfy the growing needs of Alexandria; (3) to export products abroad.

The Committee estimates that an average of 5 feddans will be sufficient for the needs of one family.

It is recommended, however, that the land be fully reclaimed, provided with perennial irrigation and drainage, before settlers are put on it.

#### V. Localities From Which Settlers Will be Selected and Method of Selection.

1. Preference should be given to the more densely populated rural localities, with due consideration for the locality in which the reclaimed areas lie.

2. Lists of landless people, deserving of resettlement, shall be prepared for each village chosen, in cooperation with village officials and leaders.

3. Leaders of the Rural Social Centers in these localities will make thorough investigation of the social and economic conditions among three times the number of families required. These detailed investigations will form the basis for the choice of the most deserving settlers.

4. About one-sixth of the total reclaimed area should be reserved for the settlement of laborers now working on the land.

5. The land should be classified with respect to fertility; this to be used as a basis for granting aid to the settlers.

6. The Committee believes that the necessary labor force for reclamation is not all available in the locality of the reclaimed areas. It recommends, therefore, that settlers chosen for area A (1120 feddans) be put to work on reclaiming Area B, and those selected for Area B help in reclaiming Area C, etc. This procedure has the decided advantage of making it possible for settlers to participate in the building up of their land and communities.

#### VI. Conditions For The Selection Of Settlers.

Each settler, the head of a family, will be selected on the basis of a number of conditions, among which are:

1. Egyptian citizenship.
2. Nature of his village for at least 10 years.
3. Engaged in agricultural work for at least 2 years.
4. Landless.
5. Good conduct, with clear record, together with his family.
6. Good health.
7. Having a family of not less than 5 members.
8. Within the ages of 25 to 45.

#### VII. Preparation Of Prospective Settlers.

Settlement on the first Area A will not take place before November 1954. This allows for a period of about one year which should be utilized for the preparation of prospective settlers with respect to such matters as the type of community and living conditions ahead of them, their role as responsible land owners, improved methods of cultivation, etc.

This orientation shall be effected by responsible officials of the Fellah Department through such means as the following: lectures; discussion meetings; pamphlets, posters and pictures; trips to various Government farms and resettlement projects.

#### VIII. Number Of Villages And Family Limits.

The areas under reclamation total about 20,000 feddans, of which about 16,000 feddans will be actually under cultivation.

The Committee recommends an average of 5 feddans for each family, and an average of 300 families for each community. This means that there will be 12 villages in all, 2 of which will be larger centers with more comprehensive services, as shown below.

#### IX. Community Services.

A. The committee recommends the establishment of a comprehensive and unified Community Center in each of the 2 larger villages. It shall consist of the following sections and services:

1. Social: One Social Service Unit to be established in each of the two larger villages. The personnel shall consist of a Social-Agricultural Specialist in charge, assisted by a recreational leader, a teacher of handicrafts, and a teacher of sewing and needlework.

2. Health: One complete health unit to be established in one of the two larger villages, consisting of adequate hospital and outpatient clinic facilities. One doctor shall be in charge, assisted by nurses and other technicians. A similar unit, on a smaller scale, shall be set up in the second large village.

Details of this phase of the Community Center are presented in the Health Committee Report.

3. Economic: Details of this phase are presented in the Agricultural Committee Report. This Committee wishes to emphasize the importance of organizing extension work, among both men and women, and of organizing rural cooperative societies.
4. Educational: Details of this phase are presented in the Educational Committee Report, recommending an intermediate school for each of the two larger villages, on an area of 5 to 7 feddans, to accommodate about 320 students.

B. The remaining 10 smaller villages will be served by the two large Community Centers discussed above. In addition, each small village will have a small center of its own, consisting of elementary school, clinic, rural recreational club and a room for extension work.

C. Other services and facilities:

1. One mosque in each of the two larger villages and a prayer room in each of the others.
2. Three cemeteries for the whole area.
3. Three slaughter houses for the whole area.
4. Adequate roads and facilities for post, telephone and telegraph.

D. Administration and coordination of services:

1. In order for the rural community to be developed in a democratic way, it is essential that the people be given every opportunity to participate financially and administratively in the implementation of all improvement projects.
2. Experience in Egypt and other countries has shown that rural improvement is achieved best when all projects are undertaken concurrently, as parts of a unified program. This is why the Committee has recommended the establishment of comprehensive and unified Community Centers.
3. In order to attain the necessary coordination of these services on the administrative level, the Committee recommends the setting up of a special Rural Improvement Council. It shall consist of a Director and several members representing the various agencies concerned.

4. Furthermore, the Committee recommends that a Village Council be organized in each village, by means of popular election. This Council shall look after village affairs in general, and shall represent the people in the planning and operation of improvement projects.

X. Budget Estimates

	<u>Annual</u> LE.	<u>Non-recurrent</u> LE.
<u>1953-54 (Area A, 1120 feddans)</u>		
1. Selection and preparation of settlers		260
2. Salaries and allowances (for one large Social Unit 5 social service officials, 2 attendants and laborers.)	1850	
3. Administrative expenses	1300	
4. Miscellaneous equipment.		2525
5. Miscellaneous services	800	
6. Training of personnel (local)		240
7. Study trips (abroad)		2700
T O T A L .....	3950	5725
 <u>1954-55</u>		
Same as above	3950	None
 <u>1955-56 (Area B. 880 feddans)</u>		
1. Selection and preparation of settlers.		260
2. Salaries etc. for 1953-54 personnel	1850	
3. Additional personnel	126	
4. Administration.	1300	
5. Miscellaneous services	800	
6. Supplies for Rural Club		325
T O T A L .....	4076	585

	<u>Annual</u> LE.	<u>Non-Recurrent</u> LE.
<u>1956-57 (Areas C &amp; D, 3600 feddans)</u>		
1. Selection and preparation of settlers.		880
2. Salaries etc.	2336	
3. Administration.	1300	
4. Miscellaneous services	800	
5. Supplies for 2 Rural Clubs		650
T O T A L .....	<u>4436</u>	<u>1530</u>
 <u>1957-58</u>		
Same as above.	<u>4436</u>	<u>None</u>
 <u>1958-59 (Areas E, F, G, 13,400 feddans)</u>		
1. Selection and preparation of settlers.		3020
2. Salaries etc, <sup>(including)</sup> <del>for</del> second large Social Unit).	4356	
3. Administration.	2600	
4. Miscellaneous services	800	
5. Supplies for 8 Rural Clubs.		2600
T O T A L .....	<u>7756</u>	<u>5620</u>
Grand Total .....	<u>28,604</u>	<u>13,460</u>

C.2. 1000 1953-4

1953-4

PRELIMINARY REPORT RECLAMATION SUB-COMMITTEE: Construction of  
JULY 20, 1953 major works and land develop-  
ment.

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Purpose of Committee:

The purpose of Reclamation Committee was to examine the features of construction and of land development necessary to bring under irrigation and production the proposed lands in the Beheira and Fayoum provinces. This committee has had a large number of meetings at which the reclamation plans have been examined in considerable detail. Estimates of cost have been reviewed and have been generally agreed upon by the members of the committee. The concern of the committee has been limited to the steps needed to bring the lands to the stage where settlers can be placed on them as actual operators.

Guiding Criteria:

After a series of long discussions the committee concluded the following general guides should be followed in the reclamation work:

1. Need for detailed land classification is recognized as basic.
2. A detailed study of the lay-out of the project area including results of soil classification work is necessary. This study is to include cost of development, including leveling, of each tract and the expected returns from cropping of the tract. This will require agricultural economic studies.
3. The committee feels that for a pilot operation such as the EARIS program only the lands that can be supplied with perennial irrigation should be included.
4. Any parts of the project which indicate too small a net return from farming operations as compared to the cost of development should be eliminated from the project.
5. Settlers should not be put on the land as owner-operators until the land is developed to the stage where it can produce the settler a reasonable living. This principle has been checked and concurred in with other concerned committees.
6. Equipment used in the land development cropping work should be purchased with the view toward making it available to cooperatives of farmers on the project at a fair used equipment price.

EARIS

General:

The backbone of Egypt's economy is the agricultural production which produces approximately seventy-five percent of her national income. Betterment of the economy of Egypt must, as a start at least, come through improved methods of agricultural production and from extension of the agricultural area by more complete utilization of the water and land resources available.

The EARIS agreement provides as a part of the program "the reclamation of approximately 80,000 feddans of new land" in the Beheira and the Fayoum Provinces. The area in the Beheira province is located just outside Alexandria in the Abis area and consists of approximately 20,000 feddans of land to be reclaimed from Lake Maryut. The reclamation will consist of supplying drainage and water for irrigation through construction of drains, canals and pumping plants, and land development through leveling, leaching out of salts and initial cropping of the area.

It was originally planned that approximately 60,000 feddans could be reclaimed from the desert in the Fayoum area by extension of the irrigated area further into the desert west and northwest of the province. Further studies indicate that the actual justifiable expansion, in view of the soils and the water supply available, will be much less than this, perhaps only 10,000 to 13,000 feddans. Detailed studies are being made. It may be advisable to include other areas in the EARIS program. This possibility is under study.

Abis Area - Beheira Province:

The Beheira Province consists of 751,000 feddans of land under cultivation. Considerable lands have been reclaimed from Lakes in the Lower Delta including about 30,000 feddans during the past 10 years. The EARIS project area will extend this reclamation to an additional 20,000 feddans of land, part of which is now under water. Part of the area, about 5,600 feddans, is in various stages of the reclamation process by the Government of Egypt State Domains Administration. Private concerns started reclamation of part of the area but the attempts were apparently abandoned because of financial difficulties and shortage of water.

