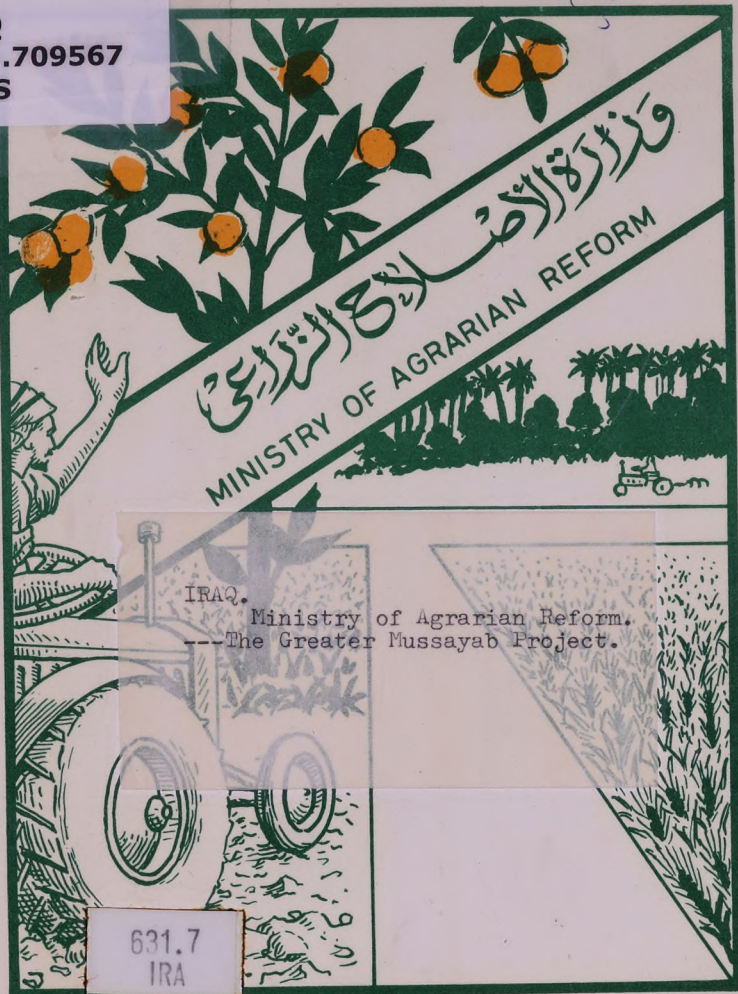


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Ministry of Agrarian Reform.
---The Greater Mussayab Project.

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من منشورات مديرية النشر والاعلام
في وزارة اصلاح الزراعي

Publication and Information Department
Ministry of Agrarian Reform

UNIVERSITY OF EXETER



PRESENTED BY

Mr. N.K.Rashid

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وزارة الاصلاح الزراعي
MINISTRY OF AGRARIAN REFORM

مشروع المسيب الكبير

THE GREATER MUSSAYAB PROJECT

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Department

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House
1969

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MINISTRY OF AGRARIAN REFORM

الوزارة العامة للثروة الزراعية

THE GREATERS AGRARIAN PROJECT

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President Ahmed Hasan al-Bakr
President of Iraqi Republic

DEDICATION

To the man who has adopted this Project despite his big and numerous tasks, to the President Al - Muheeb Ahmed Hassan Al - Bakr, we present this humble effort hoping that it will be an indicative trace along which the Project processes and a record to the achievements which we hope to execute under his patronage thanks to the support which we are met with for the development of this vital Project and its promotion. We pray Almighty God to grant us good fortune.

Ministry of Agrarian Reform



President of Iraq Republic
President Ahmed Hassan Al-Bakr

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DECLARATION

To the man who has adopted this Project despite his big and numerous tasks, to the President Al-Mubarek Ahmed Hassan Al-Baker, we present this humble effort hoping that it will be an indicative trace along which the Project processes and a record to the achievements which we hope to execute under his patronage thanks to the support which we are now with for the development of this vital Project and its promotion. We pray Almighty God to grant us good fortune.

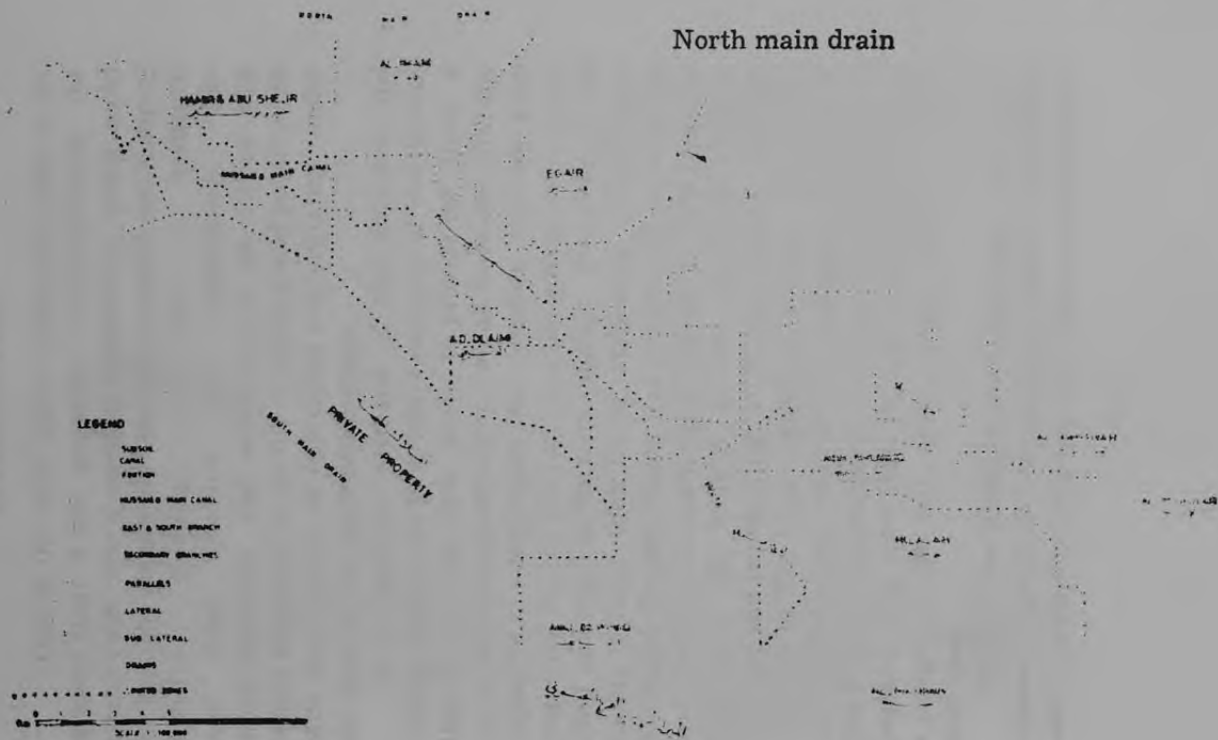
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THE GREATER MUSSAYAB PROJECT

North main drain

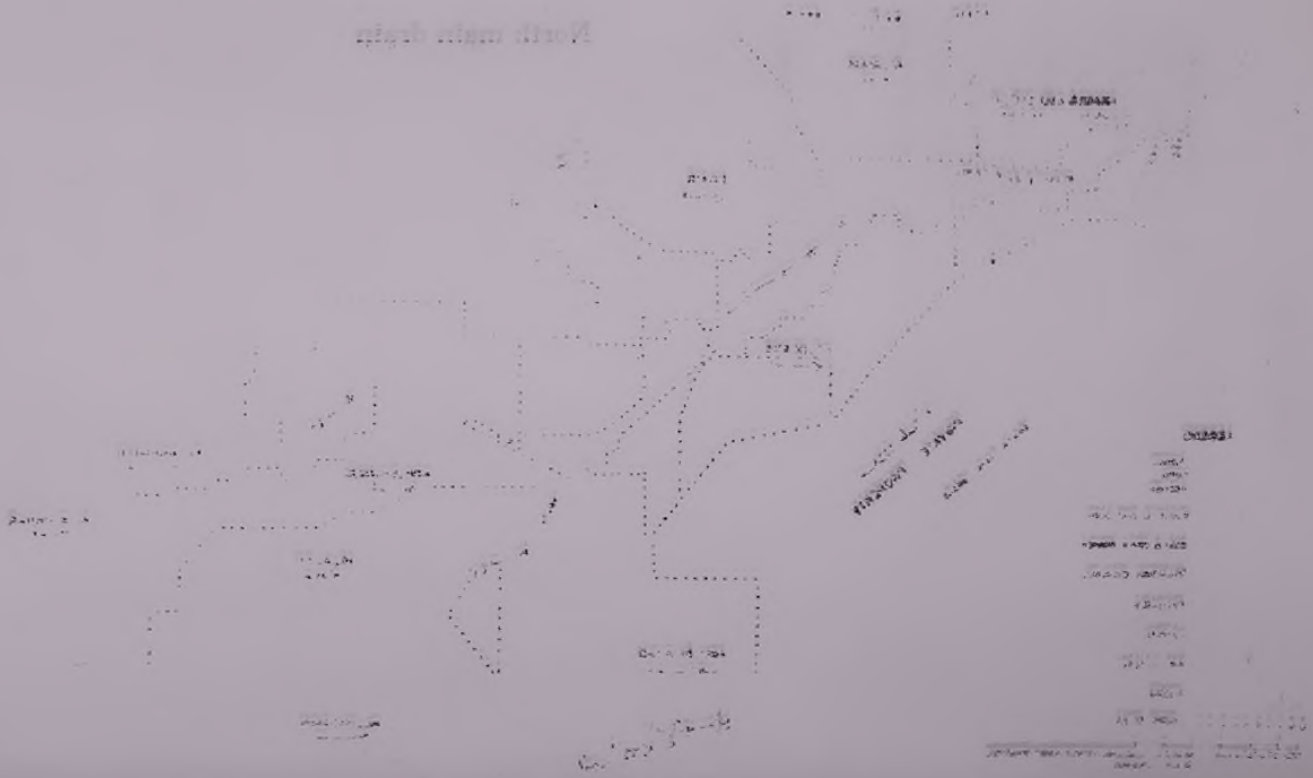


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Reformae.

TRAO. MINISTERIO AGRARIO Y REFORMA

North main drain



INTRODUCTION

One of the main issues confronting Iraq at the present stage is the projective of transforming the countryside into a socialist community, which could be brought about only through scientific and comprehensive planning and by a technical and loyal structure that understands the stage requisites and aspirations of the toilers who were subjected to servile conditions and poverty and who were victims of oppression and vagrancy under the nule of the abolished regimes.

As an essential demand of the deprived and toiling classes, the progressive outburst of the Revolution of 17th July took place to provide for them a social well-being and dignity on all lines and with the objective of developing the schemes that had been neglected due to the fact that the governments stood aloof and acted as barriers against the needs of the toilers to raise their living standards. The Greater Mussayab Project, which was constructed in the fifties and of which the main canal flowed in 1956 from the Euphrates left bank at 10 km north of Hindiya Barrage and penetrating an 80 km distance towards Suwaira in Kut Liwa irrigating a large area of 335 thousand donums inhabited by thousands of peasants, this Project was supposed to realize the aspirations of peasants so as raise their living standard and to attain a prosperous life but unfortunately all their hopes died away.

