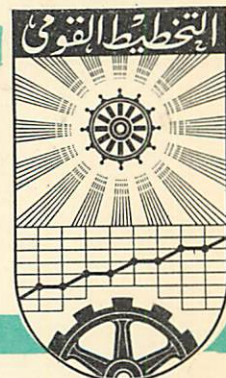


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A Summary of
AN APPRAISAL OF THE PLANT
PRODUCTION PROJECTS IN
U.A.R. FIRST FIVE YEAR PLAN

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AN APPRAISAL OF THE PLANT PRODUCTION
PROJECTS IN THE FIRST FIVE YEAR PLAN
OF AGRICULTURAL DEVELOPMENT IN U.A.R.

A Summary of
The Thesis Prepared as a Part of the
Requirements of Long Term Training
Program

Submitted by
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The Objective of Carrying on

~~This Research~~

Appraisal is the planning process that helps the planner in choosing projects that can be set in the economic development plan. If the planner disregards the appraisal process as a measurement for building up his plan, then the latter will be based on a wrong basis.

As any other economic development plan, the agricultural plan projects has to be chosen after appraising them according to some economic criteria to define their priorities. If the choice of the agricultural plan projects was not based on the right base—that of appraisal—the plan will not be able to realize the defined targets.

As the five year plan for agricultural development in the U.A.R. is the pioneer in the area of agricultural planning, it is probable then that it was based on weak basis. The projects of vertical development for plant production represent the largest and most important part of the agricultural plan. The execution of this plan nearly come to its end, and this gives the research worker the opportunity to investigate if the plan was based on the right basis and right criteria or not.

Carrying on this research in this particular time may help in clarifying points of shortage in the design of the first five year plan to be avoided in formulating and designing the second five year plan.

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Chapter I

The importance of agriculture in the U.A.R. economy..

Agriculture has a fundamental role to play in the development and progress of the national economy. Besides supplying people with their essential requirements of food, clothing, and shelter, it is the basic foundation over which the economy is built and upon which it depends to realize all its development programmes. It could be truly stated that the development of all sectors of the national economy requires as a preliminary condition the development of agriculture. Any improvement in agriculture affects the national economy directly or indirectly and contributes to the promotion of the people's welfare.

The Definition of the Agricultural Problem in the U.A.R.

A number of facts which characterize the agricultural status of the U.A.R. are the following :

- The low per capita share of foodstuffs represented by calories intake and protein especially animal protein.

Rates of growth of population and agricultural working force are increasing more rapidly than the increase in cultivated and crop areas.

- Despite the fact that the national economy still depends on agricultural products for exports, the rates of foodstuffs import are continually increasing, moreover, the agricultural exports increment rate does not allow meeting payments of the increasing imports required for economic development. This results in the successive increase in the deficit in the balance of trade .

- There is a close relationship between agriculture and industrial development and the extension of services. The burden on agriculture thus increases as it is aimed to develop the country's economic and social status, and to raise the people's standard of living.

Therefore this problem should be dealt with wisely by a sound and planned agricultural policy taking into consideration that agriculture is the predominant pattern of life of the citizens. This is in addition to the fact that agriculture is one of the most important supporters of the economic and social development.

Chapter II

APPRAISAL OF THE PLANT PRODUCTION PROJECTS

I. The Integration of the Program of Projects into an Investment Plan.

The logical procedure for the realization of such a plan would be to break up aggregate and sectorial plans into programmes and projects which would fill up this framework in a consistent and an integrated manner.

The procedure followed in practice, however, is the reverse. Departments of national and regional governments and private organizations - in some countries - approach the planning body with individual projects or groups of projects, and the latter has to scrutinize and appraise them, and incorporate them, if desirable, into sectorial and national plans.

Definition of the related terms:-

PROJECT: It is the smallest unit of investment activity to be considered in the course of program formulation. It should be as a rule, a technically coherent undertaking which has to be carried out by a private or public agency and which can be carried out, technically speaking, independently of other projects. It is important to recognize the fact that projects must always be related to an appreciation of the economy as a whole. The limitation of resources available for investment in underdeveloped countries necessitates that before any project is included in a program, it must be analysed

very carefully, and its impact on other projects, advantages and disadvantages must be predicted in a scientific way.