The major works for the project area includes one pumping plant for water supply, two pumping plants for drainage, construction of four irrigation canals and of four drainage canals totalling a proximately 70 kilometers (43 miles) in length. The estimated cost of the construction of these works is L.E.1,123,000.- which includes L.E.342,000.- for the design and construction of the Deshoudi Pumping Plant, which is to be constructed in its entirety from Ministry of Public Works funds, L.E.130,000.- for studies, design and supervision of construction of the remaining works, which is to be the contribution of the Government of Egypt, and L.E.651,000.- for the actual construction of the remaining works and is to be financed by EARIS funds.

The water supply for the project will be obtained from the Mahmudia Canal which extends past the area to the northeast. During flood season sufficient water will be available from the Nile for the project. During the low water season, February 15 to August 15, the Mahmudia Canal will be augmented by water from the Edku drain sufficiently to meet the water requirements of the Abis area. This will be accomplished by construction of a pumping plant where the Edku drain passes under the Mahmudia Canal, about 40 kilometers upstream from the project area. The pumping plant will have a maximum capacity of one million cubic meters per day (approximately 400 cfs).

The Public Works Ministry have actual measurements of the Edku drain from 1943 to and including 1947 taken at different times during the year. The low measurement was 598,000 cubic meters per day (246 cfs) which occurred in April 1946; the remainder of the measurements were about twice this or more with a maximum of 3,250,000 cubic meters per day (1,310 cfs) in August 1944. On the basis of the measurements taken, it appears that the Edku drain will supply the requirements of the project area which we expected to be about 700,000 cubic meters per day (280 cfs) during the critical period. This is based on a water duty of 35 cubic meters per feddan per day which is the requirement established by experience for the gross area served by the Mahmudia Canal during the critical period.

However, should a shortage occur in the Edku drain flow there are other factors that will contribute to a good water supply for the project area. Next year, a pumping plant will be completed at the head of the Mahmudia Canal which will increase the flow from 5,000,000 to 7,000,000 cubic meters per day (2,100 to 2,860 cfs). It is reported that most of this additional water will be obtained from storage water in the lower Nile which is not now being utilized. This increase in discharge will be used to increase the water supply for the whole of the Beheira province.

The Edku drain extends clear through the Beheira province and should give a fairly steady discharge except possibly in years of extreme drought. It appears that with the completion of the Edku drain pumping plant the project will be assured of ample water for development of the lands and for irrigation for crop production.

The quality of the water from the Edku drain without dilution would not be suitable for crops. However, it will be diluted 10 to 12 times by the water in the Mahmudia Canal and the resulting water will be satisfactory.

The studies and planning of the major works has been and is being done by the GOE Public Works Ministry. Designs and specifications have been completed and contracts for construction have been let for the Mollaha and Geziret el Gami Canals. The specifications for the pumping plants are to be issued about the middle of July 1953. These plants will require approximately two years to complete after contracts are awarded. The remaining canals and drains will be scheduled to be completed before the completion of the pumping plants which are the controlling factors.

It is planned that the design, construction and operation of the major works will be done under the supervision of the Public Works Ministry. A proposed project agreement setting forth the responsibilities and contributions of Public Works Ministry and EARIS has been drafted and a copy is attached.

A detailed land classification of the project area is needed to provide an evaluation inventory of the land resources, to furnish a basis for detail planning of the land development and to provide agronomists and farm planners with basic soil productivity and crop adaptability information. This can best be done through the Ministry of Agriculture. A proposed project agreement has been carefully worked out with all concerned and is in the process of being finalized. A copy is attached.

Land development has been started on 5,600 feddans of the project area and the second and third order laterals and drains have been planned and partially constructed. It is planned that this work will be continued along the lines already started with any desirable revisions of methods or layouts as may become desirable as the work and studies proceed.

The remaining project area will require detailed topography and plans for the lateral and drain layout before land development starts. Fortunately, ample time is available to perform these studies which should also take into account results from the land classification studies, proposed farm unit size and proposed cropping practices. It is further planned that a detailed study will be made of land development experiences throughout the Delta area or similar lands to assure lessons learned will be applied to the operations of Abis. This study is considered very important as specific quantitative data concerning these experiences appears to be lacking.

The present practice of land development in the area, after required clearing, leveling and construction of small laterals and drains, consists of flooding the area to be reclaimed during the flood season, August to November, putting as much water through the soils into the drains as possible. Following this, the land is left in fallow until March. From March to July, washing is done to the extent of irrigation water available, using the ponding method. Generally, at the beginning of the second flood season a Neli crop (a water loving, salt resistant crop-usually rice) is planted and the washing continued. This crop gives an indication of the progress being made with the washing. In November a winter crop, usually clover or barley is grown with ordinary irrigation. Following this, from April to August, ordinary irrigation is used to further wash the soil, usually without a crop. In August, rice is again grown followed by another winter crop. Lands indicating additional washing necessary are put through the cycle again as may be required. It is expected that most of the lands could be turned over to settlers for cropping by them after the third year.

A similar process will be used on the project lands with possible modifications suggested by the initial studies of past experience and by careful studies and observations as the work progresses. The necessity of providing an effective drainage system and keeping it in operation is especially important and will require careful design, construction and operation.

Among the problems to be given careful consideration is the sloping of the individual tracts to enable effective and efficient application of irrigation water and the arrangement of the individual tracts to allow possible use of cropping machinery. The area is practically flat so that the sloping of the tracts will require careful consideration and review of what has been done on other similar areas and application of knowledge gained.

Several methods of effecting the land development work are under consideration. It can be done by agreement with a Government agency, by contracting with private concerns or by EARIS force or by combination of all methods. A proposed project agreement has been drafted to allow freedom in selection of method which can be changed or modified as the work progresses. A copy is attached.

It is considered necessary for the success of the settlement of the project that the land be developed to a degree of production that will enable the settler to obtain a living from the land before it is turned over to him for his management. It is estimated that a three year period of intensive washing, coupled with cropping, will generally enable the land to reach this stage of development. However, it is recognized that the leaching of the salt from the lands will vary over the area. Effort will be made to bring the stage of development of all lands along as uniformly as possible by special attention to problem areas.

It is planned to keep a record of the methods used in the development and of the progress made in order to be most effective in accomplishing the work. This record will also be of great value to further similar development work in Egypt. The progress of the salt washing will be determined by laboratory methods as are justified. As well as providing record of progress and effectiveness of methods, this will prevent wasting seed through planting on area with too high a salt content as now sometimes occurs under present methods.

Based on the estimated three year land washing and cropping development period, it is expected the project lands will be available for turning over to settlers about as shown in the following table.

<u>Area in Feddans</u>	<u>Available for Settlers</u>
1,120	November, 1954
4,480	November, 1957
14,400	November, 1959

Exhibit B of the proposed project agreement for land development gives the details of each of the seven areas.

All of the operations should be pushed vigorously so that advantage can be taken of any specially favorable progress in any of the operations. It is recommended that the housing for settlers should be ready for occupancy one year ahead of the above dates. Consideration is being given to having the prospective settlers on the land as farm laborers for a year before the land is ready to run over to them.

It was originally thought that the first 1,120 acres were available for immediate settlement. However, results of recent salinity tests indicate further leaching desirable and, in view of time necessary to select the settlers, construct housing and facilities and get other operations organized, it is recommended that the date for settlers on this land be set ahead to November 1954. Part of this initial area may be required for development headquarters and perhaps for experimental cropping practices.

Estimated cost of the construction of the major works for the Abis area to be paid from EARIS funds is L.E.651,000.- The estimated cost of the development of the lands and bringing into a stage of production that will support settlers is L.E.1,500,000.-. This last figure includes estimate of costs based on present experiences with a conservative credit allowance for returns from crops and a 10 percent reserve for contingencies. It is hoped that careful study, planning and execution of the work will enable these estimated costs to be reduced.

#### Fayoum Province:

This province covers a depression of 1,500 square kilometers in the Western desert, separated from the Nile Valley by a narrow strip of land and located approximately 100 kilometers south of Cairo. The depression is believed to have been formed by wind action. In olden times, the Nile waters found access to this depression, deposited silt over the area, and created a rich, cultivable area. The area was utilized by the Pharoahs of old Egypt as a water reservoir and Nile flood escape and part of the lands were cultivated. The area under cultivation at present is approximately 350,000 feddans. The population of the area is about 735,000.

The plans for development at the time the EARIS agreement was effected consisted of a 95 kilometer main canal, 200 kilometers of branch canals, and about 120 kilometers of drains to serve 62,000 feddans on the west and northwest side of the province area. However, more detailed studies now indicate that maximum of about 45,000 feddans in the area is cultivable, the remainder being unsuitable for development because of shallow sands over rock or sand dunes.

The proposed plan provided for the irrigation of the area by gravity flow by constructing a feeder canal from the Bahr Youssef canal at a point 40 kilometers south of the present entrance to the Fayoum province, through a cut three kilometers long and about 20 meters deep, extending across the desert separating the canal from the province. The reduced area of land suitable for cultivation will still require essentially the same construction to serve the entire area.

Additional studies have been carried on since the EARIS agreement was signed and detailed data are still being obtained. On the basis of data available, the Ministry of Public Works have completed studies of three alternates for the development of the area.

Alternate I is for the construction of the main Gisir El Hadid Canal, essentially and originally planned to serve the 45,000 feddans available. All delivery of water would be by gravity. It is estimated this would cost L.E.1,500,000 for the major works. Operation and maintenance of the canal through the deep cut and through the sandy areas would be a major problem. It is probable that more lining of the canal would be required than provided in the estimate. Sufficient water has been allocated to the area for about 10,000 feddans perennial irrigation, the remainder of the area would have flood and winter crops only. The full area could not be placed under perennial irrigation until a greater water supply is provided by storage on the Nile.