To solve the problem, the Revolution of July 17 planned to grant full ownership of rights to the toilers and to symbolize its goals and trends in their favour.

With the explosion of the Revolution, the Revolutionists, under the leadership of Partisan Ahmed Hassan Al-Bakr, managed to adopt such schemes that would raise the standard of living for the whole masses of the people. Among these schemes to which the President gave great attention was the Greater Mussayab Project, as on the occasion of his significant visit thereto on 29 of July 1968 a new approach moved through a gradual procession towards reforming the Project on the basis of a scientific and comprehensive agricultural programme to promote a better use of the Iraqi countryside and to transform it into a modern pattern comparable to those of modern civilized nations.

In order to develop the project it is essential to provide it with a technical and revolutionist structure and carry it out in the light of a scientific and comprehensive plan that could help to secure the fulfilment of the objective designed to realize the collective farm system which will be the pilot aim of this Ministry in the course of implementing social agricultural relations as to match the ideologies and the objectives of the Revolution of 17 July and symbolize the decisions of the Country Conference of the Social Arab Baath Party which aimed to raise the standard of living of the Arabic individual in Iraq.

Qassim Al-Safawi

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Of History

Agriculture is the oldest occupation over the Globe and wherever it exists there could be found social life and civilization. Among the historical facts were the old civilizations which dominated on the area of the Mussayab Project region as proved by the following traces :

1- Ancient monuments at Tel qubeb Al Manar related to the Babylonian epoch.

2- Excavations proved the cultivation of the land of Tel Ajrash region and Abu Biariq during the Sassanite period.

3- Excavations proved that the Project land had been cultivated during the Abbaside period in the regions of Tel Brej, Tel Sleia, Abu Shaair Site, Tel Hzaiza and Abu Ibrahim.

4- The Project area had been irrigated in ancient times by the river named Kota which was said to be the first river cut from the Euphrates. Due to the lack of water as a result of the diversion of the Euphrates river stream the cultivation of these areas stopped since then for a period of time.

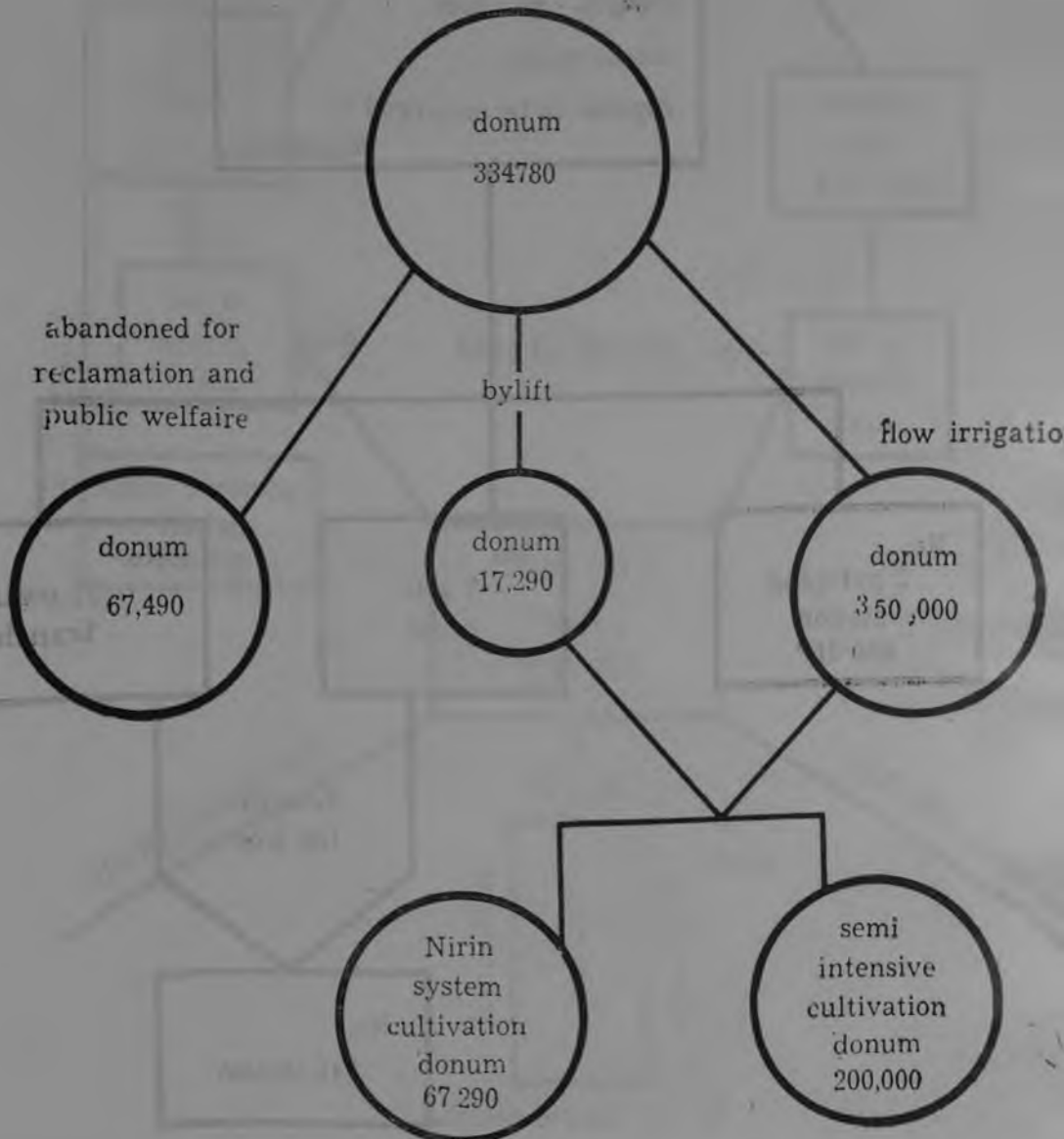
Location Of The Project

1. The greater Mussayab Project lies in Hilla Liwa within the boundaries of Mussayab Qadha including the Nahiyas of Iskanderiaya, Hindiya barage, the project headquarters and Mahaweel.
2. The Project was designed and executed by the abolished Development Board between 52 - 53 up to 56 - 57.
3. The main irrigation canal providing water from stream of Hindiya Barage, about 80 Kilometres to the left side of Euphrates River 10 Kilometres up the south towards the district No.6 of Zubaydiya (Suwaira Qadha) neighbouring the area irrigated by Tigris waters within Kut Liwa. At its Kilo - metre 10 the main canal crosses Baghdad - Hilla road.
4. The Greater Mussayab project is the first irrigation project in Iraq in which a complete irrigation network including its canal branches streams and field ditches and regulators gates, pumping stations for high level lands was executed too. The drainage network including its main drainage canal, branches and collector - drains was also executed.
5. The project represents in its weather and environment the middle zone of Iraq.
6. The semi-intensive cultivation and the nirin system are both applied in the project.
7. An organized irrigation system (flow irrigation) and by irrigation means for the high levelled lands are applied in the project.

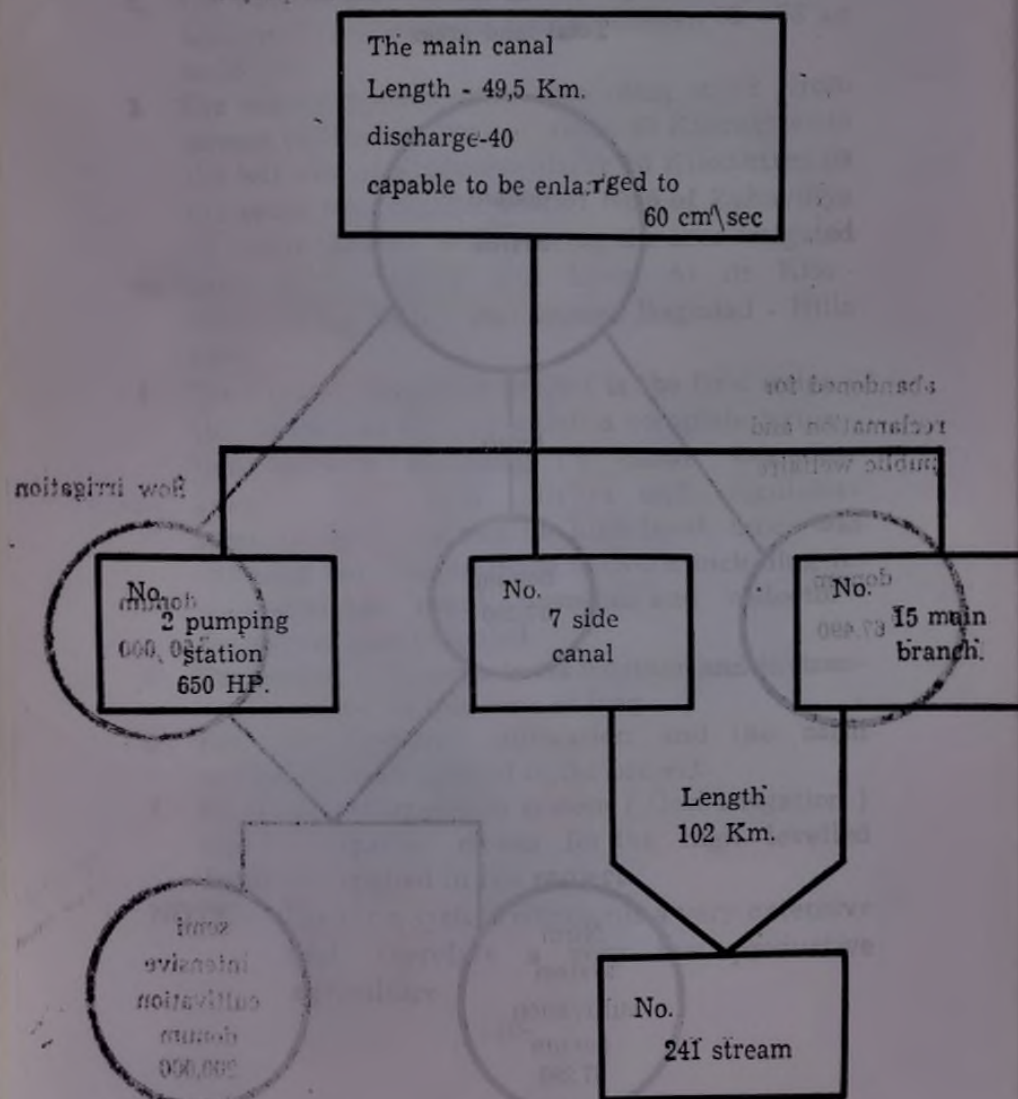
NOTE:- The nirin system represents a very extensive and therefore a very low productive agriculture.

