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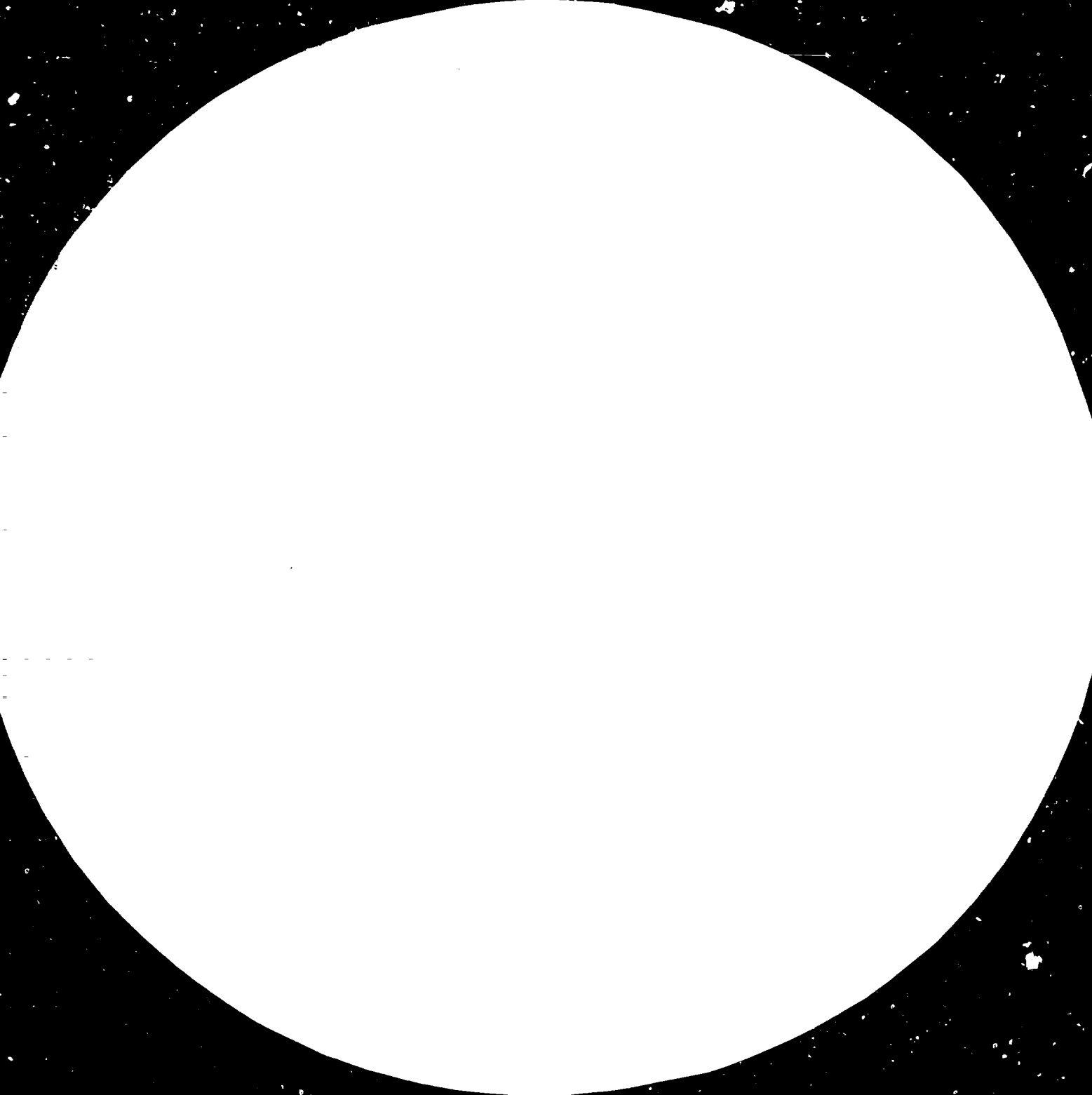
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THE EXPERIENCE OF TUNISIA IN THE
DEVELOPMENT OF AGRO-INDUSTRY

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(National Centre for Industrial Studies)

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INTRODUCTION

Immediately following its independence in 1956, Tunisia found itself confronted with a host of political, economic and social problems which were in one way or another connected with the advent of independence and which had to be dealt with before any genuine development policy (recovery of the symbols of sovereignty, revitalization of the key sectors of the economy, replacement of personnel, etc.) could be begun.