In addition, choice-which is very difficult-must be made between alternative projects for investments with respect to the limited availability of resources. Furthermore, projects should be prepared and studied in relation to the objectives for which they are devised.

PROGRAM : A co-ordinated set of projects, which will be located in the same country or in some smaller geographical unit, i.e., "state, province, region, or municipality". They will also be started in a specified period of time, may be a year, a five-year span, or some other period.

INVESTMENT PLAN: It is something arrived at "from above" through calculation referring either to the whole economy or to certain sectors in certain areas. It is not constructed by combining projects, but derived from the broad development aims set. So, a plan cannot be simply a set of projects. It means that the size of the program in the different sectors or areas should correspond to what a balanced plan would require.

This implies that complementary projects from the technical point of view are to be either jointly included or jointly excluded from a program, and to include one of them only would

obviously means waste. This means that some projects which contribute most to the realization of the aims of development may not be included.

2. PROJECTS CLASSIFICATION

One can classify the plan projects into several groups according to their nature and their aims. These groups are as follows:

- A) Projects aimed at increasing agricultural resources.
- B) Projects aimed at improving the productivity of resources.
- C) Projects aimed at conservation of resource productivity.
- D) Projects of research and studies.

A) Projects aimed at increasing agricultural resources:

This group includes the following projects:

- 1) Cultivation of 2,000 feddans with Grapes at Tahrir Province.
- 2) Cultivation of 3,500 feddans with Orchards at Tharir Province.
- 3) Cultivation of 1,200 feddans with citrus fruits at Tahrir Province.
- 4) Cultivation of 1,500 feddans with Olives at Tahrir Province.
- 5) Cultivation of new areas with Orchards.
- 6) Cultivation of 600 feddans with medical and aromatic plants at Tahrir Province.
- 7) Cultivation of 1,200 feddans with nurseries.
- 8) Production of fruit nursery plants.
- 9) Propagation of timber trees.
- 10) Cultivation of timber trees along public canals and drains.

11) The expansion of vegetable cultivation.

B) Projects aimed at improving the productivity of resources:

This group include the following projects:-

- 1) Addition of agricultural gypsum.
- 2) Development of low productivity lands inserted into the agrarian reform regions.
- 3) Reformation of lands at Tahrir Province.
- 4) Reclamation of Tahrir Province lands.
- 5) Bacterial inoculation of legume crops.
- 6) Technical supervision of land improvement by adding agricultural gypsum.
- 7) The strengthening of experimental farms of field crops.
- 8) The strengthening of experimental farms of horticultural crops.
- 9) Expansion of mechanization.
- 10) Replacement of exhausted irrigation machines.
- 11) Replacement of machines and tractors.
- 12) Establishment of five service stations.
- 13) Consolidation of holdings and reorganization of agricultural rotation.
- 14) Provision of advisory services.
- 15) Generalization of agricultural extension services.

C) Projects aimed at the conservation of resources' productivity.

This group includes the following projects:-

- 1) Control of cotton seeds in gins.
- 2) Organization of seed inspection.
- 3) Weed control by chemicals.

4) Supervision of the production of foundation, registered, and Certified seeds.

5) Propagation of Potato seeds.

6) Pest control units.

7) Appointing committees for maize pest control.

8) Establishment of 300 committees to control cotton and orchard pests.

9) Pest control.

10) The improving of the plant quarantine premises.

11) Propagation of virus-free seedlings.

12) Establishment of an insecticides factory.

13) Expansion in biological control of cotton leaf worm.

14) Control of bunchy top in banana.

15) Reorientation of the irrigation system at farshout.

16) The establishment of 2 maintenance and repairs stations.

17) The construction of 5 offices, stores and factory shops.

D) Projects of research and studies:-

This group includes following projects:

1) Control laboratory for testing fertility of soil.

2) The improvement of the soil salinity and alkalinity laboratory.

3) Soil and land classification survey.

4) Cotton improvement and development of new varieties.

5) The strengthening of the spinning test mill at Giza.

6) Wheat & barley improvement and the production of registered seeds.

7) Rice improvement and the production of resistant seeds.

8) Legume crops improvement.