Ascale showing the irrigated area in the project

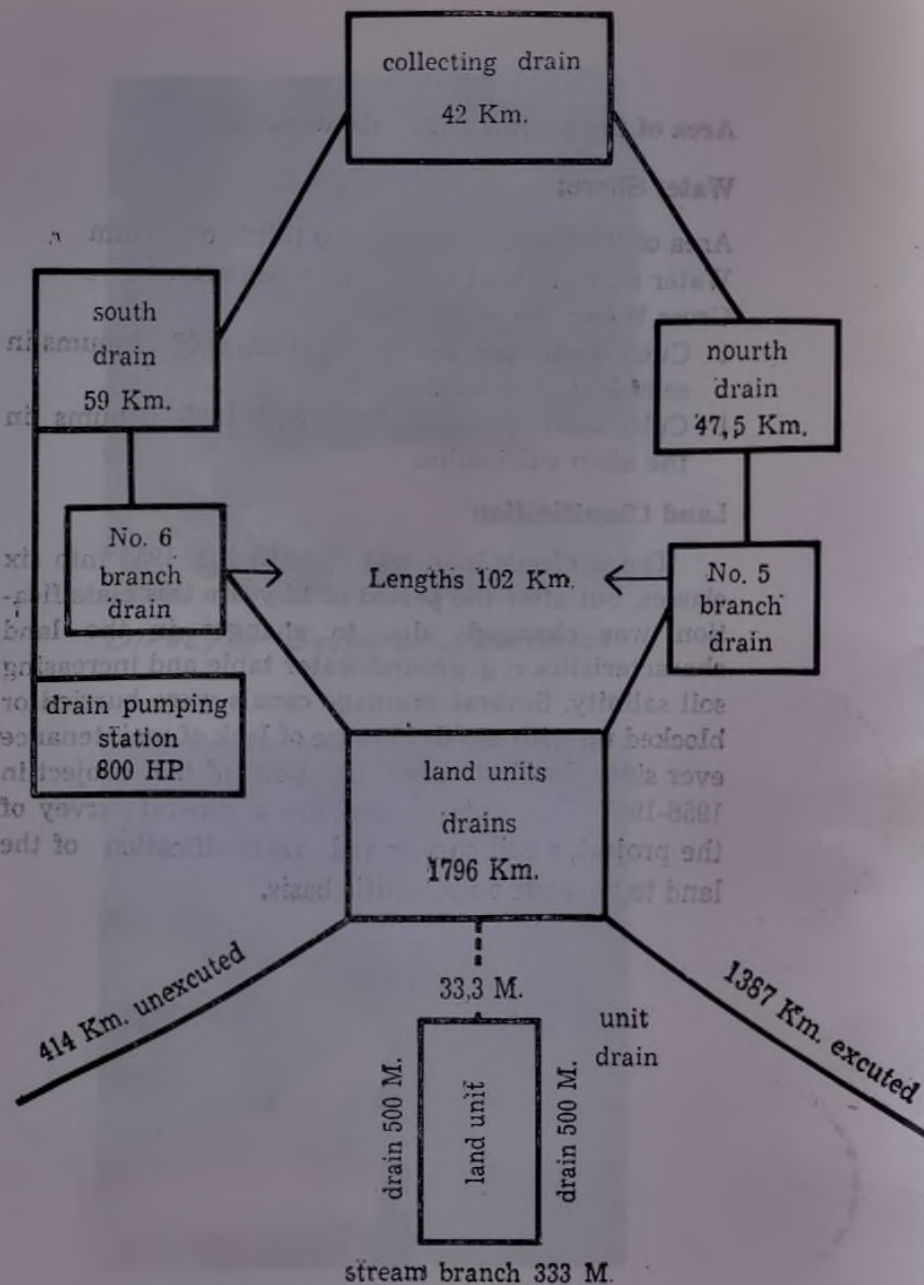
Total land areas



Ascale showi ng the irrigation means in the project



Ascale showing the project drainage network



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Area of the project : 334 780 donums

Water Share:

Area of land unit = 66 and two thirds of donum
Water share of land unit 20 litre per second.

Gross Water Requirements:

- 1 Cubic metre per second for each 6600 donums in semi-intensive cultivation.
- 1 Cubic metre per second for each 12000 donums in the nirin cultivation.

Land Classification

The project's land was classified in 1954 into six classes, but after the period of 15 years this classification was changed due to changes in the land characteristics e. g. ground-water table and increasing soil salinity. Several drainage canals were burried or blocked up with weeds because of lack of maintenance ever since the first administration of the project in 1956-1957. This state necessitates a general survey of the project, a soil survey and reclassification of the land to be made on scientific basis.



Director General Residence

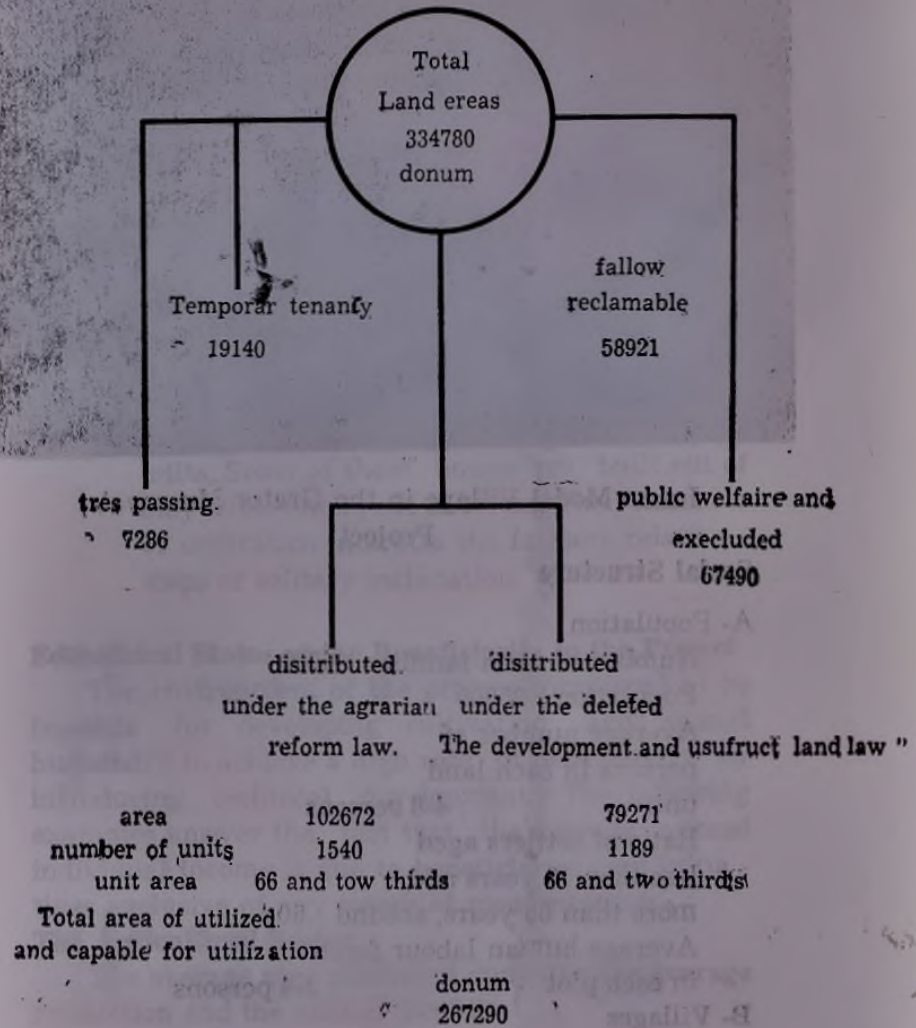


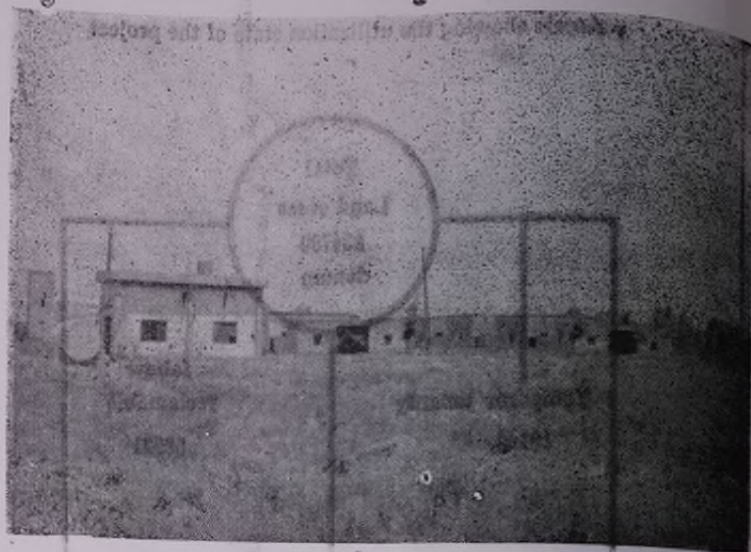
Officials Houses Unit

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Ascale showing the utilization state of the project





Imam Model Villages in the Greater Musayab Project

Social Structure

A- Population

Number of farm families : 4200

Population : 25000

Average number of
persons in each land
unit

: 4-8 persons

Ratio of settlers aged

less than 15 years and

more than 65 years, around : 50%

Average human labour force
in each plot

: 2-4 persons

B- Villages

1- Two model villages were constructed prior to

the 14th July 1958 Revolution (Imam : 98 houses and Rashaid : 77 houses in addition to the officials living quarters, a school building, a modern market, a casino, a public bath - house, a clinic and shops in each village). These houses were constructed in a way that does not agree with the habit of life and nature of work of the farmers. Lately the Administration had taken measures to enlarge these houses, build sanitary installation and high fences to coincide with the requirements and social customs of the farmers and suitable yards for their animals. By these additions the houses became convenient for the living of workers, employees and some farmers..

- 2- The project includes more than two thousand houses, built separately or collectively in the units. Some of these houses are built out of clay while others out of bricks. Their nearness or separation indicates the farmers relations or solitary inclination.

Economical Status of the Beneficiaries in the Project

The environment of the project considered to be feasible for developing cultivation and animal husbandry to achieve a high rate of productivity by introducing technical development. The following examples answer the fact that the average annual individual income is due to beneficiaries own initiatives exclusive of any means of modernization.

The Agricultural Sector.

The average area cultivated annually, the average production and the annual income:



Livestock Breeding Centre

b- The Livestock Sector

The following table shows the average capital invested by the beneficiaries of the project in the livestock sector.

Type of animal	Average No. in thousand	Average value per head in Dinar	Nominal value of the Capital
Cows	10	30	300000
Sheep and goats	40	5	200000
Horses and Donkeys	44	20	80000
Camels	1	50	50000
Poultry	50	0,2	10000
			ID. 640000

Yield	Area Donum	Average yield per donum in Kilos	Total yield per - Ton	Annual income ID.
Wheat	45000	300	13500	405000
Barley	15000	350	5250	105000
Broad beans	2000	200	400	24000
Clover Alfalfa				
Winter vegetables	2000			15000
Cotton	2000	200	400	24000
Green gram	10000	250	2500	62500
Onion	5000	1,5 Ton	7500	75000
Water Melon	3000	800	2,5 Million	48000
Summer vegetables	3000	1,5 Ton	4500 Ton	67500
Sesame				
Peanut	1000			3000
	88000			I. D. 829000

It should be noted that the cultivation system followed is the nirin system.