Tunisia first introduced the process of planning its economy at the beginning of the 1960s. As part of this planning, it formulated long-term development strategies to cover two ten-year periods: 1962-1971 and 1972-1981. Within this time-frame the country has already completed four plans: the First Three-Year Plan (1962-1964), the Second Four-Year Plan (1965-1968), the Third Four-Year Plan (1969-1972), and the Fourth Four-Year Plan (1973-1976). The Fifth Plan for Economic and Social Development (1977-1981) is now in its fourth year. Through the economic budget, the Government also has in its power an instrument which can be used to readjust this medium-term plan on an annual basis.

The purpose of this report is to analyse Tunisia's experience in the development of its agro-industries since the achievement of independence. An additional aim in preparing this paper has been to call attention to both the positive aspects of this experience in order that they may be further strengthened in the future, and the weaknesses in order that they may be overcome and the problems and limitations blocking the continued application of this experience eliminated.

In this study, the role of the State in the organization and promotion of the country's agricultural development will be examined, after which an analysis will be made of the investment effort that has been undertaken over the last two decades in the industrial sector. In the final chapter, the evolution of the institutional arrangements for agro-industry integration will be studied, and the major factors affecting agriculture and industry at the production, marketing and promotion level in both sectors will be reviewed.

The characteristic feature of the first planning decade was the gathering of experience in economic development, primarily on the basis of State intervention. The reforms were charted and launched in the first "Ten-year projections", for the decade 1962-1971.

In the agricultural area, the reorganization took the form of the establishment of production co-operatives. As a means of permitting the integration of the whole range of economic activities, reform of the distribution machinery (service co-operatives, local and regional co-operative units, and national offices) made it possible to develop very close links between the various sectors, making them interdependent.

This integration was the consequence of a vigorously pursued policy of investment in basic infrastructure and capital equipment. Nevertheless, despite the large sums invested in the sector (233.9 million dinars), agricultural production declined during the period 1960-1970 at an annual rate of 1.8 per cent. This period of experimentation culminated in September 1969 with the paralysis of the national economy following the extension of the co-operative system to the entire agricultural sector.

The causes of this failure were many: the excessive rigidity of the programmes, the lack of a genuine co-operative spirit, bad management, personnel shortages, pervasive political interference, unfavourable climatic conditions, etc.

The new structural reorganization adopted in the "Ten-year projections, 1972-1981" was introduced in the agricultural sector under two major headings: a reaffirmation of the policy recognizing the coexistence of three sectors (private, governmental, and co-operative), and organizational reform of the production and marketing of agricultural commodities. The State undertook to achieve the balance required to permit the promotion of agriculture in all its subsectors.

Aware that new technology is a key factor in the effort to increase production, the Government has adopted a number of important measures to encourage and assist growers. These measures are intended primarily to promote the sector at the level of the farm, to make available the funds required to carry out the provisions aimed at the promotion of agriculture, and to complete a number of development projects with financing in the form of subsidies and soft loans.

In the interests of agro-industry integration, the Government has mounted a major effort to promote industries up- and down-stream of actual agricultural production (for example, farm machinery manufacturing and further processing of agricultural commodities).

As a result of the new policy which has been in effect since 1970 there has been a marked improvement in the status of Tunisian agriculture. Over the long term, however, if the country is to continue to build on this improvement, there must be a comprehensive reappraisal of the methods used to promote agriculture and a clear definition of the Government's special role in that sector.

I. THE STATE'S ROLE IN ORGANIZING AND PROMOTING THE AGRICULTURAL INDUSTRIALIZATION PROCESS

I.1. General remarks on Tunisian agriculture

Agriculture occupies a leading place in the Tunisian economy. While accounting for more than 45 per cent of the country's assets, it contributes only 20 per cent to the gross domestic product. Moreover, the evolution of this sector indicates that there has been some stagnation in agricultural production and that its contribution to GDP has decreased (see annex 1). In 1977, agricultural commodities accounted for some 12.5 per cent of the country's imports and 14.5 per cent of its exports.

With a total territory of 16.4 million hectares, Tunisia has only 9 million hectares of useful agricultural area, divided as follows: 50 per cent arable land, 40 per cent prairies and pasture land, and 10 per cent forests and woodland.