Alternate II is for irrigation of the same area by enlargement and extension of existing canals and construction of two pumping plants. The estimated cost of this development is L.E.1,500,000 for the major works. This plan avoids the deep cut of alternate I and most of the long stretches of new canal through sand areas but will require substantial operation and maintenance costs for the two pumping plants. The same comment concerning water supply applies to this plan as to Alternate I.

Alternate III is for irrigation of approximately 13,000 feddans in the northwest area by enlargement and extension of existing canals. An area of 13,000 feddans could thus be served by gravity flow. It is estimated by the Ministry of Public Works that this would cost L.E.400,000. It is quite probable that the grass area that could be served by gravity will be reduced perhaps 1,000 to 2,000 feddans when the detailed land classification and topography studies are completed. It thus appears that full water supply will be available for most, if not all, of the area developed under this plan.

Under all three plans, water could be made available to the project lands about August 1955. However, for Alternates I and II, work would need to be started soon and pushed vigorously. August, 1956, would be perhaps more realistic for these two plans.

It is expected that land development time would not be as long as for the Abis area and that settlers could be established on the land a year after water is available.

Another possibility is utilization of some of the water now being wasted through the drains in the Fayoum area. This would allow more lands to be placed under perennial irrigation either on the west side of the province or perhaps on some of the land northeast of the present province area. This possibility is being given study.

The committee concluded that if possible any additional lands brought into the EARIS program should be in the Fayoum area and thus no definite decision should be made until after the completion of the present studies underway concerning this province.

It is recommended that the detailed topography and land classification surveys be completed before decision is made concerning the extent of the development in the Fayoum area. On the basis of present data, it appears Alternate III should be selected primarily because of water supply.

If Alternate III is selected after full data are available for consideration, it would then appear that other areas could be considered for inclusion in the EARIS Program. One possibility that has received some consideration is the Kesobi Area in the Sharqiya Province. This area involves the reclamation of about 26,000 feddans of State Domain lands in the northeast Delta area. It is similar to the Abis area with about the same construction requirements including construction of two additional pumping plants (one has been constructed and is ready for operation as soon as power is extended to the area) and necessary canals and drains. Similar land development procedures would be necessary; thus it would be about six years before settlers could be placed on the land. Other possibilities should be considered that would allow earlier settlement.

The estimated cost of the development of Alternate III for major works is L.E.400,000.- and for land development is L.E.585,000.-. This last figure is considered liberal and it may well be that when the land classification and the topography details are available for study that this figure can be reduced.

Summary:

Abis Area - 20,000 feddans

Major Works L.E. 651,000.-

Land Development L.E. 1,500,000.- L.E.2,151,000.-

Fayoum Area - Alternate III - Say 11,000 feddans

Major Works L.E. 400,000.-

Land Development L.E. 583,000.- L.E. 985,000.-

Total both areas L.E.3,136,000.-

This would leave L.E.5,814,000.- of the total L.E.8,950,000.- available for other portions of the program and possibly for inclusion of additional land.

It may be that the costs of land development, as based on the experience of the State Domains Department, can be reduced. However, it should be emphasized that the land development of the areas proposed, particularly the Abis area, is a slow, costly process that must be carefully and systematically pursued to make the lands productive. It will require careful management of the lands and effective operation and maintenance of the laterals and drains to keep the land productive. These areas are not the easiest or quickest to reclaim and present a challenge. It should not be expected that after development they will equal in production the best lands of Egypt but will be somewhat less. However, this again will depend upon the care and skill taken to develop and carry through with the land developments and maintenance practices as work on the area progresses. This will require the combined and continuing skills of all concerned.

Land Reclamation Sub-Committee:

Dr. Orabi, National Production Council,  
Dr. M. Azzouni, National Production Council,  
Dr. Rifki Anwar, Ministry of Agriculture,  
Dr. Malek Kaddah, Ministry of Agriculture,  
Mr. Mohamed Ahmed Kamel, Ministry of Social Affairs,  
Mr. Harold T. Jorgenson, TCA,  
Mr. Ellis Armstrong, TCA,  
Dr. Lindsey A. Brown, TCA.

Enclosures:

1. Project Agreements:

- a. Soil and Land Classification Survey,
- b. Major Works for EARIS Abis Area,
- c. Land Development for EARIS Abis Area,
- d. Establishment of Soil Salinity Laboratory.

2. Charts:

- a. Exhibit A Map Abis Area,
- b. Exhibit B Construction Chart Abis Project,
- c. Exhibit C Reclamation and Development Chart Abis Project.

DRAFT

EGYPTIAN-AMERICAN RURAL IMPROVEMENT SERVICE

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PROJECT AGREEMENT S-Agr.-Eng.- No. \_\_\_\_\_ LOCATION: Beheira Province  
TITLE: "LAND DEVELOPMENT FOR EARIS ABIS AREA"

Pursuant to the Agreement for a Cooperative Program of Community Development and Rural Rehabilitation in the Egyptian Provinces of Beheira and Fayoum dated March 19, 1953 (hereinafter referred to as the "Program Agreement") between the Government of Egypt and the Government of the United States of America, this Project Agreement is entered into between the Co-Directors of the EGYPTIAN-AMERICAN RURAL IMPROVEMENT SERVICE (hereinafter referred to as the "EARIS")

ARTICLE I - THE PROBLEM

The Abis area of Beheira Province, totaling 20,000 feddans has been designated as one of the areas to be reclaimed and brought into cultivation for settlement by owner operators under the Program Agreement. The construction of main canals, ditches, pumping stations, levees and other facilities are now underway or are in the process of planning for later execution.

Following the completion of these works the land requires development including leveling, deep plowing, removal of bamboo rhizomes, construction of roads and second and third order laterals and drains, leaching, and planting of initial crops. These steps are necessary to prepare this land for occupancy and cultivation by individual farm owners.

ARTICLE II - OBJECTIVES OF PROJECT

The aim of this project is to develop the Abis Area of Beheira Province and prepare it in final condition for settlement and cultivation as agricultural land. The location of the individual area of land shown on the attached drawing marked Exhibit "A". The development work on the different areas is to be scheduled approximately as shown on the Attached drawing marked Exhibit "B".

ARTICLE III - DELEGATION OF AUTHORITY AND RESPONSIBILITY FOR PROJECT DIRECTION

1. The Administration of this project shall be under the direction of the Co-Directors, who shall delegate authority and responsibility for the project direction as they determine to be in the best interests of EARIS as the work proceeds.

2. EARIS shall provide funds for the administration, supervision and accomplishment of the land development work in accordance with the agreed upon program of the Co-Directors.

3. The Technical Cooperation Administration shall furnish from the Technical Mission in Egypt and pay the salaries of such technicians and specialists as may be agreed upon by the Co-Directors as necessary to consult, advise and to collaborate in accomplishing the land development program.

#### ARTICLE IV - PLAN OF OPERATIONS

1. The Abis Area consists of approximately 20,000 feddans of land divided into areas as shown on Exhibit "A". Areas A, B, C, and D are now under various stages of land development under the supervision of the State Domain Administration. It is intended that the operations now underway in these areas will be continued under arrangements for direction of the work as may be determined by the Co-Directors to be to the best interests of the project.

A survey and study of the experiences with similar land development work in the Delta area including the work in the Abis Area itself is to be undertaken upon signing of this agreement, the results summarized and made available for use in preparing the general land development plan for the area. This land development plan will form the basis for the land development of areas E, F, and G and will incorporate any desirable changes in the practices or layout of laterals and drains for areas A, B, C, and D.

2. A general land development plan for the Abis Area shall be prepared. The following information and data shall be made available through the Ministries of the Government of Egypt and other agencies where possible or by EARIS expense:

- a. Detailed topography of the area with such scale and detail necessary for preparation of the land development plan.
- b. A detailed soil capability and land classification map to indicate land suitability and productivity.
- c. Details concerning location of proposed villages, roads, bridges, culverts, utilities and other facilities effecting or located in the project area.

3. The detailed land development plan for each tract or area shall be prepared and shown on maps of suitable scale and shall include the following:

- a. Design and layout of all irrigation canals and laterals and drainage ditches including crossings.
- b. Design and layout of project roads including access roads to individual fields.
- c. Specific plans for plowing, removing bamboo rhizomes, land leveling and sloping for irrigation.

- d. Procedures and methods of leaching of salts.
- e. Cropping plan including varieties of crops to be grown and sequence of plantings.
- f. Any other development operation required for the development of the land for settlement.
- g. Detailed estimate of costs of all above operations.
- h. Detailed plan of operations for execution of the land development work including a budget of required funds by fiscal years.

4. Preliminary estimates and programs for the land development work have been prepared and are shown on Exhibit "B". This shall be used as a guide for the initial program and budgeting until the more accurate plans and estimates are prepared.

5. The method of execution of the work shall remain flexible so that the best interests of the project and the pilot plant concept of the EARIS program shall be served. The Co-Directors may elect any one or combination of several alternate methods of execution such as:

- a. By contracting with any existing Government Agencies.
- b. By contracting with private contracting firms or a private organization.
- c. By force account work under immediate direction and supervision of EARIS.
- d. Any combination of above methods.

6. Monthly progress reports shall be prepared.

#### ARTICLE V - ESTIMATED DURATION OF PROJECT

It is agreed that the land development work under this project is to be completed by December 31, 1960. Every effort is to be made to have the land development work completed in the different areas prior to the dates shown on the attached preliminary schedule.