The annual income of the livestock sector is valued at 40% of the invested capital : 256 thousand dinars annually. This amount respects the product of livestock, birds, wool, milk, eggs and manure.

Thus the total individual income of the farmers is approximately one million dinars.



Delaimi Super vising office
(office building and officials houses)

COOPERATION

A form of development in the project

The farmers of the Project have felt the benefits of cooperation that their colleagues in other sectors had enjoyed the services granted to them in the form of loans in cash or in kind.

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-21-

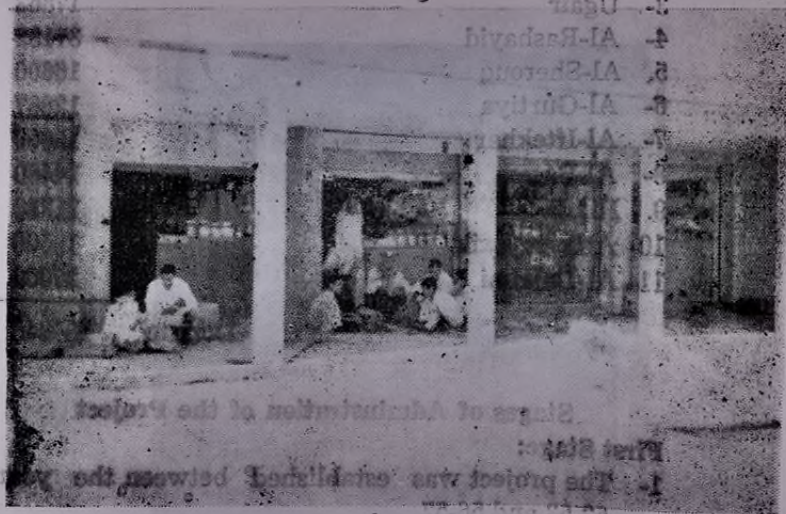
Cooperative Societies have been established to assist the farmers in the development of their lands and improvement of their products. Following is the cooperative status in the project.

Number of cooperative societies	11
Number of members	2480
Total capital	ID. 6370
Paid capital	ID. 5643
Reserved capital	ID. 3238
Number of Cooperative Shops	3

Credits and Loans in kind

The first directed credits were tried in the season of 67-68 and 68-69.

The following data shows the credits and loans extended to the cooperative societies in those two seasons:-



cooperative shops

-21-

a- Agricultural Bank Loans:

In Winter season - the sum of ID. 19276

In summer season - the sum of ID. 3256

b- Lonas in Kind :

Improved seeds -	Cotton	48 Tons
	Ajeeba Wheat	110 tons
	Onionet	80 tons
Chemical fertilizers -	Ammonium Solfate	300tons
	Compound Fertilizers	600 tons

Names of the agricultural societies and the operation areas.

Name of society	Operation area Donum
1- Himyar and Abu Shaier	6912
2- Im'am	9532
3- Ugair	17863
4- Al-Rashayid	37132
5. Al-Sherouq	16600
6- Al-Gurtiya	12867
7- Al-Iftekhar	12600
8- Al-Basma	14460
9. Hilala	21380
10- Abu Bayarik	18500
11- Al-Delaimi	27000
	<hr/>
	Donum 184846

Stages of Adminstration of the Project

First Stage:

- 1- The project was established between the years 52-53 and 56-57
- 2- The Administration of the project was established



Mechanical Workshop



Implement Sheds

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1 2 3 4 5 6 7 8 9 10 11 12

with a small administrative body whose task was limited to provision of water requirements and maintenance of irrigation structures.

- 3- No extension or other services were extended aiming at the development of the project.
- 4- The Italian Company "Italconsult" was entrusted with the preparation of an economical plan for the development of the project. The cost of this plan was ID. 34, 770,000 to be executed in a period of ten years, but it was not executed because the suggested cost was too high.
- 5- The Administration of the project was attached to the Directorate General of Cooperation and Agricultural Production which was able to create the cooperative incentives in the project by establishing 11 cooperative societies (4 cooperatives in 65-66 and 7 cooperatives in 66-67).

The actions executed in the project in the first stage of administration from 56-57 up to 64-65. (see the following table).

A-Buildings and Constructions

Type of Building	Office building	Pumping Station	Houses	Rest house	Stores	Electri- city and water su- pply Bldg.	Primary Schools	Shops	Clinic, popu- lar bath house and Casino.
Co-operative Supervisors									
Offices	1		3		1	1			
Al-Sharki, stream 10	1		3		1	1			
Al-Sharki, stream 24			3		1	1			
Al-Basma			4		1	1			
Hilala			8						
Al-Dhah 1,2		2	6						
Keesh station		1	104			1	1	5	2
Imam village			83			1	1	5	2
Al-Rashaid village	1		22						
Main canal front			26						
Irrigation construction			10			1			
Nahia head-quarters	2								
Police station	1								
Directorate of Forestry	1								
Project headquarter	7			1					
		3	301	1	4	7	2	10	4

IB- Administrative Staff

Irrigation affairs	Number
civil engineer	1
Surveyor	3
Employee - water supervisor	20
Employee - water controller	28
Employee - Porter	4
Employee - guard	16

IC - Agrisultural Co-operative

Head of branch	1
Extension officer	2
Cooperative supervisor	4
Inspector	3
Clerk	1
Employee - guard	7
Employee - postman	10
Employee - driver	9
Agricultural labourer	16
Officials No.	15
Employees No.	94
Workers No.	16

Second Stage of the Project from 1965-1966 upto 1967-1968.

- The Greater Mussayeb Project is distinguished from any other agricultural projects in Iraq as by the following characteristics : well-designed irrigation and drainage networks, good natural characteristics of its large area that if duly developed will help in raising the national income. These facts have attracted the attention of the national and international experts to necessitate the enactment of the law number 121 of 1965 for the establishment of the general administration of the project, known as

the "Greater Mussayed Project Administration". The administration was attached to the Higher Committee for the Agrarian Reform. This measure was taken to give the administration a juristic personality that aims at raising of agriculture productivity, social, educational and health standards of the farmers.

- 2- This stage has laid the basic principals for the improvement of the project as shown in the following practices.

A- Pursuant to the Law No. 121 of 1965 a director general for the administration was appointed.

The board of administration was formed

It holds its meetings in the last week of each month at the chairmanship of the director general of the administration, and the members are :-

- Director General of the administration Chairman
- The governer or Hilla Liwa member
- The Director General of Irrigation "
- Director General of Machinery and Implements "
- Director General of Agriculture "
- Director General of Administration and Finance "
- Director General of the Agricultural Bank "

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One expert or more

member to be appointed by the authorized member of the Higher Committee for Agrarian Reform.

B- The Higher Committee for Agrarian Reform issued the Instructions No. 49 of 1965 on the internal regulation of the Administration. Pursuant to this instructions the following directorates were formed:-

- 1- Directorate of Engineering and Irrigation Affairs
- 2- Directorate of Agricultural Affairs
- 3- Directorate of Cooperation
- 4- Directorate of Administration and Finance
- 5- Directorate of Public Relations and follow up.

The branches and sections of those departments would be established according to necessity.



C- The Staff of the Administration has been issued for the first time in 1967-1968 including the following grades:-

	Number of approved grades	Number of occupied grades	Number of unoccupied grades
Officials	125	88	37
Employees	183	86	97
Total No.	308	174	134

D- Economical Plan of the Administration was issued for the period 1965-1970.

In the five years economical plan of the country a sum of four million dinars was allocated for the Project administration, divided on annual investment programmes as the following table reveals:-

Fiscal Year	Total Cost		Expenditures in thousands of Dinars	Percentage of expenditure	Percentage of accomplished work
	in Thousands of Dinars	Annual allocation in thousands of Dinars,			
65-66	580	Zero	Zero	Zero	Zero
66-67	750	373 320	5,340,900	% 1,5	advertis - ment cost by news paper\$.
67-68	900	1,021,950			
		431,950 Greater Mussayab Administration	183 868	% 42,5	75
		370,000 Directorate General of Irrigation	Zero	-	-
		20,000 Directorate General of Projects	Zero	-	-
		200,000 Directorate General of Roads and Bridges	with executive authority		is commen - ced
68-69	1,000	1,088,000			
		648 Greater Mussayab Administration	131,137	% 22,5	% 50
		70 Directorate General of Irrigation	-	-	-
		20 Directorate General of Projects	with executive authority		is comme - ned
		350 Directorate General of roads and Bridges	with exe - cutive authority		90 %
69-70	0,770	915			
	<u>4,000</u>	<u>3,398,270</u>			

Notes on the Economical Plan of 1965-1970

- 1- This plan is considered to be a building and preparatory stage for the development meant to be for this project. As the project was void of any productive means therefore this plan has concentrated on the provision of the means of living and settlement of the officials, employees and workers; the gradual provision of equipment to keep the pace with the enlargement of work, paving the highway leading to the project and grading of the internal roads and providing the beneficiaries with agricultural supplies, as seeds, fertilizers and insecticides.
- 2- This plan was not fully executed from the quantity, quality or value points of view, as far as some of the projects are concerned due to several reasons, some of them are revealed hereunder:-
 - a - Distribution of allocated sums of the investment programmes on several executive concerned authorities. Those authorities had been delayed in the accomplishment of their works for technical, fiscal or administrative factors.
 - b - Large sums were allocated for projects for which the final studies were not completed, like the drainage network for the southern branch for which ID. 350 thousand dinar were allocated and was not executed until the end of the plan. This sum which represents $\frac{1}{12}$ of the total cost could have been utilized in other works which have priorities.