- 9) Sugar crops development.
- 10) Maize improvement and production of hybrid maize.
- 11) Sorghum improvement and the production of registent seeds.
- 12) Bersim, clover, and fodder crops improvement.
- 13) Onion improvement and production of hybrid onion.
- 14) Oil crops improvement.
- 15) Expansion in flax and kenaf cultivations.
- 16) The improvement of agronomic practices.
- 17) The establishment of agricultural research stations.
- 18) The study of crop-water requirements.
- 19) The expansion in Tobacco research.
- 20) Promotion of fruit research.
- 21) Wood research and industrialization unit.
- 22) The establishment of botanical garden.
- 23) Vegetable improvement.
- 24) The improvement of agromic practices concerning vegetables.
- 25) The establishment of provincial horticulture research stations.
- 26) The establishment of an isolation garden.
- 27) The improvements of the pesticides analysis laboratory.
- 28) Control of bacterial rot in maize.
- 29) Survey of plant pests.
- 30) The establishment of testing stations.

It is noted that in reviewing the information and data concerning the plan projects, available data were in conflict between Ministry of Planning and Ministry of Agriculture.

In the present study, data from the Ministry of Agriculture was utilized, the ministry being the executive authority of most of the agricultural plan projects, and the original source of information concerning these projects.

The adjustments that were made into the plan projects according to the data taken from Ministry of Agriculture:

- 1) the project of cultivation of 600 feddans with medical and aromatic plants at Tahrir province was adjusted to research's project under the name of "the research station and propagation of medicinal and aromatic plants".
- 2) The project of "cultivation of 1200 feddans with nurseries" and project of "propagation of timber trees" were joined together in one project with the name of the "propagation of fruit and timber trees".
- 3) The project of "pest control units" and project of "expansion in biological control of cotton leaf worm", were integrated into one project under the former's name.
- 4) The project of "control of bunchy top in banana" was added to the project of "provision of advisory services."
- 5) The project of "the improvement of soil salinity and alkalinity laboratory" was transferred to Ministry of Scientific research.
- 6) The project of "the establishment of wood researches and industrialization unit" was transferred to the ministry of industry.

It is very important to note that there are a number of projects which were added to the plan projects after 1959/1960 but data to clarify their properties or aims had not been

available in the Ministry of Planning. However, it is to be stressed that any development plan should be divided into groups of programs for each sector. These programs ought to be consistent and complementary to each other, avoiding conflict or contradiction between one program and another as well as gaps which may prevent the projects included in this program from achieving their goals. Each program should be constituted of a number of consistent and complementary projects leading to realization of the program's objective. Gaps or contradictions among the targets of the different projects should be eliminated. A close scrutiny of the group of programs and projects set for improving field production, would show that some projects in the circle of each program are neither consistent nor complementary with the prescribed objectives of the program. Few examples follow for illustration:

A: Ministry of Agriculture's projects:

1) Soil improvement program.

This program aims at preserving the fertility of good soils, and the improvement of infertile ones. The project of plant's nutrition research station was added later to the program as an adjustment. However, this project clearly has no direct relation with the program and its objectives.

2) The program of diversification and improvement of field crops:

This program aims at raising crop production through improving seeds, by selection of new excellent varieties,

promulgating their cultivation in suitable regions, preventing their deterioration and renewing selected seeds in a continuous periodical way. This program entails, however, a number of irrelevant projects such as the following:

a- Project of the strengthening of experimental farms of field crops:

This project is concerned with the improvement of farmlands belonging to the Ministry of Agriculture. It is obvious that this project would have been more suitably placed under the soil improvement program rather than placing it under the crop improvement and diversification program.

b- Project for studying crop water requirements:

Although this project has value for better allocation and utilization of water resources, its placement under the program for improvement and diversification of crops can hardly be justified.