Tunisian agriculture exhibits the same characteristics as does the agriculture of most Mediterranean countries: great dependence on the weather, land ownership structures of great complexity, relatively low technical sophistication, the predominance of the extensive system of farming, etc. The highly irregular nature of agricultural production can be seen quite clearly in the way production has evolved in the various agricultural sub-sectors. Here one finds that vegetable production accounts for more than 60 per cent (grains 20 per cent, arboriculture 20 per cent, market gardening 15 per cent), and animal production somewhat less than 40 per cent.

I.2. Evolution of the system of land ownership

Immediately following independence (1956), Tunisian agriculture displayed very marked dualistic characteristics, particularly reflected in the fact that for more than 60 per cent of the arable land ("habous", pasture land, collective land) no clear title of ownership existed.

Before any programme of agricultural development could be mounted, it was necessary to reform the land ownership system thoroughly. Laws were subsequently enacted to address the institutional aspects of agriculture, the reform of the existing systems of land ownership, and the adaptation of the arrangements of landed property and systems of production.

Taken together, these measures have produced major changes in the structure of land ownership. The process of verifying land ownership records, which is regarded as one of the elements in the programme of agricultural modernization, is being gradually extended.

I.3. Agricultural investment

The growth in production has been possible only because of a particularly substantial investment effort. This effort may be seen in the major thrust of the various socio-economic development plans pursued over the last two decades (see annex 2).

During the period 1962-1969, nearly 19 per cent of investments (186 million dinars) was allocated to agriculture, particularly for the basic equipment required for this sector. While the industrial sector received about 30 per cent of the funds invested, this money was very unequally divided; the extraction industries sector (mines and petroleum) received more than 17 per cent of total industrial investment, as against only 12 per cent for the manufacturing industries. There was particularly heavy growth in the gross formation of fixed capital in the service sector (51 per cent of investment). Within this pattern of financing, the agricultural and food industries were allocated more than 2 per cent of the capital invested (11 million dinars).

The balance-of-payment difficulties and monetary problems caused by this exceptional effort prompted the Government to adopt a "new reorganization of investment by sectors".

Beginning in 1970, there was a decline in the share of agricultural investment, which decreased from 19 per cent during the ten-year period 1962-1971 to 12.5 per cent during the four-year period 1973-1976. At the same time, growth in the gross formation of fixed capital has been particularly heavy in the industrial sector and especially in the manufacturing industries (up from 12 per cent during the period 1962-1971 to 18 per cent between 1973 and 1976 and with a projected figure of 23 per cent for the Fifth Plan).

In the agricultural area the distribution by subsector of the investments made during the Fourth Plan (1973-1976) reflects the great effort undertaken to establish the infrastructure needed for development. For example, water management activities and equipment accounted for nearly 53 per cent of the investment volume in the agricultural sector.

A breakdown based on the nature of the investment shows that, generally speaking, in recent years production equipment has accounted for only a third of the gross formation of fixed capital, with the remainder going to the establishment of economic and social infrastructure, an area of investment for which more time must elapse before productivity begins to make itself felt. Conversely, in investment allocations during the Fifth Plan (1977-1981), priority will be accorded to the production sectors, which are to receive two thirds of the money spent in an effort to bring about a rapid increase in production.

The agricultural sector is to be promoted by strengthening the market-gardening, fisheries, and poultry-keeping subsectors as well as through the development of the country's irrigation capacity, thereby reducing the dependence of agriculture on unforeseeable climatic factors (annex 3).

At the source of these investments in all branches of the national economy has been the intensified role of the public sector (72 per cent of investment during the ten-year period 1962-1971 and 55 per cent during the Fourth Plan). It has only been quite recently (1975) that the private sector, availing itself of the basic infrastructure put in place by the Government, has itself begun to invest: 45 per cent during the period 1973-1976 as opposed to only 27.8 per cent during the period 1962-1971.

The private and public sectors have contributed to the gross formation of fixed capital in agriculture in about the same proportions as they have to the gross formation of fixed capital in the economy as a whole. In recent years 57.2 per cent of the money invested in agriculture has come from the private sector as opposed to about 25 per cent during the period 1962-1971 (see annex 4).

The rapid growth in investment has led to an increasing need for capital. To provide this capital, the Tunisian Government has directed its attention to internal saving, which has in fact risen quite substantially, increasing from 10 per cent of GDP at the beginning of the period 1962-1971 to 25 per cent

at the end of the four-year period 1973-1976. Still, this effort has not been enough to keep pace with the growth in investment activity. The result has been a heavy reliance on foreign capital, particularly during the period between 1960 and 1967 when net external resources accounted on the average for nearly 50 per cent of the total capital requirement. During the Fourth Plan foreign contributions represented only about 15.5 per cent.