Forms of Accomplishments

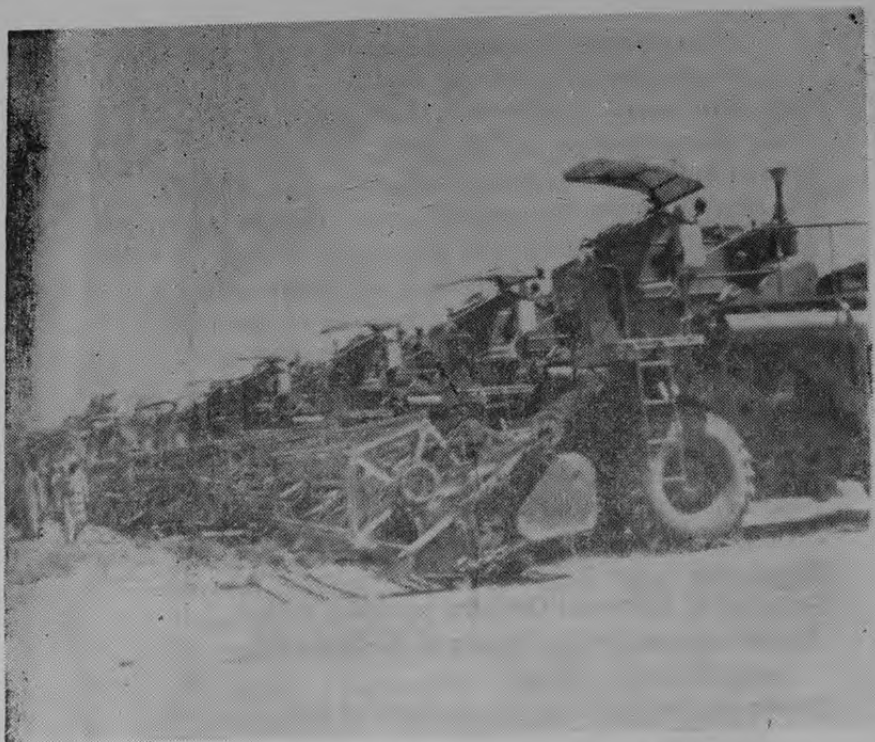
in execution of the economical plan 65-70

Note:- The accomplishments in 65-66, 68-69

First : New buildings

Type of buildings	No.
The administration headquarters.	1
Cooperation office	1
WFP office	1
WFP stores	4
The mechanical workshop	1
Implements store	1
Garage and shed for the machinery	1
Mechanical unit office	1
Director General Residence	1
Head of departments residences	6
Officials houses	15
Rest house	1
Building of farm and Orchard pumping station	1
Appurtenances for the houses of Al-Rashayid and Al-Imam villages	60
Power station building for Al-Rashied and Al-Imam	2
Al-Delaimi supervisor Office	
Houses	2
Stores	3
Shops	2
Live stock improvement centre	2
Nursary shed and reservior	2
Water supply of the Imam/ Nahia centre	1
Construction of Imam culvert	1
Construction of Helala regulator	1
Stone pitching of the main canal front	250M

Note : WFP : World Food Programme



The Combines at the Beneficiaries Service

Second : The Mechanical Implements.

Type

Type

Avail-

Avail-

able

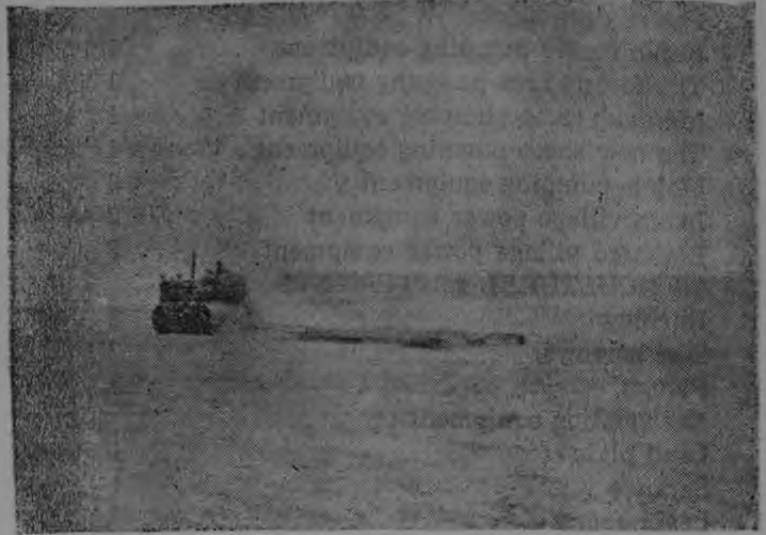
able

Qty.

Qty.

1 - MAIN PUMPING STATIONS	3
Pumping equipment	10
power equipment	6
2 - BRANCH PUMPING STATIONS	
farm and orchard pumping equipment	2
Power equipment	4
Nahia centre pumping equipment.	1
The forests area pumping equipment	1
Mardakh camp pumping equipment	1
The new sheds pumping equipment	1
Mobile pumping equipment	3
Imam village power equipment	2
Rashaied village power equipment	2
3 - AGRICULTURAL IMPLEMENTS	
Harrows	3
Disc harrows	2
Plough	2
Reclamation equipment :	
Land plain	1
Scraper	1
Level board	2
Blade	1
Bulldozer Caterpillar	11
Graders	3
Tractors and heavy equipment	34
Tractors	11
Combines	19
Cranes	2
Dredgers	
Transportation means	26
Cars	6
Lorries	1
Buses	

Trailer diessl	1
Motor-cycles	10
Bicycles	24



Land Reclamation works in the greater Mussayab project

Third Land Reclamation.

- 1- The Administration started reclamation works on area of 2000 thousand donums of fallow lands along the left-side of the main irrigation canal.
- 2 - A soil reclamation unit was established provided with specialists and technicians. A soil laboratory was established too provided with some equipment and supplies.

3 - Meteorological equipment were provided to acquire the needed data e. g. maximum and minimum temprature, reading equipment for measuring, evaporation humidity, sunglare, wind speed and rain.

Fourth : Agricultural Productive Projects - extension fields and services extended to beneficiaries.

Project	Area Donum	Purpose of the Project
The Pilot farm	400	For the production and distribution of improved seeds on the benefioia - ries
Development and improvement of old orchards	52	To increase their produc - tivity
Establishing new Orchards	20	To increase good fruit varieties and generaliza - tion of pilot orchards
Establishing fruit nurseries	20	To increase nursery plants, production and distribution on the benefioiaries benericiaries.
Establishing wooden sheds production efficiency 200 thousands nurseryplants per year.	2	For growing wooden trees and distribution on beneficiaries.
Apiculture	35 bee-hives	For honey production and for extention servi - ces.
Silk work keeping	70 stand	For silk production and extension services.

Livestock develop -
ment Projects.

Providing improved
breeds.

Frisian bulls 4

For the improvement of
Cow-breeds.

Awassi rams 40

Distributed on the mem -
bers of Cooperative
societies.



Forests and wind breakers in the greater Mussayab
Project

Third Stage:

**Supporting the Development of the
Greater Mussayab Project**

Development has actively begun on the second
half of 1968, and the beginning of 1969, when the

Government has indicated a great desire to take appropriate measures as it is one of the most important agricultural productive project in the Middle East, and could be made a pilot project for all similar projects in Iraq, and other Arab sister countries.



The first step towards this development had been undertaken by the president of the Republic Ahmed Hasan Al-Baker himself. He looked over the first serious effort towards development. These efforts were

followed up by the Minister of Agrarian Reform and the leading officials of the Ministry.

The following indicates the real scientific and practical features of development.

- 1 - Development of Administrative Staff of the Administration. A complete change of the administrative and organization staff of the different kinds of work was made. Many specialists and technicians were appointed, transferred or seconded from other Government departments to work in the project.
- 2 - Development of technical administration of the works. Several technical committees were formed on scientific and specialized basis to solve and discuss all problems hindering the progress of the project.

A - Irrigation Problems:

- 1 - Sedimentation in the main stream and its branches decreased the canal discharge capacity from 40 cubic meter per second to 18 cubic meter per second.
- 2 - It was found out that 43 unlawful canals were taking water from the main canal of the project.
- 3 - The employment of bad water-management and rationing methods in irrigation.

B - Drainage Problems

- 1 - The insufficient capacity of the north drain to collect the water of Latifiya and Yousifia drains in addition to project drainage waters.
- 2 - The collector drains requires dredging and enlargement.



*New headquarters of the Greater
Mussayab Project Administration*



*Grapes Orchards during
Fructescence*

- 3 - The collecting drains were blocked.
- 4 - The branch drains were blocked with the growth of canes, reeds, and weeds.
- 5 - Some drainage canals were not completed which effected their natural mergance all over the area.
- 6 - The south drain was burried.
- 7 - The appearance of moving sandhill burried some drainage and irrigation canals.

C - Soil Problems:

- 1 - Most of the units require proper levlling.
- 2 - Salination is predominating in many areas.
- 3 - Decreased fertility of the soil due to high ground water tables.
- 4 - Misuse of land and improper agricultural practices.

D - Adminisatation Problems.

- 1 - Some beneficiaries are not settled in their units and others are not occupied in agriculture.
- 2 - Some units were sold to people other than their beneficiaries.
- 3 - Illegal utilization of lands which are not provided with water shares.
- 4 - Contracting on units allocated for public welfare.
- 5 - Lack of understanding of the farmers to the proper agricultural technic.



Main Canal fronte
(after its dredging)

- 6 - Unqualified technical staff of the project.
- 7 - Insufficiency in the number of machinery and other necessary equipment used.
- 8 - Failure to establish unindpendant administrative and financial organization for administration.

**Procedures to be applied for solving the Problems
Solutions to the Irrigation Problems:**

- 1 - A general plan was organized for the dredging of the main canal, branches and streams.
- 2 - Providing sufficient number of excavators (20-25 excavators) in addition to the 19 available excavators.
- 3 - A committee for Public Work was called to assist in the dredging works under the Administration supervision.
- 4 - A dredging campaign for the canal, its branches, and streams started right away, and the volume of debris cleared was more than quarter of million cubic metres. This quantity was taken from the whole lengths of the canal, branches and streams that totals a hundred kilometres and in a period of about two months the natural discharge of 40 cubic metres per second of the canal was restored.
- 5 - A new water-rationing scheme that agree, with the basic discharge of the project was made and applied after the dredging operations were completed. By this scheme a full control of water distribution on the fields was approached in turns convenient to crops requirement and which quieted the beneficiaries complaints.
- 6 - Steel gates were decided to be put on the illegal outlets of water and including these outlets by the new rationing scheme.
- 7 - Re-organization of rice cultivation according to the reclamation requirements and to re-include the lands - which are located out of the project irriga-

- Solutions of the Drainage Problems

- 1 - The Administration has taken the task of dredging of the collecting drains and the southern drains instead of entrusting these works to contractors, and has already made working plans to start the execution.
- 2 - The fleet system has been employed in the dredging operations. A large number of excavators is concentrated in a certain area of the project where the dredging of the branch as well as the collecting drains and the construction of syphon culverts to join the drains. Work has commenced in the Imam, Himyar and Abu Shuayr area. When the work is completed there, the campaign will move to another area and so on.

C - The solution of soil problems.

- 1 - Unit for soil reclamation has been organized and a programme, a stage plan of operations were put to commence the reclamations of certain areas in the project. Work is going on now in grading of the fallow land on the left side of the main canal between the Imam and Himyar branches on a length of approximately 7 Kilometers and a width of between half Kilometer and two Kilometers. And after reclamation work is completed, the working force is moved to another area and so on.
- 2 - The soil laboratory is being provided with the necessary equipment for soil, irrigation water and drainage water analysis.

D - The Solutions of Administrative Problems and Utilization System

- 1 - The administration through its specialists is preparing a proper agricultural utilization system to agree with the production purposes convenient to the nature of the land of the project. The utilization system deals with cultivating and increasing economical cash products as well as industrilized vegetable products like tomatoes and canning water melon and others. It also deals with the development of livestock by improving local breeds and increasing of pastures of high nutrition value and the establishment of a live stock improvement centre.
- 2 - The administration has put a suggestion to the Higher Committee for Agrarian Refarm to ammend the Administration law by granting her the administrative power that insures the application of the phynomina of decentraliza-tion in the functions of the administration. This is necessary to get rid of the numerous trespasses on the project's properties and the establishment of a local court to look into trespass cases in the promotion of agricultural independance in the scope of a directed agricultural policy. In the time being the administration is preparing agricultural utilization plans on the following bases:-
 - A - The preparation of an agricultural utilization programme for the winter season each year.
 - B - The preparation of an agricultural utilization programme for the summer season each year

C - The preparation of programmes for the increasing and publicizing economical crops like oil fiber and forage crops in the units.