3) The program of diversification and improvement of horticulture crops program:

This program aims at eliminating the dependence on one crop through the expansion of production of fruits, vegetables, medicinal, aromatic, and ornamental plants for exports as well as for local consumption. The program also aims at the improvement of some vegetable and fruit species. Surveying the projects included in this program one finds the following projects:

a- The project of wood research and industrialization unit:

This project aims at carrying out studies and researches for the improvement of various wood species locally produced to substitute imports. However the project can hardly lead to expansion

of production of horticultural crops or help in fulfilling the program's objectives.

b- The project of promotion of fruit research:

This project includes the establishment of research laboratories and a test nursery attached to the fruit research stations of the Ministry of Agriculture through buying implements and equipment, completion of the departmental library and supplying it with periodicals, scientific books and magazines as well as supplying the department with experts and workers. This project is apparently confined to establish research facilities and recruit personell for research, but it does not contribute to achieving the programs targets during the 5-Year plan.

B) Other ministries and organizations projects:

Reviewing the projects of Ministry of Agrarian Reform and other organizations such as the Combined Units and the Public Organization of Agricultural Production, one can realize that their projects were made independant of each other and thus were not coordinated. In addition, some duplication took place which materializes in burdening unnecessary costs.

For example, the project concerning provincial research stations for field crops could be combined with the project of provincial research stations for horticulture crops, together with the project concerning the establishment of research stations and nurseries for ornamental plant. Another example for duplication in projects carried out by various organizations is a project for increasing output of honey and breeding of honey bees which the combined units hold its implementation, and

another project for the promotion and breeding of bees in the program of improving and diversifying the horticulture crops under execution by the Ministry of Agriculture. A third example of such duplication appears in the projects for the promotion of vegetable cultivation, some of which are carried out by the Ministry of Agriculture, while others are executed by the combined units in villages. It is preferable that one of these two organizations carry out both projects. There is also a project to establish nurseries for timber and fruit trees belonging to the combined units, and at the same time there is a project for increasing timber and fruit trees belonging to the Ministry of Agriculture. According to Ministry of Agriculture's estimates, the fruit nurseries belonging to it and that will be cultivated within the period of the five year plan will meet all the nations' needs either for additional cultivation or for replacement. Thus it becomes evident that similar projects undertaken by the combined units are unnecessary, and even if begun and could not be withdrawn, ought to be included under the supervision of the Ministry of Agriculture in order to curtail unnecessary expenses.

These examples illustrate the necessity for consolidation of efforts and coordination of projects between the Ministry of Agriculture and combined units in order to minimize the expenses of establishment, conservation and management.

There is also need for reviewing the construction and building programs of various ministries, servicing rural areas in an effort to coordinate and consolidate undertakings without duplication and added cost.

Furthermore , the review of various projects indicates that more adequate studies and analysis are needed before including projects in the plan. For example:

Bordering canals and drainage channels with trees is one project in the program of improvement and diversification of horticulture crops under the Ministry of Agriculture. It had been decided to suppress the budget expenses for this project until proposals are made to overcome difficulties facing its execution. Among difficulties presented is the fact that trees die after planting as a result of the clearance of canals and drains and for lack of care resulting from the multiplicity of supervising agencies. The roads and bridges administration supervises roads while the Ministry of Public works supervises canals and drains, and the Ministry of agriculture holds the planting of trees on the banks of canals and drains, and supervises the care for the trees.

The writer thinks that the Ministry of Agriculture's supervision over this project scatters the efforts and augments expenses as a result of the provision of labourers charged with trees cultivation and irrigation. This project should have been placed under the road administration whose workmen are in charge of road maintenance and spraying. In addition, provisions should be made to minimize deaths of tree resulting from clearance operations in canals and drains.

Different projects aiming at one objective should be coordinated and placed together under the supervision of one agency. Three projects concerning the establishment of research stations

in the provinces, improving agronomic practices and studying water requirements of crops can provide an example of three inter-related projects in terms of objectives and implementation .

Studying all the projects included in the five year plan and those added to it, one can find that a few of these projects bear a direct relation to the targets specified for production and income, i.e. have a defined direct return. It is to be noted that the bulk of agricultural development projects is concerned with services or researches for which nondirect return could be carefully assessed. However, some projects, for which direct benefits had been calculated, the basis of such calculation can hardly be clarified.

3. Principal shortcomings in agricultural production projects and programs of the first 5-Year Plan.

A. It is common knowledge, that in constructing a plan, we should strike a balance between long-term and short-term projects. However, this study concerning agricultural development projects indicates that many of them aim at building up research facilities or at conducting scientific researches, which are basically of a long-run nature. The crops improvement projects essentially depend upon propagating new varieties which would not give maximum production on farms during the period of the first five year plan. Some projects such as the establishment of a botanical garden, the tobacco research project, the establishment of nurseries for fruit and timber trees can hardly result in an increase of agricultural production in the first 5-Years.