I.4. Credit facilities for agriculture

Since it gained its independence, Tunisia has established, under the control of the Central Bank of Tunisia, a banking system which is fully integrated within the national economy. In addition, a major effort has been made to provide credit for the promotion of the country's agricultural sector.

The National Bank of Tunisia, established primarily to promote the development of Tunisian agriculture, administers the largest portion by far of the public money set aside for agricultural lending. In addition, it grants loans from its own funds and from rediscounted bills of the Central Bank of Tunisia. It also manages and supervises the local lending banks (Caisses locales de crédit mutuel), which represent the country's second most important institution specializing in agricultural credit.

A variety of laws and regulations have been enacted and special funds established for the credit sector as a means of financing the following operations:

- The installation of watering points;
- Tree-planting programmes;
- The purchase of agricultural equipment;
- The purchase of irrigation equipment;
- The purchase of poultry-raising equipment;
- The purchase of imported cattle;
- The purchase of production factors (fertilizer, seeds, etc.);
- Agricultural construction;
- The purchase of fisheries equipment.

The principal funds operating in the agricultural credit area are the Special Fund for the Development of Agriculture (FOSDA) and the Special Fund for the Promotion of Fisheries (FOSEP).

The loans are generally granted at favourable interest rates and with substantial subsidies, depending on the size of the enterprise and the sector involved.

Because of a number of difficulties and constraints, however, these measures have had only a limited effect and the resources made available have remained inadequate. These difficulties are due, on the one hand, to certain specific aspects of Tunisian agriculture and, on the other, to the way the agricultural credit system is organized, although improvements have been made in this area - particularly since the failed experiment in collectivization of the 1960s - for the purpose of avoiding excessively complicated procedures and delays in the processing of loans.

Analysis of the history of lending activity by economic sector indicates that, despite a rising trend in agricultural credits, in relative terms these loans have declined somewhat in comparison with loans to other economic sectors, notably industry (see annex 5).

I.5. Education and vocational training

Since independence, a number of programmes have been undertaken to modernize and improve the system of education and vocational training so as to bring it into line with the increasing demands of the agricultural sector for supervisory personnel and skilled workers.

The achievements of the first ten-year period 1962-1971 were considerable: 606 engineers, 3,672 middle-level supervisors and 27,000 workers, including 5,000 with special skills, were trained in order to fill the gap left behind following the mass exodus of foreign technicians.

During the 1970s, the Government established seven technical colleges and two institutes, at which 88 senior engineers, 520 works engineers and 1,265 assistant engineers received training. In addition, 3,409 assistant technicians were trained during the same period at secondary agricultural training centres.

From 16 in 1970, the number of vocational training and retraining centres increased to 28 in 1980. During this decade 1,000 young people and 7,000 semi-skilled workers received training; 24,000 adults were enrolled in retraining and advanced training courses.

At the present time, with manpower requirements virtually satisfied as far as numbers are concerned, fresh efforts will be focused on adapting the content of this training to employment needs.

I.6. Agricultural extension services

Aware of the fact that the dissemination of information on modern farming methods is central to any effort to develop agriculture, the Government established an agricultural extension service during the 1967-1968 crop year.

In order to offset the lack of personnel and material resources, the initial focus was on spreading information among the broad strata of the farming community. At the regional level, these actions were supported by teams of technicians of different qualifications engaged in other activities in addition to their agricultural extension work.

In parallel, a number of technical assistance projects involving local extension services have been undertaken with the backing of donated equipment and supplies of various kinds. Finally, extension activities of a specific nature have been carried out through the organization of so-called "tree days", "sheep days", "harvest days", "orange-tree days", etc.

During the Fifth Plan the emphasis has been on local extension services through the establishment of a corps of "extension information officers" organized into so-called "territorial cells".

Taken together, these programmes have been generally beneficial in terms of increasing the awareness of the farmers and assisting them. Nevertheless, they have given rise to a number of problems stemming from the multiplicity of persons and organizations involved in agriculture and the need to co-ordinate the various extension activities, matching them to the resources and means made available to the growers by the ministries and service agencies involved.

I.7. Pricing and fiscal policy

Marketing and pricing policy is a key factor in the agricultural development effort. In the discussion that follows, only the major outlines of this policy will be reviewed.