D - The preparation of field practice programmes the production of improved seeds and nursery plants, extension programmes, and combating of plant diseases for the promotion of agricultural know how among the farmers.

Third : **The Development of the Budget and Staff in the Administration**

The following table shows the development of the general budget of the Administration.

Budget of 67-68	Budget of 68-69	Proposed budget of 69-70
thousands of dinars	thousands of dinars	thousands of dinars
334,050	399,700	512,200

It is noticed from the table that there is gradual increase in the regular administration's budget and increase of the magnitude and the requirement of development. The reasons for budget increase could be summarized as follows:-

- 1 - Proposing new posts
- 2 - Seeking experts and specialists help
- 3 - Wages for additional hours of works
- 4 - Granting of prizes to the skill labourers
- 5 - The need for skill workers
- 6 - Transference of the public service labourers to the administration staff.
- 7 - Providing houses, office buildings, furniture and other requirements e. g. electricity, water supply, and air condition facilities.
- 8 - Periodic dredging campaigns

- 9 - Multi-production of nursery plantations and improved seeds and the use of fertilizers and insecticides.
- 10- Increasing the number of heavy equipments and their requirements of spare parts, fuel and transportation expenditure.
- 11- Obligation of the administration towards WFP and Special Fund.

B - The Administration Staff had developed as the following table reveals:-

Staff	Staff 67-68 68-69	Staff 69-70
Officials	89	97
Employees	88	212
Permanent Labourer (administration)	260	267
Permanent Labourer (Public Work)	-	20
Provisional Labourer	-	27

This table indicates the increasing number of officials, employees and laboures to meet the unexpected requirements of the development in the various sections of work to achieve integrity between its nature and objectives and control of its execution factors.

The following table summarises the economical plan of 1970-1975.

- C - The investment Programme of 1969-1970.

This programme is the last one in the five - years economical plan 1965-1970.

In its preparation the Administration had taken

into consideration that it should be representative to the nature of the state of development that the project is going through therefore, the programme had concentrated on the following:-

- 1 - Cleaning and dredging of irrigation and drainage systems.
- 2 - Soil reclamation works and the required equipments and machinery.
- 3 - Providing latest agricultural equipment for efficient agricultural productivity.
- 4 - Providing of houses in the project headquarters and in the work area for the settlement of officials and labourers.

D - Economical plan of the project for the year 1970-1975.

In the preparation of this plan, the fact that the project is going through is the most important development stage which is the basis for backing the production for the plan has been into consideration by the administration as mentioned below:-

- 1 - The reclamation of land units and the other lands which are irrigated by pumps.
- 2 - Irrigation works such as dredging, construction and maintenance.
- 3 - Providing equipment required for the different sections of work with sufficient spare parts.
- 4 - Achieving agricultural and cooperative development by providing technical means establishing supervisors offices, increasing extension works and supporting cooperative services.
- 5 - Concentration on livestock development in its different basic principals as establishing breeding;



*Dabas Combating in the Palm trees
Orchards*



*Grapes Nurseries
(at the beneficiaries Service)*

centers for cows, sheep and poultry, generalization of vaccination centers, dairy centers, fodder production and expansion pastures of high nutrition value.

- 6 - The plan had included a convenient number of settlement, social services, educational and health services projects.
- 7 - The plan measures had been taken to meet the obligations towards the execution of agreements concluded with the U. N. D. P. and WFP and S. F.

The following table summarizes the economical plan of 1970-1975.

Note :

UNDP - united nations development programme

WFP - world food programme .

SF - special fund.

Project	Allocations in the Economical Plan					Total Cost Thousand ID.
	70-71	71-72	72-73	73-74	74-75	
1. Land reclamation Projects	516,7	536,7	379,2	331	232	1.966,6
2. Irrigation and drainage projects	104	105	67	35	35	346
3. Agricultural machinery and Implements	17,5	21	21	14,8	13,3	88,6
4. Transport means	54	53,5	81	28	23,5	240
5. Agricultural affairs Projects	34,6	30,85	29,6	28,4	28,3	151,75
6. Live stock development project	46,5	84,5	31,5	30,5	30,5	223,5
7. Agricultural co-opera - tive Projects	27	27	47	65	47	213
8. Settlement projects	142	172	137	67	67	585
9. Furniture	11,5	4	2,5	2,5	2	22,5
10. United nations develop-	90	90	90	90	90	450

ment Programmes Pro - ject (special fund and world food programme)						
11. The field labourers wages	33,6	33,6	33,6	33,6	33,6	168
12. Projects inlisted in the 69-70 programme conti - nued in the 70-75 New Plan.	222	100	-	200	150	672
The Plan total Cost	1,299,4	1 259,15	920,4	925,8	752,2	5,156,590

Fourth : Deveopment Programmes of the United Nations in the Project.

These programmes included the conclusion of two agreements

First - Project No. 32

To implement the WFP agreement in three years (68-69 to 70-71) . The amounts allocated are:-

	American Dollar	ID.
1- Food Programme share	876,000	31285,7
2- The Iraqi Government		
Share Personnel	60029	21439
Machinery and		
Fodder	780,000	278571,4
Operation cost	151058 6	53949,5
	<hr/>	<hr/>
	1,867,087	385,245,600

The gross total is 1,867,087 American dollars equal to ID. 385 245,6.

The agreement included the following subjects:-

- 1 - The creation of 500 grape farms (2 donums for each unit) for the beneficiaries.
- 2 - Planting trees at the boundaries of the units of the Project (833 nursery plant for each unit)
- 3 - Planting green fodder (alfalfa) at a rate of 2 donums in each unit.
- 4 - Cropping grape nursery plants and distributing them amont the beneficiaries.
- 5 - Implementing the intensive agricultural rotation on 15 plots and applying the incentive services to attain a successful experiment.
- 6 - Distributing dry fodder (maize) to cow breeders who own 3 or more cows at a rate of 2 Kg. per cow daily.

- 7 - Dredging branch canals and drains of the units twice annually that is in Spring and Autumn.
 - 8 - Employing 185 labourers in the field agricultural operations at a rate of 300 days per year.
- Agreement Accomplishments.
- 1 - Operations began to implement the agreement as from the eighth month of 1968.
 - 2 - The administration adapted executing operational plan for implementing the items of the agreement and strated action.
 - 3 - The administration received of the items provided by the WFP since the exeuction of the agreement 2526 tons of foodstuffs and maize (fodder) as prescribed in the agreement.

Second : The Experimental Project No. 11

Including the execution of an experimental pilot project for the reclamtion of soil and irrigated cultivation in Greater Mussayab Project.

The amounts allocated for the project are:-

a) Special Fund's share	203800 American dollar
b) Iraqi Government's share	100800 American dollar
	Total 304,600 American dollar
	Equal to ID. 109500

This project is to be accomplished in two stages.

The first stage began by the arrival of the experts of the Soecial fund who started their work in the Project on 1.1.1969 to implement the resolutions relating to the first stage of the agerement which includes the limitaion of icludes the limitation of the size and location of the experimental pilot project in the light of the studies to be made by the experts for the time being and based on the evaluation of the

available data on all factors defined in the agreement and to submit recommendations on the capital to be invested in the region taking into consideration the participation of the Iraqi Government, the World Food Programme, the international Bank for Development and Reconstruction, Food and Agricultural Organization and the Special Fund and to identify the head problems which are to be solved.

The main goals of the plan were formulated in consultation with the experts and the specialized technical personnel of the administration in order to pave the way for the preparation of action programme for the second stage (Execution Stage).
Fifth : Projects for generalizing lucrative cropping agriculture

The Revolution of July 17 broke out to support the national production of the country, remove backwardness and uproot feebleness and dependence in the productive sectors of the state of which the main sector is the agricultural sector in order to conduct the peasants and safeguard them from illiteracy, poverty and disease. Hence the determination and constancy were directed towards raising the economic standard by accelerating the agricultural policy into a more prosperous well-being. The first stage for developing the agricultural policy was directed towards transforming and developing the deteriorated systems in cultivating the land which was confined to growing of food products and some other few products that have a little economical value which had caused a decline to national income which dropped under the normal rate.

Therefore it was determined to widespread the growing of such products that are profitable and characterised by high productivity or industrial raw products.

The execution of this Judicious policy actually was put into action in the winter agricultural season of 1969-1970, and it was decided to generalize the growing of the following crops :

- 1 - Maxipak wheat : which is characterized of the abundant yield and the share of Greater Mussayab Project was to sow 200 donums in the lands of the beneficiaries and 50 donums of the pilot farm owned by the project for producing improved seeds that are to be distributed among the beneficiaries next year.
- 2 - Sunflower, characterized as plantiful with oil
The share of Greater Mussayab Project was to sow 50 donums of the pilot farm to produce improved seeds to be distributed among the beneficiaries next year.
- 3 - Maize : to provide good fodder for animals and the share of Greater Mussayab Project was to sow : 1000 donums in the lands left for public utility and 364 donums under the beneficiaries.
- 4 - The administration is undertaking to provide some improved seeds of some economical products to be generalized in the Project region and to develop the means of their production by the beneficiares such as good onion seeds that are produced in the United Arab Republic in order to produce nursery plants, local production of onionets and to attempt to grow onion production

in other agricultural seasons such as winter, spring and autumn instead of being confined to spring cultivation only.

Sixth : Tests and Researchs

The emerging marks of development in the region of Greater Mussayab Project has encouraged the researchers and scientists to apply their researches that aimed to support developing the project and raising its productive capacity. The most important tests and researchs at the Project area could be summed as follows :-

a) Researchs for the reclamation of saline alkali soil of the experimental farm in Ukair region in Greater Mussayab Project which could be briefed as follows :

- 1 - The researcher : Agricultural soil and Chemistry Section (Soil and land Reclamation Directorate) .
- 2 - Period of Research - from 1961 to 1965
- 3 - Executed tests as clarified by the following drawings which explain some parts of the operations and the results attained.