Most of the agricultural research projects would lead to increases and improvement of agricultural production in the long-run but not in a period of 5-Years.

Besides the scientific research projects, there are other projects whose fruits can only be realized in a period longer than the first five years of the plan. These long-run projects include for example, the projects concerning the cultivation of orchards such as 1,200 feddans of citrus and 1,500 feddans of olives cultivation at Tahrir Province. Citrus trees do not give economical production except after 5 years, and olive orchards do not give economical production except after 10 years. The same applies to the cultivation of timber trees on banks of canals and drainage channels. Similarly projects concerning the production of registered citrus virus free nursery plants, would result in producing such plants starting the year 1964, and the benefits from it would commence in the year 1968, a period much longer than 5 years. The project concerning the transport of palm trees from Nubea for transplanting north of Aswan and save them from being flooded under the High-dam water, would not contribute to production except after 5 years or more from time of transplanting .

B. Linkage is missing between many projects and the application of results on private farm-land in a way that would lead to the increase of production and the promotion of farm income.

Examples of such projects include the application of optimum fertilizers, insecticides, selected and certified seeds and seedlings, mechnization of farm sperations and others.

Many other projects have no direct bearing on promotion of production and incomes of farmers within the 5-Years of the plan.

C. Many projects do not treat field's production problems in an active direct way, nor do they provide direct solution to such problems.

The Ministry of Agriculture depends on guidance and extension service only in the implementation of such projects as the adding of agricultural gypsum and the mechanisation of farm operations, sugar crop improvement, legume production improvement and the like.

D. As emphasized and illustrated earlier there appears to be only a small group of projects which have defined measurable objectives. In addition there are many projects that have no direct bearing on the fulfilment of the objectives,

It should be noticed that the fixed objectives included in the 5 year plan were readjusted on the basis of real estimates of agricultural production in the year 59/1960. These estimates of objectives and the realized production and income in the two years of plan operation (1960/61 & 1961/62) are summarized in the following tables.

Table (1)

Realized and Prospected Agricultural Production
Estimations in the year 60/1961, in 1959/1960 price
Value in Million pounds

Description	Production value in Million pounds		Percentage of realized to estimations in 60/1961
	Prospected	Realized	
Cereals	137	123.3	96.6
Leguminous	17.4	10.5	60.3
Oil seeds	9.3	8.9	95.7
Sugar cane	10.2	10.6	103.9
Fibers	144	141.4	98.2
Vegetables and onions	34.6	34.0	93.3
Timber trees and fruits	26.5	25.8	97.4
Feeding stuffs	66.8	62.5	93.6
Other crops	.5	.5	100
Wood	6.4	6.5	101.6
Agricultural total	607.7	582.7	95.8

Source: The First Year Follow Up Report—Presidency of the Republic PP.31.

Table (2)

Prospected and Realized Agricultural Production

Estimations for the year 61/62, in 59/1960 price

Value in Million Pounds

Description	Production value in Million pounds		Percentage of Actual to prospected Estimations for the year 61/62
	Prospected	Realized	
Cereals	145	128.4	88.55
Leguminous	18	18	100
Oil seeds	9.4	6.8	72.39
Sugar cane	11.1	9.8	88.28
Fibers	150.60	130.1	86.38
Vegetables & onion	36.7	36.2	98.63
Timber trees & fruits	28.2	29.6	104.96
Feeding stuffs	69.4	69.4	100
Other crops	.6	.6	100
Woods	6.5	6.4	98.46
Agricultural total	637	564.8	88.66

The previous tables indicate that agricultural plan's projects did not realize their defined targets fully in the first or second years of the plan.

This shortcoming in targets realization is due to two reasons:

1. The difficulty in realizing the project's fixed targets as a result of the shortcoming of projects and programs as explained before.

2. Natural and climatic elements which affected the agricultural production in 1961, when cotton was infected with leaf worms, although there was the possibility of combating that infection on large scale if insecticides had been provided at the suitable time before conditions deteriorated.