In the case of agricultural products governed by the controlled marketing system (grains, olive oil, wine, sugar beets, etc.), the principle is one of guaranteeing the sale of these commodities at predetermined prices set in accordance with production cost trends and a reasonable level of productivity. In the case of products raised under no controls of any kind (vegetables, fruits, fish, meat, poultry, etc.), the intention is to regulate the market so as to match the supply and demand for these products as efficiently as possible.

Since 1970, a variety of fiscal incentives to promote agricultural development have been approved, which are used in addition to the assistance already made available by the General Equalization Fund (Caisse générale de compensation) in the form of subsidies such as those granted for concentrated animal feed, fuel, fertilizer, etc.

The main tax incentives accorded during the decade 1970-1980 are the following:

The revision of the inclusive tax schedule by the reduction, in 1971, of the tax payable on the sales of market-garden products from 4.2 to 3 per cent, and of the tax for arboriculture, excluding olive trees, vines, forests, cattle, poultry and agriculture from 5.5 to 3 per cent;

The extension to the agricultural sector of the profit reinvestment incentives;

The institution, in 1970, of an optional "real" system based on a taxable profit determined from a book profit and taxed at 15 per cent;

The exemption of plant and seed imports and sales from the production tax;

The reduction and in some cases the outright elimination of import duties on inputs for the agricultural sector;

The exemption of agricultural equipment from the production tax (the list of this equipment having been expanded to include crop-dusting aircraft, their spare parts, and agricultural services).

I.8. Income and employment policy

The two-fold objective of agricultural development is to ensure high and equitably distributed income levels for the growers and self-sufficiency in food for the country in order to lessen its dependence on foreign sources.

The incomes policy currently in effect aims at bringing about a substantial increase in productivity, narrowing the gap between the income of agricultural workers and workers in other sectors, and improving the distribution of income among the agricultural workers. Moreover, the Government's wages policy, which it has pursued since 1971, has reduced considerably the wage disparities previously observed between different branches of economic activity. The steps the Government has taken during the last few years have

concentrated for the most part on the introduction of a minimum guaranteed wage for agricultural workers based on periodic adjustments indexed to changes in the cost of living. As a result, minimum daily wages in this sector have increased from 1,200 dinars in 1970 to 1,631 dinars in 1980.

As far as employment is concerned, it would appear that there has been little change in the economically active agricultural population in the interval between the census of 1965 and that of 1975, and that the shifts in population that have occurred during these last few years have been offset by the natural growth of the rural population. If this trend continues, the active agricultural population will total some 700,000 by 1981. It is estimated that employment, as calculated in terms of working days, has remained much the same between 1976 and 1981, this situation being the result of the increase in working days due to the expansion of the stock-raising sector and in the growing of market-garden and industrial crops, an increase which has been offset by the loss of employment caused by the expected decline in olive-oil production and the mechanization of farming methods for the major crops.

The stable employment situation in the agricultural sector suggests that living conditions in the countryside have improved to the point where a maximum number of young people are willing to remain in the country's rural areas. This development will be further encouraged through the introduction of efficient but labour-intensive technology and the granting of certain social benefits to permanently employed agricultural workers.

II. THE INTRODUCTION OF GLOBAL AND SECTORAL PLANNING

Tunisia's decision in favour of a planned economy dates back to the decade of the 1960s. This choice was dictated by the need to co-ordinate and control the country's social and economic development. The modernization of the agricultural sector required massive imports of technical means of every description (water-management equipment, agricultural machinery, and other factors of production), in the operation and use of which it was necessary to acquire the requisite practical expertise. This situation made Tunisia dependent on outside suppliers for its means of production and inputs, without however enabling it to become independent in the area of food (grains, meat, etc.).

In order to lessen this dependence, if not eliminate it altogether, the Government has organized and developed those branches of industry which supply the equipment and products that are required in all sectors of Tunisian agriculture.

II.1. The objectives of planning

In over-all terms, the country's planning objectives during the decade 1970-1980 were the following:

Achievement and preservation of full employment for the new contingents of the active population;

Income distribution based on participation in the development effort and greater emphasis on social programmes for the least advantaged segments of the population;

Integration of education and training so as to make possible complete training and the gradual elimination of school drop-outs;

Self-sufficiency in the area of food with respect to basic agricultural commodities;

Strengthening of the country's industrial fabric through the promotion of industries producing durable goods;

Promotion of regional development on the basis of administrative decentralization and the encouragement of industrial dispersal;

Promotion of exports and a sound balance of trade.