#### ARTICLE VI - FINANCING

From the funds made available by the two Governments to the account of the EGYPTIAN-AMERICAN SERVICE FOR RURAL IMPROVEMENT in accordance with the program agreement signed March 13, 1953 there is hereby allotted to this project the sum of L.E. 659,998.- from the funds provided by the Government of Egypt and \$1,267,206.00 from the funds provided by the Government of the United States. The combined total of these two contri-

butions amounts to approximately L.E.1,100,000 equivalent to approximately \$3,168,000 at the present rate of exchange which sum will be available at any time during the continuation of the project; provided however that the obligations incurred under this allocation shall not exceed the amount currently paid in and actually available for disbursement.

It is estimated that the amount of EARIS funds needed each fiscal year under the terms of this agreement are as follows:

FISCAL YEAR	Total Funds Provided By EARIS	From Funds Provided By the Government of Egypt	From Funds Provided By the United States
	L.E.	L.E.	L.E.
1953-1954	79,822	47,893	31,929
1954-1955	227,405	136,443	90,962
1955-1956	332,789	199,673	133,116
1956-1957	226,427	135,856	90,571
1957-1958	204,387	122,632	81,755
1958-1959	206,932	124,159	82,773
1959-1960	222,238	133,342	88,896
<b>TOTAL.....</b>	<b>1,500,000</b>	<b>899,998</b>	<b>600,002</b>
Net income from crops (L.E.20 per feddan)	400,000	240,000	160,000
Actual cost	1,100,000	659,998	440,002

If at any time during the duration of the project it becomes evident that the allocations for this work are either too high or too low the allocations can be revised by execution of an official amendment to this Project Agreement.

Upon completion of this cooperative project any funds remaining unexpended and unobliged shall revert to the unallocated funds of the EGYPTIAN-AMERICAN SERVICE FOR RURAL IMPROVEMENT, and any property procured by EARIS funds and not necessary to the continuation of the EARIS program shall be disposed of as provided for in Article IX-2 of the Program Agreement.

ARTICLE VII - COMPLETION MEMORANDUM

Upon completion of this project, a completion memorandum or agreement which shall include a final report of the full operation, shall be drawn up and signed by the Co-Directors as outlined in Article VIII of the Program Agreement.

In WITNESS WHEREFOR the parties hereto have caused this Project Agreement to be executed by their duly authorized representatives at Cairo, on This \_\_\_\_\_ day of \_\_\_\_\_ 1953.

EGYPTIAN-AMERICAN SERVICE FOR RURAL IMPROVEMENT

By \_\_\_\_\_  
Co-Director

By \_\_\_\_\_  
Co-Director

D R A F T

PROJECT AGREEMENT S-Agri-Eng.-No.1

Location: Beheira & Fayoum Provinces

TITLE: "SOIL AND LAND CLASSIFICATION SURVEY"

Pursuant to the Agreement for a Cooperative Program of Community Development and Rural Rehabilitation in the Egyptian Provinces of Beheira and Fayoum, dated March 19, 1953, this Project Agreement is entered into between Hussein Fahmy, President of the Permanent Council for the Improvement of National Production (hereinafter referred to as "President") and Erwin C. Hannum, Acting Director of Technical Cooperation in Egypt (hereinafter referred to as "Director"), as Co-Directors of the Egyptian-American Service for Rural Improvement (hereinafter referred to as the "Service"); and between the said Co-Directors of the Service and Abdul Razzik Sidky, Minister of Agriculture (hereinafter referred to as "Minister").

ARTICLE I. OBJECTIVES OF PROJECT.

The Project shall:

1. Provide an evaluation inventory of the land resources to the extent of at least 60,000 feddans for which irrigation and drainage works are being considered.
2. Furnish a basis for estimating the length of time required for land reclamation and development.
3. Provide agronomists and farm planners with basic soil productivity and crop adaptability information.

ARTICLE II. AUTHORITY AND RESPONSIBILITY FOR PROJECT DIRECTION

1. The Minister shall:

Furnish as members of his staff and pay the regular basic salaries of the following personnel required to conduct this project:

- a. A chief of land classification field party. (A soil scientist who will be responsible for the field mapping).
  - b. Four (4) Soil technicians to assist in field mapping.
  - c. Two (2) agricultural chemists to conduct required soil chemistry work.
2. The Service shall:
    - a. Provide funds for payment of field subsistence and overtime for the technical personnel.
    - b. Pay unskilled and semi-skilled labor costs.

- c. Pay all transportation, supplies and equipment costs which are directly chargeable to this project.

3. The Director shall:

Furnish a soil scientist as Consultant for the soil and land classification survey, paying the full costs of his salary, travel and transportation expenses.

### ARTICLE III. PLAN OF OPERATIONS

1. Field work:

The soil and land classification survey will be made by the regular technical staff of the Minister and laborers as required.

2. Base Maps:

If aerial pictures are not obtained, the best maps available will be used.

3. Laboratory work:

Laboratory tests will include total soluble salts, quantities of various salts, base exchange properties, leaching tests, mechanical analyses and others.

4. Reports:

Periodic progress reports covering the technical operations will be prepared and submitted to the Co-Directors of the Service and to the Minister of Agriculture by the Chief of the land classification party in collaboration with the soil scientist of the Service. A final report of findings, conclusions and recommendations containing complete sets of maps, photos, tables, etc., shall be submitted to the Co-Directors of EARIS and the Minister of Agriculture on completion of the project:

### ARTICLE IV. ESTIMATE DURATION OF THE PROJECT

1. Field work shall commence promptly and be completed in an estimated sixty (60) days of field work.

### ARTICLE V. FINANCING.

1. Funds:

From the funds already deposited by the two Governments to the account of the Egyptian-American Service Rural Improvement Administration Project No. A-1, there shall be allocated to the execution of this project the sum of L.E. 2,800 (two thousand, eight hundred pounds) on the following pro-rata basis:

Share of GOE 3/5	L.E. 1,680	
Share of U.S. 2/5	<u>(L.E. 1,120)</u>	<u>\$ 3,225</u>
	L.E. 2,800	\$ 3,225

To effect the transfer of funds provided above, Project Agreement A-1 has been amended as provided therein, to decrease the allocation to that project and credit this project. A certified copy of the amendment shall be used to support the necessary book entries.

2. Objects of Expenditures:

It is estimated that the funds will be used as follows:

Personnel Services	1,350
Transportation and Travel	<del>300</del>
Supplies and Equipment	1,000
Miscellaneous	<u>150</u>
Grand Total	<u>2,800</u>

(See Amendment of Project Agreement A1 (Attached))

ARTICLE VI. PROJECT EXTENSION

1. The project may be extended to cover additional areas designated by the Co-Directors by an amendment which provides additional funds.

ARTICLE VII. COMPLETION MEMORANDUM.

Upon the completion of the projects, a completion memorandum shall be drawn up and signed by the Co-Directors, as outlined in Article VIII of the PROGRAM AGREEMENT.

In witness whereof the parties hereto have caused this Project Agreement to be executed in duplicate originals by their duly authorized representatives at Cairo, on this \_\_\_\_\_ day of \_\_\_\_\_, 1953.

\_\_\_\_\_  
GOVERNMENT OF EGYPT  
MINISTRY OF AGRICULTURE

\_\_\_\_\_  
EGYPTIAN-AMERICAN SERVICE  
FOR RURAL IMPROVEMENT.

BY \_\_\_\_\_  
Abdul Razzek Sidky, Minister  
of Agriculture

BY \_\_\_\_\_  
Co-Director

BY \_\_\_\_\_  
Co-Director

D R A F T

PROJECT AGREEMENT Agri.-No. 1

Location: Beheira & Fayoum  
Provinces.

TITLE: "ESTABLISHMENT OF THE EGYPTIAN LABORATORY FOR INVESTIGATION OF  
SOIL SALINITY" (Hereinafter called ELISS)

Pursuant to the Agreement for a Cooperative Program of Community Development and Rural Rehabilitation in the Egyptian Provinces of Beheira and Fayoum dated March 19, 1953, between the Government of Egypt and the Government of the United States of America, this Project Agreement is entered into between the PERMANENT COUNCIL FOR THE IMPROVEMENT OF NATIONAL PRODUCTION, represented by Hussein Fahmy, President; the TECHNICAL CO-OPERATION ADMINISTRATION, represented by Erwin C. Hannum, its Acting Director of Technical Cooperation in Egypt; the EGYPTIAN-AMERICAN RURAL IMPROVEMENT SERVICE, represented by its Co-Directors, Hussein Fahmy and Erwin C. Hannum; and the MINISTRY OF AGRICULTURE, His Excellency, Abdul Razzek Sidky, Minister. (Cooperation in organizing and establishing ELISS will be solicited from all agencies concerned including Government of Egypt Ministries, Universities, other Middle Eastern countries and international organizations.)

ARTICLE I. OBJECTIVES OF THE PROJECT

1. Construct the physical plant, purchase equipment and supplies and provide initial operating staff for ELISS.
2. The objective of ELISS itself will be to investigate the nature of soil salinity and soil alkalinity in Egypt in general and in Beheira and Fayoum Provinces in particular for the purpose of discovering the most economical and effective methods for developing or maintaining soil conditions suited to production of high crop yields. This will include studies of soils, alkali salts, plant tolerance to salinity and alkalinity, nutritional problems in saline and alkali soils, drainage, irrigation waters, climate, their inter-relationships and geographic distribution.