Chapter III

The Relation of Projects and Programs to the solution of the Existing Agricultural Problems

Upon investigation the following may summarize some principal points regarding the relation of projects to problem-solving.

A. Although the whole plan projects were intended to treat the problem of low food consumption by trying to increase production and productivity, nevertheless, most of these projects are investigative and are basically concerned with long-term research. The defined objectives of the plan correspond very little with possible results of these projects in a period of 5 years. This is tentatively indicated by results of implementation in the first 2-years. Although the plight of Cotton-leaf worm in 1961/62 is mainly responsible for the decrease in income from cotton, the shortcomings of projects to enhance corresponding increases in farm income from other crops contributed also to the absence of significant growth rates.

B. Although the plan for agriculture called for increases in agricultural production by 27% and in agricultural income by 28% in 5 years, i.e., at rates higher than 5% annually, the income from agriculture actually declined in 1960/61 and 1961/62 from its level in 1959/60, as shown in the following table.

Realized Domestic Agricultural Income			Rates of growth		
59/1960	60/1961	61/1962	The year 60/61 to the year 59/60	The year 61/62 to the year 59/1960	The year 61/62 to the year 60/61
(in million E.£)			(Percentages)		
405	402.7	373	-0.6	-7.9	-7.4

Such a situation would render it hard to realize the planned increases in income from agriculture in the 5 years unless urgent and suitable corrective measures were undertaken in the remaining period of the five year plan.

The increases in the number of population and the number of agricultural labour force occurred in face of decreases in agricultural production and incomes situation resulted in disguised unemployment and in decreasing productivity per worker especially in the second year of the plan.

C. With respect to the problem of formation of agricultural surpluses for exports and the fulfilment of growth requirements for other sectors, the situation has not improved. As has been mentioned earlier the group of projects had not realize the anticipated gains in the first and second years of plan execution. However, increases in the size of consumption took place in the face of the slight decrease in production. In consequence, that part of production intended for exportation was reduced and the possibility of increases in foreign currency earnings declined. It cannot be further emphasized that foreign currency forms an

important bottle neck in the implementation of most of the investment projects. Furthermore, the decrease in production also affects supply of the necessary surplus required for the growth of the other non-agricultural sectors.

D. It is noticable that the agricultural plan which tried to treat the problem of improving the productivity of resources in agricultural production, ignored the relative importance of training projects for skilling agricultural workers. Projects for farm mechanization should be accorded much more attention due to their importance in affecting the productivity of agricultural resources especially labour. Projects to maintain the high productivity of land must be supplemented with projects to raise the productivity of other factors, namely, labour and capital. Without coordinated projects for improving the productivity of all factors combined, the capital employed would never attain optimum productivity levels from utilized agricultural resources.

E. The relation of projects and programs to the reorganization of agricultural exploitation did not appear to be adequately considered. Although the plan contains some projects aiming at reorganization of agricultural exploitation to achieve efficiency and obtain the highest possible production from available resources, yet these projects need to be supplemented by other missing projects in order to realize the expected results during the first and second years of the plan.

It appears that better allocation of farm resources for higher levels of efficiency requires the existence of a price

policy which leads to the fulfillment of such an important goal. Very little attention has been paid to the institution of such price policy in the agricultural plan for the first 5-years.

The Relation Between the Economic and Monetary Cost of
Projects and their Economic and Monetary Revenue.

It is difficult to discuss and analyse the relation between projects costs and revenues for lack of available data to clarify the cost and revenue structure of projects, in the various ministries or in the follow up reports published by the Ministry of Planning.

It was found practically impossible to calculate the capital-output ratio in the agricultural sector with some degree of proximity and accuracy. This is partly due to the fact that one can't consider that the agricultural production or its increase in one year is only the result of investments in this year. Agricultural production is a resultant of all surrounding circumstances including natural circumstances. Capital-output ratio cannot be calculated unless there exist a long series of investments in the agriculture sector accompanied by corresponding production in the previous years to be able to get rid of repercussions of natural conditions, and other various factors than investments .