Results of Tests

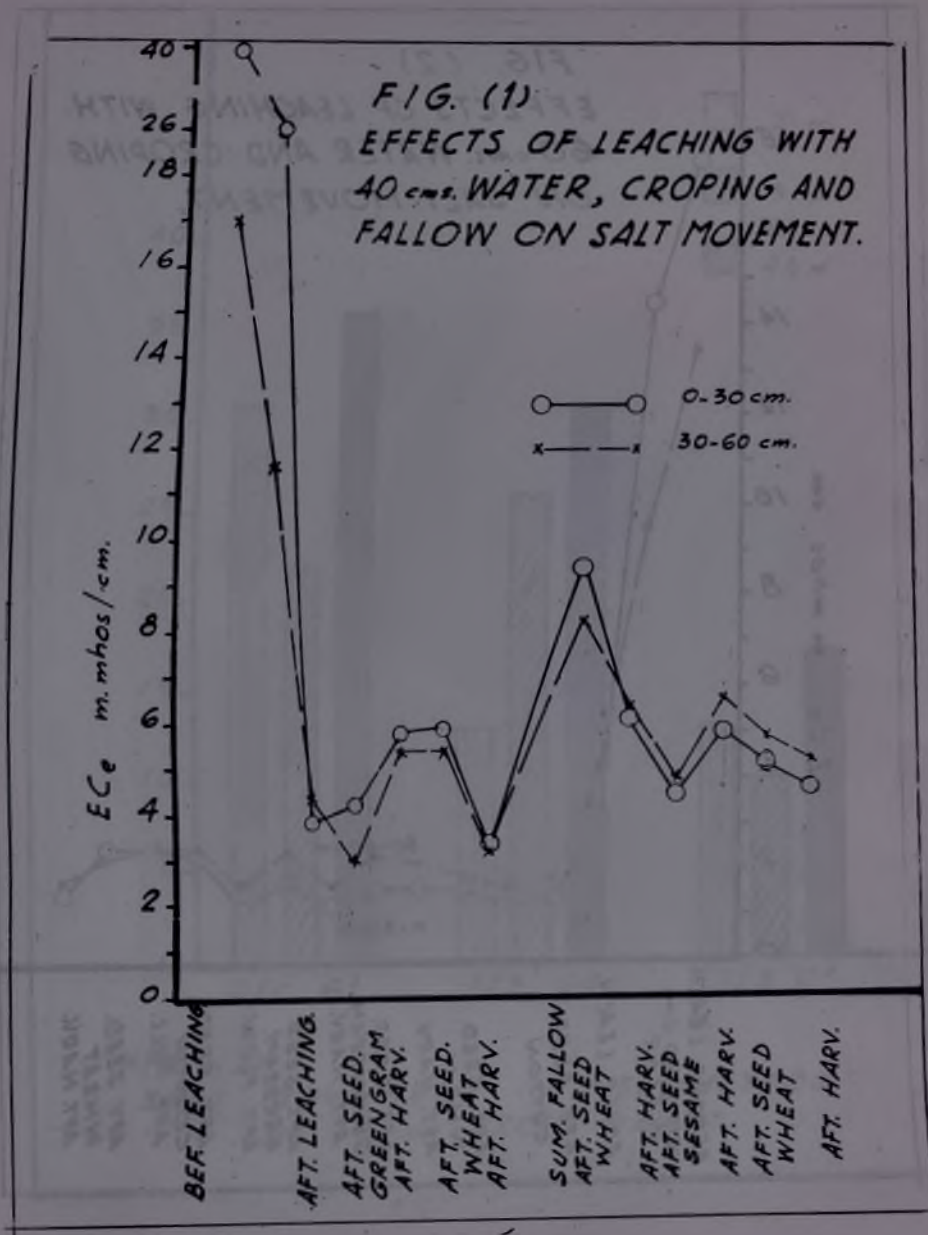
The tests which have been made in the Project in the regions of Khasbana and Ukair proved that it is only possible to bring productivity to the saline areas by carrying out the following operations.

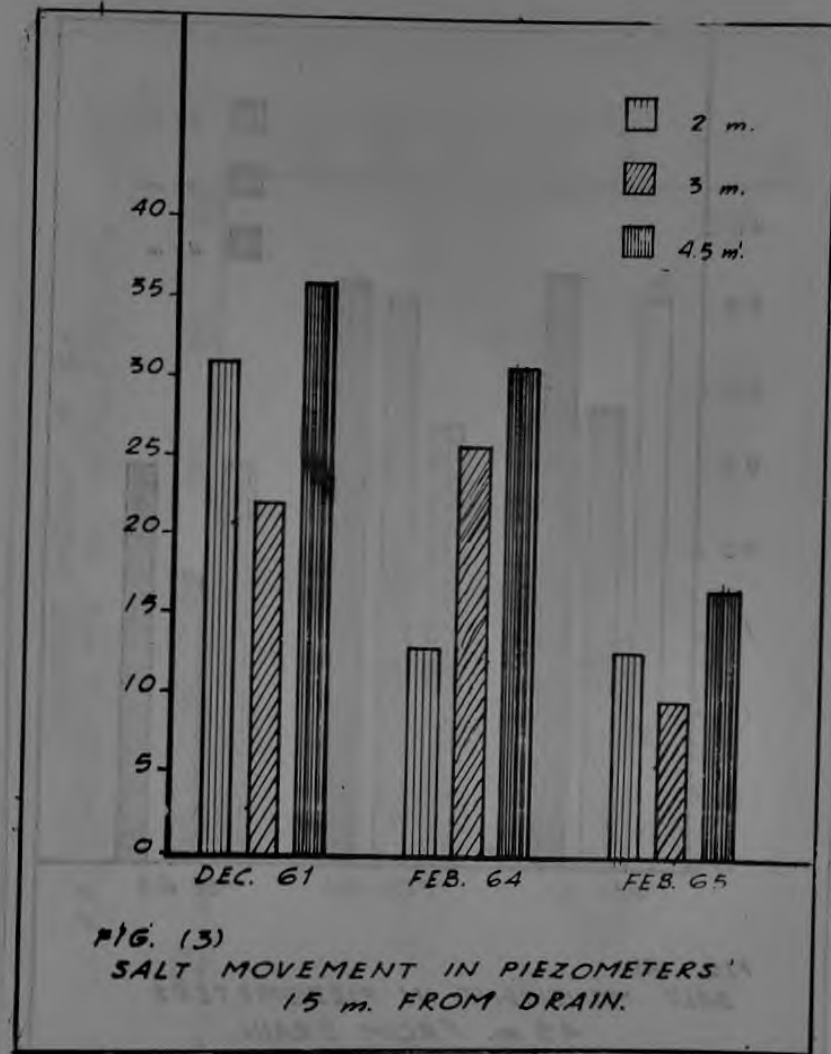
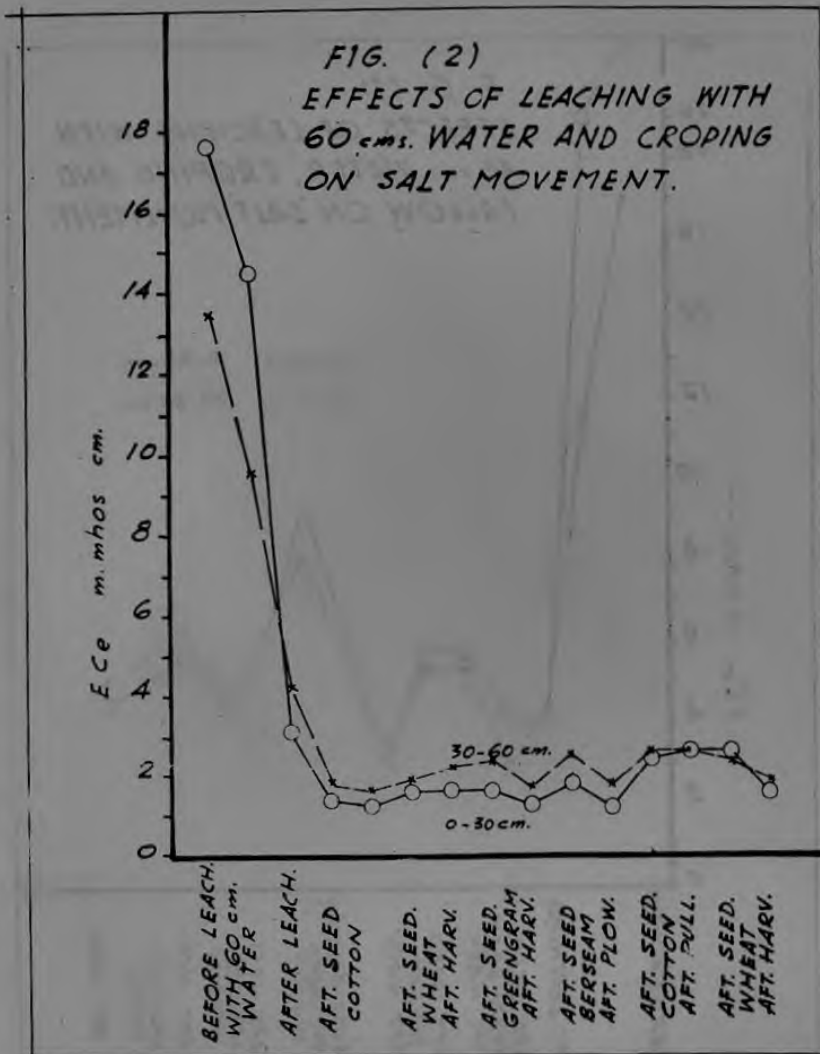
- 1 - Providing an effective drainage.
- 2 - Levelling and Planing the land.
- 3 - Washing salts by leaching the soil with 60 cu. cm. of water.
- 4 - Treating the crops with fertilizers.

b) **Explanatory tests of the Institute of Natural Resources.**

These tests were made in 1968-1969 to study :-

- 1 - The best agricultural rotations in the region.
- 2 - Effects of various fertilizers on the maxipak wheat crop.
- 3 - Effects of nitric fertilizers of various sources on Maxipak wheat crop.





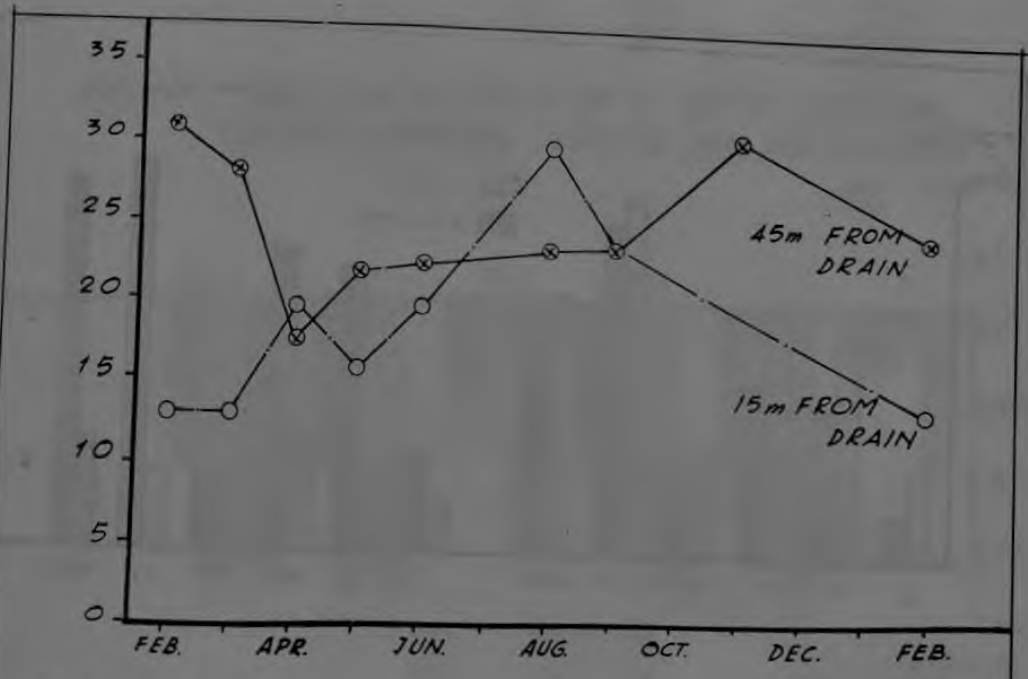


FIG. (5)
SALT FLUCTUATION IN 2m PIEZOMETER
15 m. FROM DRAIN.