ARTICLE II. DELEGATION OF AUTHORITY & RESPONSIBILITY FOR PROJECT DIRECTION

The selection of the Director of ELISS and final approval of location, building plans, first year purchase of equipment and initial work plans will be by the signers of this contract or their designated representatives, however, the delegation of authority and responsibility for project direction by the signers of this agreement will be as follows:

1. The Ministry of Agriculture shall:
  - a. Assume supervision of ELISS for the Government of Egypt.
  - b. During the first two years only, ELISS will be supervised by a committee of three members, one each representing Ministry of Agriculture, Universities and TCA.

c. Furnish a site for ELISS of 50 feddans of land within a major saline area complete with a convenient supply of irrigation water.

d. Transfer its soil salinity laboratory staff to ELISS as an initial operating staff, consisting of four soil scientists and soil chemists and their supporting personnel.

2. EARIS shall:

a. Provide funds for construction of necessary buildings and purchase equipment and supplies for laboratories, offices greenhouses and field plots.

b. Pay all costs of land preparation field plot construction and irrigation and drainage system which may be essential in the first two years after establishment of ELISS.

3. TCA shall:

a. Furnish a soil scientist as a consultant to the ELISS director and specialized soil and plant nutrition personnel for limited period to advise on special aspects of the technical work. Full costs of salaries, travel and transportation expenses of these personnel will be paid by TCA.

4. ELISS may:

a. Through its Director and Board of Collaborators, study specific salinity problems of other Middle East countries in exchange for an agreed-upon support to ELISS in funds or technical personnel.

ARTICLE III. PLAN OF OPERATIONS

1. Selection of Site:

During the period when the soil and land classification survey of the Abis area near Alexandria is being made, the two or three best possible sites will be selected by the chief of the land classification field party and the TCA soil scientist assigned as consultant to the soil and land classification survey. Final selection of the site will be by the signers of this project agreement.

2. Construction of buildings:

Contract for building construction will be let by EARIS according to plans and specifications accepted by the signers of this project agreement.

3. Furniture, Equipment and Supplies:

Furniture, equipment and supplies will be purchased by EARIS from listed requirements agreed upon by the ELISS Director and his TCA soil scientist consultant and approved by the signers of this project agreement.

4. Details of Research Program:

Detailed projects will be recommended by a Board of Collaborators. This board will meet annually to review and/or make recommendations concerning the program of ELISS. The board should include the following:

- a. Director of ELISS
- b. TCA Consultant to ELISS
- c. Director of Chemical Section, Ministry of Agriculture

One representative from each of the following:

- \*a. Permanent Council for Development of National Production
- b. Ministry of Agriculture
- c. Ministry of Public Works
- d. State Domain Administration
- e. Cairo University
- f. Alexandria University
- g. Ibrahim University
- h. U. S. Regional Salinity Laboratory
- i. One representative from each of the other agencies as approved by signers of this project agreement.

Lebanon, Iraq, Saudi Arabia, Syria, Trans Jordan, Afghanistan, Iran and Pakistan will be invited to participate in support of ELISS and to designate a representative to the board of coordinators.

The recommended program of projects must be reviewed and approved by the signers of this project agreement before their initiation.

ARTICLE IV. ESTIMATED DURATION OF THE PROJECT

Construction and preparation for initiation of the experimental work should be accomplished in one year. Partial support of work under this project will continue for two years after initiation of research work.

ARTICLE V. FINANCING

1. Funds:

From the funds deposited or to be deposited by the Governments to the account of the Egyptian-American Rural Improvement Service in accordance with the Program Agreement signed March 19, 1953, there is hereby allocated to the execution of this project the total sum of L.E. 45,000 (forty five thousand Egyptian pounds) from the funds provided by the Government of Egypt and \$104,100 (one hundred and four thousand,

\*This member should serve as Secretary to the Board of Collaborators.

one hundred U.S. dollars) from the funds provided by the Government of the United States of America. The combined total of these contributions amounts to approximately L.E. 75,000, equivalent to \$ \_\_\_\_\_ at the present rate of exchange, which sum will be available at any time during the continuation of the project.

2. Objects of Expenditures:

From budget estimates prepared and approved, it is estimated that the funds allocated in the paragraph immediately above will be expended in the following manner:

Personnel Services	L.E.	10,000
Travel and Transportation		2,000
Material and Supplies		2,000
Equipment		20,000
Contractual Services (buildings and greenhouses)		40,000
Miscellaneous		<u>1,000</u>
Total - L.E.		75,000

ARTICLE VI. COMPLETION MEMORANDUM

Upon the completion of this project, a completion memorandum or agreement shall be drawn up and signed by the Co-Directors, as outlined in Article VIII, 2, of the Program Agreement.

In witness whereof the parties hereto have caused this Project Agreement to be executed by their duly authorized representatives at Cairo, Egypt, on this \_\_\_\_\_ day of \_\_\_\_\_, 1953.

PERMANENT COUNCIL FOR THE DEVELOPMENT  
OF NATIONAL PRODUCTION

TECHNICAL COOPERATION ADMINISTRATION

BY \_\_\_\_\_  
Hussein Fahmy, President  
Permanent Council for the Improve-  
ment of National Production

BY \_\_\_\_\_  
Erwin C. Hannum, Acting Director  
TCA in Egypt, Technical  
Cooperation Administration

GOVERNMENT OF EGYPT  
MINISTRY OF AGRICULTURE

EGYPTIAN-AMERICAN RURAL  
IMPROVEMENT SERVICE

BY \_\_\_\_\_  
Abdul Razzek Sidky, Minister

BY \_\_\_\_\_  
Hussein Fahmy, Co-Director

BY \_\_\_\_\_  
Erwin C. Hannum, Co-Director

EARIS PROJECT  
 RECLAMATION AND DEVELOPMENT PROGRAM  
 ABIS AREA - BEHEIRA PROVINCE

No.	Area Size Feddan	Feature	Operation Costs		Completion By Fiscal Years (July 1 to June 30)						
			Per Feddan L.E.	Total Costs L.E.	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60
A	1120	Development	14.00	15,680	3 c	4c/S					
B	880	Reclamation	13.50	11,880	R/						
B	880	Development	46.00	40,480	/ Leach	/ 1C	/ 2 C	/ 3 C	/ 4C/S/		
C & D	3660	Development	46.00	165,600	/ Leach	/ L C	/ 2 C	/ 3 C	/ 4C/S/		
E	1400	Reclamation	35.20	59,280	/ Reclamation /						
E	1400	Development	46.00	64,400		/ Leach/	1 C	/ 2 C	/ 3 C	/ 4C/S/	
F & G	13000	Reclamation	29.20	379,600	/ Reclamation /						
F & G	13000	Development	46.00	598,000		/ Leach	/ L C	/ 2 C	/ 3 C/S/		

Total- 1,34,920  
 Plus 10%- 133,492  
 1,468,412  
 Administration- 31,588  
 1,500,000  
 Value of crop produced  
 (20 L.E. per feddan)- 400,000  
 Net Cost- 1,100,000

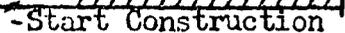
/R/ Reclamation (includes all land preparation, leveling and construction of all class canals and drains)  
 /L/ Leach (includes flooding, wet leveling and leaching)  
 /1C/ 1st year cropping    /2c/ 2nd year cropping  
 /3C/ 3rd year cropping    /4C/ 4th year cropping  
 /S/ Settlement

EXHIBIT C.

EARIS PROJECT  
PROGRAM FOR CONSTRUCTION OF MAJOR WORKS  
ABIS AREA-BEHEIRA PROVINCE

	CONSTRUCTION FEATURE	CONSTRUCTION COST OF FEATURE-L.E.	Fiscal Years (July 1 to June 30)		
			1953-54	1954-55	1955-56
1	Mallaha Canal	13,000	13,000		
2	Geziret el Gami Canal	21,000	21,000		
3	Idku Pumping Plant	209,000	65,000	80,000	62,000
4	Kalaa Pumping Plant	255,000	95,000	100,000	60,000
5	Beshoudi Pumping Plant	*	*	*	*
6	State Domain Drain	6,000	6,000		
7	Muhit Meriet el Sharki Drain	36,000	30,000	6,000	
8	Gannagbia Umm Right Drain	7,000		7,000	
9	Geziret el Gami Drain	14,000		14,000	
10	Abis Drain	19,000		19,000	
11	El Bodia Canal	25,000		25,000	
12	Abis Canal Extension Enlargement	46,000		46,000	
TOTALS - L.E.		651,000	230,000	297,000	124,000

\* Funds for Dshoudi construction not provided by EARIS

Studies  Complete construction  
 Start Construction

EXPLANATION

EARIS PROJECT AGREEMENT No.  
EXHIBIT B

July 8, 1953  
H. Jackson Davis, M.D.,  
Dr. P.H.

PART II

PROPOSED HEALTH AND SANITATION PROGRAM FOR EARIS

This part of the Cooperative Program of Community Development and Rural Rehabilitation in the Egyptian Provinces of Bahaira and Fayoum, and especially in the new areas to be reclaimed and settled under the Egyptian-American Rural Improvement Service (EARIS), needs to be carefully dovetailed and correlated with the present and proposed general health and sanitation program for Egypt.