In the absence of this series of data, the capital-output ratio was extracted from the available data on a marginal basis.

$$\text{Marginal capital-output ratio} = \frac{\Delta \text{capital stock}}{\Delta \text{output}} = \frac{\text{investment}}{\Delta \text{output}}$$

$$\begin{aligned} \text{Marginal capital-output ratio in the first year} &= \frac{7.291}{1.100} = 6.62 \\ &\text{1960/1961} \end{aligned}$$

$$\begin{aligned} \text{Marginal capital-output ratio in the second year} &= \frac{8.8}{-17.8} = -0.49 \\ &\text{1961/1962} \end{aligned}$$

These figures indicate that marginal productivity of capital in the agricultural sector is very low. Moreover, in the second year of the plan capital-output ratio was rather negative.

Summary and Conclusions

With regard to the problem setting the following can be pointed out:

1. Per capita share of food represented by calories and protein specially animal protein has been low.
2. Population and agricultural working force rates of increase have been higher than the increase in cultivated and crop area.
3. The rate of increase in productivity per feddan does not compensate for the increase in population; moreover, the productivity per feddan for several crops decreased in 1961 below what it was in the average of 1935/1939.
4. Despite the fact that the national economy still depends on agricultural products for export, the rates of imports of wheat and other food stuffs were continually increasing.
5. The increment rate of agricultural and non agricultural exports does not allow meeting payments of the increasing import requirements of economic development and deficit in the national balance of trade continued.
6. The price policy existing in the U.A.R. has not been conducive to the best allocation of resources in the agricultural sector and to maximization of real income from agriculture.
7. The agricultural income per capita in 1960 did not exceed the level of 1952. Nevertheless, the share of the agricultural worker increased by 6% in the same period.

8. There are several projects in the five year plan which have no direct bearing on the defined targets of production and income.
9. Some characteristics in the projects formulation make difficult the realization of plan targets.
10. Close attention had not been paid to the consistency and complementarity of various projects within each program and the projects of the Ministry of Agrarian Reform were included in the plan in a separate form rather than in programs.
11. Duplication existed in some projects which are executed by different agencies.
12. The expected targets for the first and second years of the plan were not fulfilled, and production of some groups of crops decreased below its levels in the base year.
13. Between the base year 1959/60 and the end of the second year of the plan the agricultural income decreased progressively from 405 million pounds in 1959/1960 to 402.7 million pounds in 1960/1961, and to 373 million pounds in 1961/1962, i.e., with negative growth rates of -6% and -7.9% respectively as compared with the base year.
14. No price policy had been devised to best allocation of resources and the realization of defined plan targets.
15. There were no defined targets for each project in the plan frame or in the blank form of projects registration.
16. Data clarifying economic or monetary returns of each project were missing and not available in the follow-up reports.

17. The Ministries follow-up expenditures of outlays without following up of changes in production, employment, increase of exports or decrease in imports. The unavailability of data made difficult the application of the appraisal criteria mentioned in the appendix of this study.
18. Serious attention is recommended to the process of studying and selecting projects before approval for execution.
19. Efficient execution schemes for each project should be laid down in coordination with those of other projects.
20. Definite measurable targets should be set for each project.
21. Data concerning project cost and revenues should be worked out in relation to the prospected targets.
22. Setting up many alternative projects would provide the planners with the opportunity of better choice, and applying the appraisal criteria.
23. Formation of a sound pricing policy based on costs and returns .
24. Coordination of efforts of different execution machinaries as well as closer co-operation between them and with the Ministry of planning appears necessary.
25. The executive authority must supervise and appraise each point of view of production, employment, increase in exports decrease in imports, and effects on other projects.

Appendix

Appraisal of Projects

Economic appraisal consists of a comparative evaluation between the possible uses of resources represented by the investment projects. This appraisal concentrates on measuring objectively certain magnitudes resulting from the project study and in combining them in arithmetical operations in order to obtain the appraisal coefficients.

We must pay attention to the fact that there is a great difference between the evaluation criteria from the individual's point of view on the one hand and from the national point of view on the other; as profit is the prime motive of the private entrepreneur either in absolute terms or per unit of capital (net return). The entrepreneur is primarily interested in the market price and in the direct benefits and costs of the project. From the national point of view however the problem becomes more complicated as it takes into consideration the social benefits as well as the monetary costs.