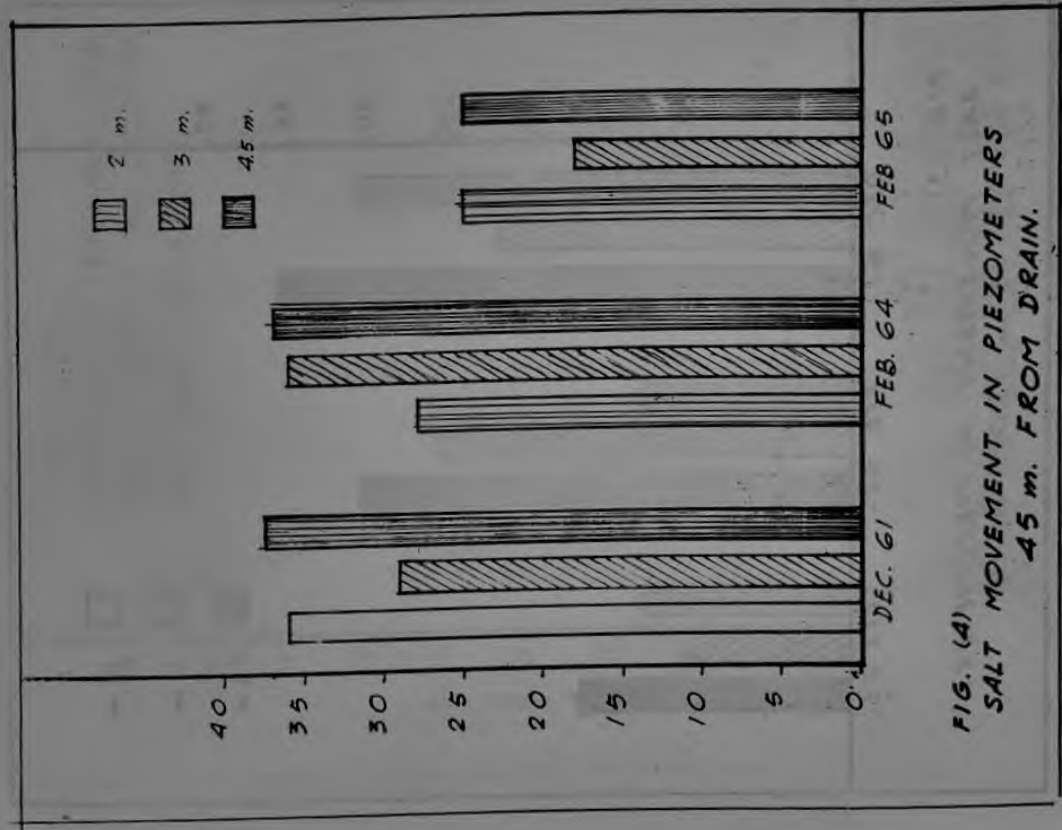
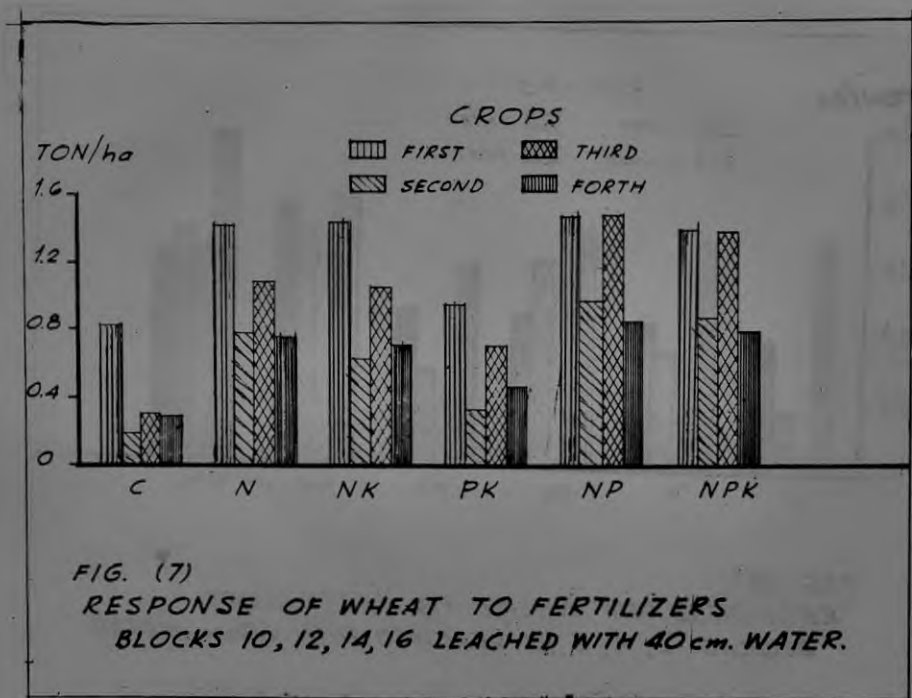
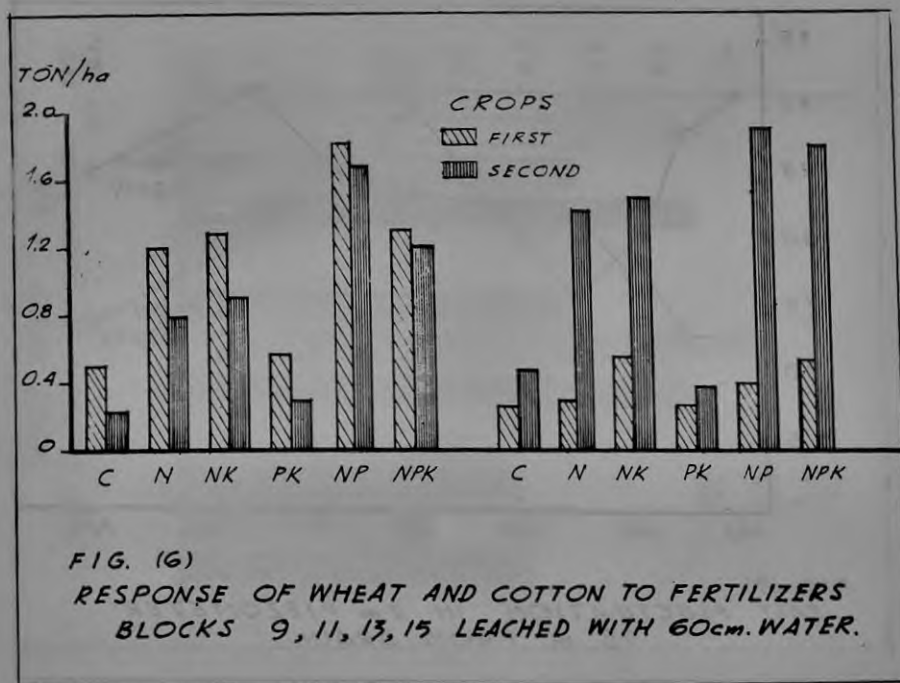


FIG. (4)
SALT MOVEMENT IN PIEZOMETERS
45 m. FROM DRAIN.



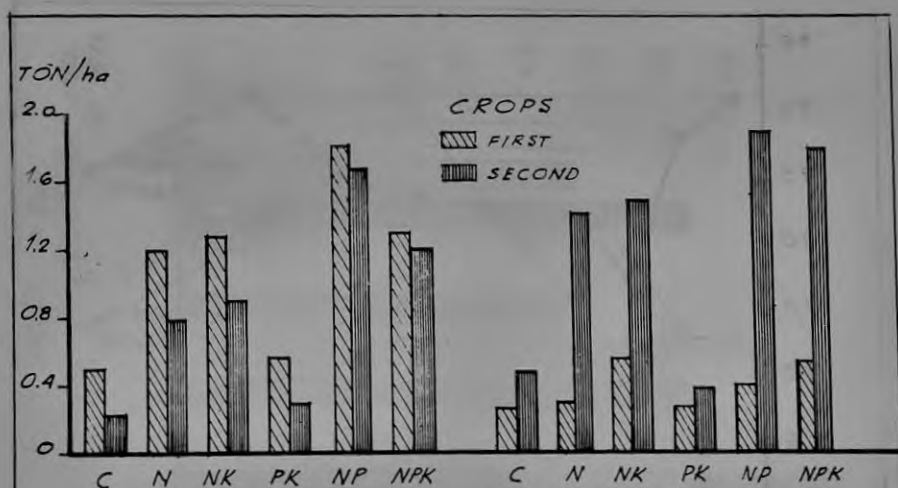


FIG. (6)

RESPONSE OF WHEAT AND COTTON TO FERTILIZERS
BLOCKS 9, 11, 13, 15 LEACHED WITH 60cm. WATER.

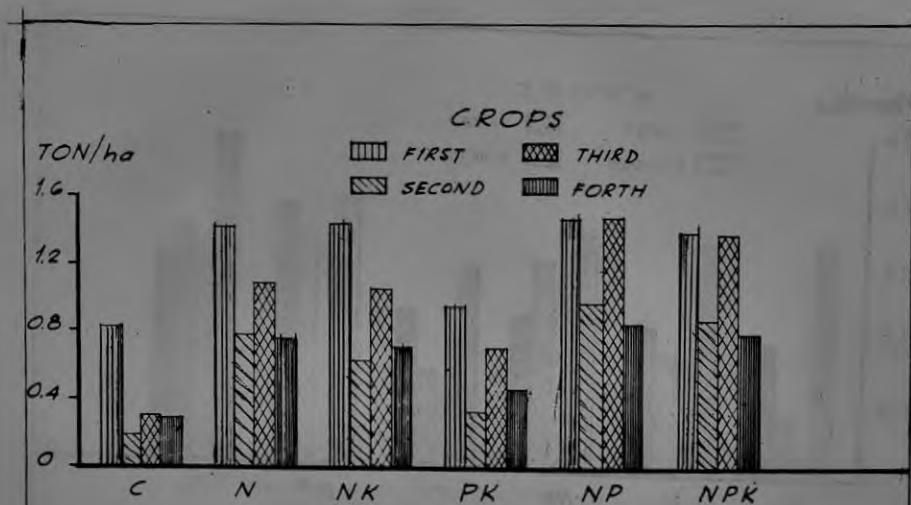


FIG. (7)

RESPONSE OF WHEAT TO FERTILIZERS
BLOCKS 10, 12, 14, 16 LEACHED WITH 40cm. WATER.