As stated in the preceding section, Egypt is a land of paradoxes; it is a land of abundant sunshine and the romantic, historical and civilization nourishing Nile, yet the laborers in the towns and the rural fellahen who make up four-fifths of the population live in densely packed poverty; the irrigated lands yield bumper crops, yet according to a recent economic survey<sup>1/</sup> the net food supply per day was estimated in 1950-51 to be significantly less than pre-war, malnutrition and dietary deficiencies are common, and reports<sup>2/</sup> indicate that "in some districts from 65 to 80 per cent of the people are undernourished"; in the past quarter century (1925-50)<sup>3/</sup> Egypt's annual budget for public health has increased from 3 to 55 millions of dollars, the number of physicians from 1811 to 4612, the number of hospitals or related institutions from 184 to 982 (includes 205 rural health units and 105 welfare centers), bed capacity from 8,554 to 34,892 - yet less than 500 of the 4200 rural communities have a resident physician nor do more than a fourth of these 4200 villages have their own safe water supply (motor driven or hand operated deep well pump), furthermore, roughly one-third of all deaths and over one-half of infant deaths are due to diarrhea and enteritis, and 60 to 65 per cent of total deaths from all causes occur among children under five years of age, typhoid fever is endemic throughout the country with Cairo leading the cities of the world<sup>4/</sup> (except for Calcutta and Bombay) in her death rates from this disease, other major health problems in Egypt being not only the control of malaria, trachoma, and tuberculosis, but also in greater measure of ancylostomiasis (hookworm) which averages 50 per cent in prevalence - reaching 90 in some places near Cairo, dropping to less than 20 per cent in Fayoum Province and in the northern Delta area, and above all, schistosomiasis (bilharzia) infection, with which the Ministry of Health in 1949 estimated that 14 million persons, about two-thirds of the total population, were infected - the incidence approximating 60 per cent in the country as a whole and 75 per cent in the rural areas, and schistosomiasis may be responsible for 50 to 10 per cent of the total deaths, depending upon whether one or two species are present, as well as affecting the health and social outlook of a large percentage of the people.

EARIS

1/ Published in "The Middle East - 1953", (London), page 82.

2/ Shousha, A. T. "Cholera Epidemic in Egypt." Bull, W.H.O. 1: No. 2, 1948, pages 353-381.

3/ "Modern Egypt - A Quarter Century of Progress." Washington, 1952, page 10.

4/ "Annual Epidemiological and Vital Statistics" - 1947-1949, Part I, W.H.O. Geneva, 1952, page 189.

GENERAL CONSIDERATIONS RE: COOPERATIVE HEALTH AND SANITATION PROGRAM

Cooperation (through EARIS) between the two Governments "to improve the social and economic conditions throughout all Egypt, by carrying out a broad demonstrational program of development which attacks, through self-help, community participation and direct assistance, the basic problems of rural life for the people in the Provinces of Buheira and Fayoum," including "Improvement of the levels of public health, through environmental sanitation, clinical services, training and health education" . . . and, "Such other related activities as the Co-Directors may agree upon as being essential to the success of this demonstration", requires an appraisal and analysis of the most vital health problems which may be attacked with maximum results at minimum cost.

A choice must be made at the outset between the two possible<sup>1/</sup> general methods of approach: (A) "by revolutionary moves initiated and carried out from the top down;" (B) "by evolutionary processes set in motion at the grass-roots, geared to the real desires, capacities, and local needs of the people themselves. The first method would be quicker, more spectacular, less apt to stick, more likely to destroy important values caught in the overriding process. The second would be harder, more demanding of ingenuity and patience, probably much more enduring."

It seems obvious from an analysis of a variety of trends that the die has been cast in Egypt in favor of the second alternative - and the evolutionary processes set in motion during the past two decades are finding their fruition in a more adequate recognition by the Government of the right of the Fellah and his family to a more healthy environment and a higher standard of living and a voice and active participation in the ways in which they can be achieved. A large number of official reports have been read - reports by the Country itself, reports by outsiders, by international agencies, by private agencies; the various agencies concerned have been visited, conferences have been held with officials and private individuals living on the spot, local agencies have been visited during working hours and after working hours; clinics both public and private have been observed on day-long visits and the nurses and midwives accompanied in their routine visits to village homes. Attendance at a day-long open forum for local representatives of the village social councils of sixty villages in two provinces have revealed a ferment of desire: for more active participation by the local people and communities in all movements for their betterment, for more decentralization of power from the Federal to local government; for more active influence in determining what programs should be carried out;

<sup>1/</sup> Barnard, Chester I., in Foreward to: "Crete - A Case Study of an Underdeveloped Area" by Leland G. Allbaugh. Princeton, 1953, page x.

they wanted lady social workers, they wanted more home visits; they wanted more public village outlets for the local deep well pumps; they even wanted to review correspondence between the local health and welfare officials and their federal agencies.

#### PROPOSED HEALTH PROGRAM IN BUHEIRA PROVINCE

Pertinent to the development of the EIRIS Cooperative Health Program is the recent (June 1953) cooperative agreement between the Ministers of Public Health and Social Affairs "to complete the health and treatment program in rural areas in planning that project whose main objectives are to fight endemic diseases (Ancylostoma, Bilharzia, Malaria, and Trachoma) and ophthalmia and protective measures against them; providing necessary treatment to villagers; taking care of motherhood and childhood; carrying out a comprehensive program to bring the essential health knowledge to rural society; and to lay down a fixed policy for the improvement of the health environment in the village."

This program, as stated, could well be adopted as the Egyptian key-note to the EIRIS Program to be carried out or implemented on a generalized basis in the provinces of Buheira and Fayoum and on a pilot plant demonstration, and a more intensive basis, not only in the specific areas to be reclaimed and settled, but also in nearby or representative communities.

The Egyptian-American Subcommittee on the Cooperative Public Health Program of EIRIS has met several times and discussed in detail the various aspects and specific items of programs to be encouraged, initiated or continued under EIRIS auspices and its members are now in substantial agreement as to the policies to be adopted and the content and timing of specific projects to be carried out.

Basically, the EIRIS Health Program contains no proposals or specific isolated policies or procedures that have not been inaugurated or contemplated by the Government of Egypt or its well-qualified health experts - the essentially new aspects of the proposed EIRIS Program consisting in a modification or coordination of time sequences, program emphases, and a broadening of program content in such a way as to achieve early and optimum results with a minimum of expenditure, a maximum of efficiency, and an optimum of quality and quantity of services to the individuals and families concerned.

Additional support for the newer trend in health programs as put in the underscored statement at the head of this section (endorsed by the Ministers of Health and Social Affairs in June, 1953) was given by the ten member National Coordinating Committee for the Development of a Long-Range (5 year) Health Program for Egypt on July 6, 1953<sup>1/2</sup> at its final meeting for the adoption of resolutions. Significant of the trends

were the newspaper headlines, reporting the meeting, which read in brief: "Generalization of the Scheme for Health Cooperation in the Villages; Conversion of the Anti-hookworm Units into Hospitals in the Needy Areas; A new College with Higher Standards for Nurses; and "Localizing all Local Health Units in the Ministry of Public Health." Among the topics discussed and the conclusions reached, under the general theme of meeting the needs of the people, particularly in rural areas, for health services were following: Participation of the People in Building Hospitals - conclusion, everyone within his means or capacity to participate in the construction or establishment of health units and hospitals - to help extend the general health program, keeping in mind that the other medical services of all kinds must continue on a free basis; Generalization of Health Cooperation in the Villages - conclusion, extension eventually of this scheme to all the villages, making health services available for everyone; Raising the Budget of the Ministry of Health 10 per cent of the National Budget - conclusion, the formula adopted in many modern governments should be followed, and increase from present 4 per cent to proposed 10 per cent for health, since even though funds are now short, the Health Ministry should be considered a Production Ministry in increasing the economic capacity of the country; Consolidation of Medical Sections of other Ministries in the Ministry of Health - conclusion, this should be done, including the technical supervision of Social Welfare Centers of the Ministry of Social Affairs and the School Hygiene Program of the Ministry of Education; Reduction of Rural Health Center Building Costs - conclusion, adoption of new plan proposed by the Ministry of Health architects and Health Experts reducing the area of Rural Health Centers by more than one half, making it more functional, as well as halving building costs and minimizing maintenance; Expansion of Services of Rural Health Units - conclusion, shift emphasis to more preventive maternal and child hygiene, less in-patient care, more efficient out-patient care and home visiting services. These, together with additional recommendations for more widespread environmental sanitation, local water supplies, and accurate laboratory and x-ray diagnostic facilities - as well as a special scheme to induce doctors to practice in rural areas - as adopted by this Nationwide Committee give up-to-date guide posts for the development of a specific EARIS Health Program.

The EARIS Sub-Committee on Health and Sanitation, in accordance with directives, in developing the Proposed Program has grouped the components in both a time and place sequence: the time sequence being (a) immediate (within the first year), (b) during the succeeding two years, and (c) after the third year; the place and content sequence being (a) The Reclamation Project itself with related programs, (b) The Community Development and Rural Rehabilitation Program or Pilot Plant Demonstrations in other parts of the Province, and (c) the total EARIS Program in the Province.

1/ See "Al Ahrar" Cairo Newspaper for July 6, 1953, page 7.

OUTLINE OF PROPOSED EARIS HEALTH PROGRAM IN BUEIRA PROVINCE FOLLOWS:

- A. For the Abis Reclamation and Settlement Project itself.
1. Basic Study, Recommendations and Plans for Essential Community Environmental Sanitation Services in the new area.
    - a. For immediate 1953-54 Program.
      1. Study of and Establishment of Main Sources of Pure Water for the area in collaboration with and adjusted to major works criteria, establishment of canals, drains, roads, and probable location of villages.
      2. Determination of and Recommendations for Elimination of Major Environmental Health Hazards - such as sources of malaria, infection of Bilharzia transmitting snails, insect and other pests, etc.
      3. Selection of professional personnel or types of personnel for training, with a view to eventual use on the project (Note - this includes physicians, nurses, sanitary inspectors, etc., and may be included or coordinated with the projects for pilot plant or community-wide health demonstrations).
      4. Establishing effective liaison with national agencies and utilizing proposed plans in the health field in developing the overall health program for the Abis area as part of the EARIS and National Rural Development Programs.
      5. Collaborating with Housing and Community Development authorities in the specifications, functional requirements of Health Service Centers as part of Community Center Building and Services. Establish standards such as "one bed per 1000 pop. - 15 beds in Main Center, 5 beds in branch center; one nurse per 5000 population; adequate preventive maternal and child hygiene clinics and immunization services on both fixed and ambulatory basis, etc., etc.
      6. Any other activity that may develop from the work in the same phase of B, the Community Pilot Plant Program and C, the Total EARIS Program in the Provinces.
    - b. For 1954-1956 Program. Continuation of activities listed under A above.
    - c. For 1956 and after. Transition to the operating phase, with continuing evaluation and standards maintaining studies.