There are two groups of appraisal criteria: those which measure direct returns, and those which attempt to measure indirect returns.

Evaluation formula measure some types of productivity; but a distinction may be made between those criteria which measure the productivity of one single factor or economic resource, for example, capital, labour, and those criteria which measure the productivity of the of all input factors. We must also realise

that the political considerations often exert a decisive effect on investment priorities to the extent that many projects exist for which the supply of services are not marketable. The political factors which often affect the order of priority of projects may be related to military strategy or to administrative, civil, or national criteria.

1. Criteria for Measuring the Productivity of the input complex

A. The benefits-cost criterion

This ratio is obtained by dividing the value of production by the total cost involved. Thus the private criterion of the profitability of capital becomes the social criterion of benefits-costs. Conceptually, they are identical in their respective spheres.

$$\text{Benefits-costs ratio} = \frac{\text{benefits}}{\text{costs}} = \frac{\text{costs} + \text{profits}}{\text{costs}}$$

if P = profits, C = costs, and R = the ratio, then

$$R = \frac{1 + P}{C}$$

R will increase in proportion to $\frac{P}{C}$, that is, the percentage of profits is greater in relation to the costs.

Maximum R will therefore give the maximum profits

2. Social Criteria for Appraising the Productivity of a single factor.

A. Capital-output ratio

Just as profitability measure capital productivity in terms of special interest to the private entrepreneur (those of profits) so the ratio between capital and value added measure it in a social sense, giving what is known as (capital-output ratio). Value added can be either net or estimated at factor

cost or market price, according to whether depreciation or indirect taxes and subsidies are excluded.

A. distinction must be made between the average and marginal capital-output ratios. The average capital-output ratio is calculated by making the stock of physical capital the numerator and the national product or any of its variants the denominator; where as the marginal capital-output ratio is based on the increase in numerator and denominator over the same length of time.

This ratio vary according to whether value added is net or gross and whether capital includes or excludes inventories and whether value added and capital are estimated at factor cost or at market prices.

B. Capital intensity

The concept of this coefficient concerns the degree to which capital is used in the projects. The various quantitative expressions of this could be divided into two major forms. According to the first form, capital intensity will be the total capital required by the project per unit of value added or gross annual value added. The second group of coefficients is composed of those which measure the input of capital, i.e., depreciation per unit of value added or of gross production usually expressed in percentage form.

C. Employment per unit of capital

As unemployment problems exist in the U.A.R. the number of personnel employed per unit of capital may become a preponderant coefficient. This coefficient will be obtained by dividing

the number of persons employed in the project by the project's total requirements. As projects need different skills of manpower and the labor available in underdeveloped countries is usually unskilled, then a computation of the employment coefficient of unskilled labour per unit of capital might be useful.

D. Labour productivity:

Labour productivity can be defined as production value obtained per person employed. The number of hours worked per year must be taken into consideration. N.B. labour force can either be expressed in physical terms of man-years and man-hours or as monetary units equivalent to the cost of employed manpower.

E. The foreign exchange:

The foreign exchange component must be assessed accurately as it is generally a limiting factor. In this connection 3 types of coefficients each comprising total and direct effects, must be distinguished:

(i) Foreign exchange product-to input ratio

$$= \frac{\text{annual positive effects} + \text{annual negative effect}}{\text{foreign capital investment}} = \frac{\text{annual positive effects}}{\text{total input}}$$

(ii) Foreign exchange product-to-capital ratio:

When the direct recovery of capital in foreign exchange is fairly rapid (i.e., in three to six years), it becomes advisable to take this ratio into account.

$$\text{Foreign exchange product-to-capital ratio} = \frac{\text{positive effects}}{\text{foreign capital investment}}$$

(iii) Local conditions and accounting effects:

Depreciation is taken into consideration in this respect to get the net annual effect. This criteria could not be applied to the agricultural sector in U.A.R. as there are neither data describing defined targets for each project such as every project's requirements from labour and other input complex, nor data describing the value added or output generated from any project such as the increase in exports or decrease in imports due to the implementation of every single project. This status necessarily creates a great difficulty in the process of appraisal which in its turn creates the inability of knowing whether this agricultural plan is following the right direction with the most optimum allocation of resources and investments between various and alternative projects or not.

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