2. Settler Selection and Presettlement Health and Medical Control Planning and Activities.

a. For immediate 1953-54 Program.

- 1) Establishment of physical requirements for settlers and establishing or facilitating through existing agencies or developing method of maintaining these standards.
- 2) Recommendations for Health Education and preparation of proposed settlers by collaboration with health agencies of the areas from which settlers will be selected.

b. and c. Activities based on experience with a, and the B and C EARIS programs as they develop.

3. Development of Demonstration Health and Medical Service Center Program as part of the overall Community Development Program for the Abis Area.

a. For the 1953-54 Program.

- 1) Liaison with Experts in other fields in the EARIS project in establishing the respective role of the health center in relation to other community activities.
- 2) Securing collaboration of the GCE and WHO authorities in the Calub Demonstration in development of the Abis Program on a coordinated basis - with uniform structural and functional standards.

b. and c. Activities Based on experience with a, and the B and C EARIS programs as they develop.

B. Community Development and Rural Rehabilitation Health Programs Pilot Plant Demonstrations in the Health Field in other parts of Beheira Province.

1. General and Specific Fact Finding Surveys and Analyses.

a. For immediate 1953-54 Program.

- 1) Basic Fact Finding Survey - Compilation of the maximum amount of available data - on the items listed in Part I, page 2, above - so that an analysis may be made of the most vital problems to be attacked at minimum cost. This would be a continuation or expansion of the basic data already compiled and presented in Part I of this report. This could well be done by existing TCA technicians in professional fields and their existing counterparts in the respective Ministries, to the mutual benefit of all concerned, since such an experience is an invaluable basis for basic and continuous program planning. Furthermore when Egyptian and American technicians work side by side on a day to day basis, such reciprocal technical assistance

- 2) Selection of Possible Fields and Specific Location of Pilot Plant and Even Province Wide activities and demonstrations should be concomittant with and a continuing by-product of the Basic Fact Finding Survey (Bla,1) above),
  - 3) A Detailed Analysis of Current Budgets and Present and Future Plans of the Ministries of Egypt in the Health Field as well as W.H.O., U.N.E.S.C.O., U.N.I.C.E.F. and F.A.O., and private agencies such as the Rockefeller, Ford, and Near East Foundations - so that duplication and overlapping can be avoided and full advantage taken of special skills available in the country in planning cooperative programs.
- b. For 1954-1956 Program - Continuation of 2) and 3) above and formulation of specific projects based on the findings.
2. Promotion and Strengthening of Nearby Rural Health and Social Welfare Centers - and stimulation of Province-wide coordination of the Health and Sanitation Program.
- a. For immediate 1953-54 Program.
- 1) Analyse existing staffing patterns of all health and medical care facilities in the Province and prepare, in collaboration with the Ministries of Health and Social Affairs, a cooperative EARIS project for making sure that each hospital can have a minimum of one trained Hakima (nurse-midwife) and that each Rural Health Center or Social Welfare Center can have at least one physician and one Hakima (nurse-midwife).
  - 2) Assist national, provincial, and local health facilities in the establishment and maintenance of standard minimum operating procedures and record keeping systems - with consultative services available from a technical team of a trained public health physician and nurse - to see that the program is re-oriented to increased emphasis on a preventive medicine, maternal and child welfare program. National personnel should be used with consultant and advisory services from technical TCA personnel.
  - 3) Select one or two nearby health facilities for possible expansion into pilot plant demonstrations of community services on a more extensive basis, than the minimum.
  - 4) Arrange for special courses of training in the WHO-GOE Health Demonstration center in Caliub Province - for a minimum of 6 each, of rural health physicians, hakimas (nurse-midwives) and sanitarians.
- b. For 1954-56 EARIS Health Program.
- 1) Continue with B,2,a.1) and 2) above and arrange to double Hakima or Home Visitor personnel in the one or two nearby health facilities selected under 3) above, and inaugurate a more comprehensive program in these communities as a pilot plant.

- 2) Possibly devise and carry out a Sample Food and Nutrition Survey (following the "Crete" model) in a typical nearby village - (preferably a pilot demonstration area) in collaboration with the Agricultural Extension Services of EARIS and the Agricultural and Health Services of the GOE. This data to be used as a basis for the public health education and extension activities of the EARIS community Program.
  - 3) Develop pilot plant community wide sanitation and possibly village water supply program - including Bilharzia and Malaria control measures (snail and mosquito eradication) including an intensive public health education and treatment program.
- c. For 1956 and beyond. Continue with preceding activities and provide continuing development of audiovisual Public Health Education on a community and Province wide basis - in collaboration with the other rural community development services.
3. Tuberculosis and case finding and follow-up Program. (Including adaptation to Industrial Hygiene)
    - a. In the 1953-54 or possible 1954-56 phase of the EARIS Program.
      - 1) Establishment of a Portable Tuberculosis Mors-X-ray survey and case follow up service on a Markaz wide basis for Kafr Duwar - eventually to work out of EARIS Health Center Unit - to serve a population of 200,000 persons.
  4. Analysis, appraisal and adaptation of Findings and Experience gained during the activities outlined above, for their possible use on a country basis in the Development of a Long Range Health Program for Egypt.
    - a., b., c. This is a continuous process, through all stages of the EARIS program.

### C. The Total FARIS Program in the Province.

The Total FARIS Program in the Province should be related not only to the Ibbis Reclamation Project for community development but should also keep in mind the objectives of a more adequate Long Range Health Program for the Republic of Egypt. It is perhaps desirable to define ultimate goals and objectives in general terms so that the intermediate steps in the development of the program will fall in their proper perspective.

It is assumed that the ultimate goal is HEALTH with optimum physical, mental and social efficiency and adjustment to the tasks of daily living - and the comprehensive Health Services necessary to achieve this goal include four general categories of services which are not independent but merge into each other in practice. The categories include: Promotion of Health; Prevention of Disease; Diagnosis and Treatment, and Rehabilitation.

Promotion of Health has been defined to include "all those social measures directed toward the environment and towards the people as a whole which contribute to the attainment of health - and they include social action to insure (1) an adequate, safe food supply and distribution; (2) Proper housing; (3) a healthful working environment; (4) Safety outside the home and place of work, as well as in the home; (5) education for health; (6) Recreation; and lastly (7) Security, including access to health services.

Prevention of Disease includes all the personal health services which are aimed either to prevent the occurrence of disease or to prevent disability and premature death after disease has occurred, including: (1) Immunization against communicable diseases; (2) Individual and family health guidance, such as maternity and infant care; (3) Aggressive, early detection of disease, with follow-up to insure diagnosis and treatment.

Diagnosis and Treatment of Disease includes personal health services directed toward the cure or alleviation of disease, such as: (1) Diagnosis of disease before and after symptoms have appeared; (2) Treatment in the home, office clinic or general hospital; (3) Treatment in specialized institutions, such as mental hospitals, tuberculosis sanatoria, nursing homes teaching and research centers.

Finally, Rehabilitation consists in the restoration, through personal health services, of handicapped individuals to the fullest physical, mental, social and economic usefulness of which they are capable, including services provided: (1) in the course of ordinary treatment (2) in specialized rehabilitation centers.

These goals are stated with full recognition that they cannot be achieved at one stride but that many small and unobtrusive steps have to be taken gradually to improve the health of any community, district or nation.

The Province of Bahariya contains only 70 physicians and 700 total beds (including special services) in government hospitals and 40 beds in a private hospital to serve a population in excess of one and a quarter million persons; and the 15 Rural Health Units actually serve only 2.3% of this population - although theoretically about a quarter of the population is served. Medical services can only be provided by medical facilities and medical and related personnel. With respect to water supply: 22 mechanical driven pumps supply some water in 22 of the 360 villages, to 100,000 people or less than one tenth of the population, although 10 additional hand pumps theoretically serve 26,000 more persons. Hence the proposals of the sub-Committee on Health and Sanitation are to remedy existing major deficiencies and make an attempt at training old and new personnel so that they will be able better to provide at least the minimum of services on a province-wide basis at first - then more specifically in the Ibbis Reclamation area when a Rural community Development Program will be started.

In the Abis Area itself little needs to be done immediately except what is outlined on page 24, above, and the programming and estimated costs for the water supply system for this area is included in the appendix, to this report, entitled "Proposed Program for Development of Potable Water Supplies".

The thinking of the sub-committee on health and sanitation as related to the development of health facilities and activities as part of the two main Community Centers to be established in the Abis Area, are contained in the minutes of the Joint meeting held on July 1, 5 between representatives of this committee and the Social Services and Education Committee - and some suggested adaptations are incorporated in annotations on the attached blue prints of the Rural Health Centers prepared by Dr. Salah Zeitsun of the Ministry of Health.

It is estimated that the cost of the health facilities, including provision for 15 to 20 beds in the larger center will be approximately L.E. 12,000 to L.E. 15,000 plus about L.E. 4,000 for equipment and furniture - totalling about L.E. 16,000 to L.E. 20,000 for capital expenditure and about L.E. 3,000 per year for Operation and Maintenance (adding more home visiting and family social work functions to the standard health center). The permanent members of the sub-committee are ready and able to give the necessary breakdown on these costs - which are in line with the normal health budgets and pay scales of the Egyptian Government. The smaller Health Centers with provisions for 5 to 8 beds is estimated to cost about L.E. 10,000 to L.E. 12,000 for construction and equipment with about L.E. 2,500 per year for Operation and Maintenance - including services to all the villages in the area - from the two Community Health Centers.

Other than the items mentioned in the preceding paragraph, the following is a proposed schedule of expenditures to carry out the most urgent items recommended on page 26 above.

For 1953-54 Program - to cover minimum requirements of Doctors, Nurses, Sanitarian teams in Bahariya Province. 1) 20 Hakimas (nurse midwives) one each for the centers that have them - @ L.E. 180 per year each - Total L.E. 3,600. Budget recommended for 1953-54 - L.E. 1,800 from January to July 1954.

It is understood that the Egyptian Government will supply physicians for units lacking them. 2) 20 Sanitarian teams, one each for centers lacking them @ L.E. 180 per year each - Total L.E. 3,600. Budget recommended for 1953-54 L.E. 1,800 from January to July 1954. 3) Training (suggested in 40 Bahariya training center) (For diet only) for 6 months courses. Budget for 1953-54 (3 mos in 1954) @ L.E. 180 per mo. for each of 6 Rural HDS, 6 Hakimas (nurse midwives) and 6 Sanitariums - L.E. 610 for the months course for 18 persons.

For 1954-55 Program - Follow end notes above - Item 1 - Budget L.E. 3,600 per year then 2) Budget L.E. 3,600 / yr. and Item 3 L.E. 810 for 1953-54 and later years it is recommended that training be continued but that Items 1 and 2 be taken over by Egyptian Government.

Note. All other items and plans to be based on findings and experience with basic studies and current operations as recommended on pages 24 to 27 above.

Proposed Program for Development of Potable Water  
Supplies for EARIS

Buheira Province

The present plans of the Government of Egypt include the construction of a large water treatment plant at Abu Hummus that will serve all areas in the Buheira Province that are not served by existing treatment plants. This project will satisfy the potable water requirements on a province wide basis when it is completed. However, this project is very large and requires large sums of money for completion and it is felt that it will not be completed for at least 7 years so that it becomes necessary to make other provisions for a potable supply within the boundaries of the resettlement project for this interim period.

The following is the suggested plan for providing potable water to the resettlement area in the Buheira Province:

Source of Supply - Alexandria Water Company.

The Company at present has a six-inch main that ends approximately one mile from the north-west corner of the reclamation area. This pipe would be able to supply the area with a maximum of 50 cubic meters per hour under a head of 140 feet which would be more than sufficient to supply the entire reclamation area. Cost of water would be 7.5 m/m per cubic meter plus 40 P.T. meter charge.

Development of Supply - this would follow the pattern of the opening and resettlement of the new lands and the proposed steps are as follows:

1953 - 54

- (a) Construction of an eight-inch line from the end of the Company's main, to the resettlement area. Approximately 8 km.
- (b) Start construction of an overhead storage tank of sufficient capacity to serve the 1000 to 1100 families covered by the first two phase of the resettlement plan. The location of this tower will determine the final length of the eight-inch pipe line.
- (c) Construction of the distribution system within the village or villages to be constructed under the first phase of the settlement.
- (d) Estimated cost to cover this period -
  1. 8" main - L.E. 23,000
  2. Overhead storage - L.E. 3,000
  3. Distribution system in villages - L.E. 3,500
  4. O & M - L.E. 150
  5. L.E. 200 for transportation for inspector.

1954 - 55

- (a) Completion of construction on the overhead storage
- (b) Estimated cost to cover this period
  1. Overhead storage - L.E. 4,000
  2. O & M - 300

1955 - 56

- (a) Construction of water mains to the village sites for settlers coming in under second phase of the resettlement.
- (b) Construction of distribution systems within these villages.
- (c) Estimated costs to cover this period
  1. Extension of mains - L.E. 20,000
  2. Distribution systems - L.E. 12,000
  3. O & M - L.E. 300

1956 - 57

- (a) Start construction on overhead storage for remainder of project area.  
(Probably two storage towers needed.)
- (b) Start construction on extension of water mains to new area.
- (c) Estimated costs to cover this period
  - 1. Overhead storage - L.E. 7,000
  - 2. Extension of mains - L.E. 20,000
  - 3. O & M - L.E. 1,000

1957 - 58

- (a) Completion of overhead storage
- (b) Completion of extension of mains
- (c) Construction of distribution systems within villages for settlers under third phase of resettlement.
- (d) Estimated costs to cover this period
  - 1. Overhead storage - L.E. 7,000
  - 2. Extension of mains - L.E. 15,000
  - 3. Distribution systems - L.E. 38,000
  - 4. O & M - L.E. 1,000
  - 5. Purchase of transport for personnel - L.E. 200

1958 - 59

- (a) Major construction should be completed by this time.
- (b) Estimated costs for this period
  - 1. O & M - L.E. 4,000

1959 - 60

O & M - L.E. 4,000

The operating and maintenance cost will drop to about L.E. 500 per year with the completion of the Abu Munsau plant as the water will be supplied to the area at normal government operating expense.

An alternative to the purchase of water from the Alexandria Water Company would be the construction of a filtration plant to serve the re-claimed area with potable water. The estimated costs of such a plan are:

1953 - 54

- (a) Construction of small pipe line from Alexandria Water Company source to furnish potable water for first 200 families.
- (b) Village distribution system.
- (c) Estimated Costs to cover this period
  - 1. 4" pipe - L.E. 8,000
  - 2. O & M - L.E. 150
  - 3. Village System - L.E. 3,500
  - 4. Cost of transport for inspector L.E. 200

1954 -55

- (a) Start construction on treatment plant
- (b) Estimated Cost to cover this period
  - 1. Treatment Plant L.E. 10,000
  - 2. O & M - L.E. 300

1955 - 56

- (a) Completion of treatment plant.
- (b) Construction of mains from treatment plant to reclaimed area under first two phases.
- (c) Distribution system for new villages.
- (d) Overhead Storage.
- (e) Estimated cost to cover this period.
  - 1. Treatment plant - L.E. 8,000
  - 2. Mains - L.E. 23,000
  - 3. Distribution systems - L.E. 13,000
  - 4. O & M - L.E. 2,500
  - 5. Overhead storage - L.E. 7,000

1956 - 57

- (a) Start construction on overhead storage for remainder of project area.
- (b) Start construction on extension of water mains to remainder of project area.
- (c) Estimated costs to cover this period.
  - 1. Overhead storage - L.E. 7,000
  - 2. Extension of Mains - L.E. 20,000
  - 3. O & M - L.E. 2,500

1957 - 58

- (a) Completion of overhead storage.
- (b) Completion of extension of mains.
- (c) Construction of distribution systems for settlers under third phase.
- (d) Estimated cost to cover this period
  - 1. Overhead storage - L.E. 7,000
  - 2. Extension of mains - L.E. 15,000
  - 3. Distribution systems - L.E. 38,000
  - 4. C & M - L.E. 2,500
  - 5. Purchase of transport for personnel - L.E. 200

1958 - 59

Major construction completed  
O & M - L.E. 2,700

1959 - 60

O & M - L.E. 2,900

The operating and maintenance cost will be approximately L.E. 3,000 per year after 1960 with a tendency to rise as the plant gets older due to the need for repairs and replacement of equipment.

A comparison of the two alternatives shows the following factors:

A. Purchase of water from  
Alex. Water Company Until  
Completion of Abu Hummus

B. Build filtration  
plant.

1953 - 54	L.E. 34,850	L.E. 11,350
1954 - 55	4,300	10,300
1955 - 56	23,300	53,500
1956 - 57	23,000	29,500
1957 - 58	61,200	62,700

1958 - 59	L.E. 4,000	L.E. 2,700
1959 - 60	4,000	2,900
Continued O & M	4,000 per year	3,000 per year
	Until Abu Hummus completed then reduced to 500 per year.	For life of plant with tendency to increase with the passing of time.

Summary

Capital Outlay first 7 years	169,650	173,450
Continuous O & M yearly	500	3,000

Fayoum Province

At the present time there exists in the Fayoum Province a large water treatment plant that has been in operation for 10 years or more and serves a very high percentage of the rural population within the province. The Village Service Dept., Ministry of Municipal and Rural Affairs has tentative plans for further extension of the distribution system to serve the entire province. However, these extensions are expected to be delayed for an unspecified period of time due to the shortage of available funds.

In order to have a potable water supply for the settlers in the reclaimed area in the Fayoum Province one of the following steps must be taken:

1. Construction of a small filter plant capable of supplying the settlers of the reclaimed area or
2. Laying approximately 12 miles of new pipe line in order to extend the service of the existing treatment plant to the reclaimed area.

Estimated costs of the alternative plans:

1. The treatment plant would have to have a capacity of approximately 10 l/sec to supply the new settlers in the reclaimed area. In addition there exists a small population adjacent to the reclamation area that should certainly be included if at all possible in any plans for potable water within the area.

This existing population would raise the plant capacity needed to approximately 15 l/sec.

Estimated costs:

The plant w/storage reservoirs - L.E. 30,000  
O & M - per year - L.E. 1,000  
Piping other than in villages - L.E. 20,000

2. The pipe line from the existing treatment plant at Fayoum would eliminate the O & M costs incurred in the operation of a small plant in the new area.

Cost:- L.E. 70,000