As far as the major commodities are concerned, developments in the agricultural sector have varied very greatly according to the type of product produced. This pattern has been the result of the interaction of such factors as the evolution of Tunisian society (improvements in the standard of living together with a process of urbanization leading to an increase and diversification in the demand for food products), the agricultural development policies formulated and put into effect by the Government in co-operation with the more active members of the rural community, and the whole range of technical means made available to growers to enable them to increase their production (credits, production factors, extension services, and the results of experimentation).

The objectives of this agricultural development strategy in Tunisia may be summarized as follows:

- (1) To ensure that agricultural production will continue to grow at a rate sufficient to enhance the country's independence in so-called essential products (grains and animal products);
- (2) To sustain long-term growth in the agricultural sector by intensifying action to safeguard and mobilize natural resources;
- (3) To contribute to the improvement of the country's employment situation by creating permanent jobs in the fisheries and irrigated farming subsectors and by improving the employment rate and the retention of agricultural labour in the other subsectors.

II.2. The operational organization of planning

Agricultural planning in Tunisia has always been characterized by the setting of general national goals: the intensification and diversification of agriculture, and the gradual achievement of self-sufficiency in food. The principle underlying this approach is the modernization of the agricultural sector together with the acceleration of trade with other countries as a means of acquiring the foreign exchange and technology needed for the development of the Tunisian economy as a whole. The last of these requirements demands a sectoral concept of agricultural planning. The result is a series of programmes concerned with sectors of commercial interest. It should also be noted that this approach to planning is further justified by the search for external sources of financing for agricultural projects.

When considered from the point of view of the harmonious development of the entire society and the interests of the broad masses of that society, the logic of agricultural modernization in Tunisia must be based on the simultaneous development of both agriculture and industry.

II.3. The results achieved during the last two decades

The agricultural sector provides work for more than half of the country's total economically active population. What is more, it has indirect positive effects on the other sectors of the economy to a degree that is particularly evident in years of good harvests. Nevertheless, the expansion of this sector depends in large measure on investment in the industrial sectors which, on the one hand, supply the agricultural sector and, on the other, process its products.

Investment activity in industry since independence is analysed in the following sections.

(a) Industrialization during the first ten-year period

The emphasis during the first development decade was essentially on the establishment of basic infrastructure, the social and educational development of human resources, and all the other factors regarded as prerequisites for industrial development. During this period, the share of the investment volume in manufacturing industries constantly fluctuated between about 11 and 12 per cent of the total investment burden.

Analysis of this investment by subsectors indicates that during the First Plan high priority was given to the metallurgical and engineering industries (40 per cent), that during the Second Plan the textile industries received particular attention (26.4 per cent), while the Third Plan emphasized chemistry, wood, paper, and other sectors (20.2 per cent). During these three plans, the agriculture and food industries accounted for 14.2, 9.2 and 14.6 per cent of investment, respectively.

Further analysis of these investments reveals the preponderant role of the State, which contributed 84.7 per cent during the First Plan, 86.3 per cent during the Second Plan, and 61 per cent during the Third Plan. This trend reflects the Government's industrial policy, which was essentially pragmatic at the start. This policy may be summarized as follows:

"Tunisianization" and the reassertion of control over certain key sectors of the economy (electricity, gas, water, and transport);

Investment in basic or strategic sectors (steel, cement, fertilizers, etc.) where the capital requirements are too large for private enterprise;

Intervention in those sectors which represent a certain initial risk and which the Government has a responsibility to start, later turning them over to private enterprise.

This policy has given rise to a number of major basic industry projects designed to develop the country's natural resources to the point where they can be exported in the unprocessed state (esparto grass pulp, superphosphate, phosphoric acid, iron ore), to transform its agricultural products (milk, canned goods, tobacco, sugar), and to produce import-substitution items (sugar, leather, textiles, footwear, rolling-stock, mechanical and electrical equipment).

(b) Industrialization during the second development decade

The industrialization effort during this period has been governed essentially by the Four-Year Plan 1973-1976 and the Five-Year Plan 1977-1981 currently being implemented.

Analysis of investment activity during this period by subsectors points up the particular emphasis that has been given to the building materials industries (25.5 per cent during the Four-Year Plan and 30.5 per cent during the Five-Year Plan) and the chemical industries (17.3 and 23.2 per cent, respectively). In the case of metallurgical and mechanical and electrical engineering industries, investments are to increase from 11.4 per cent during the 1973-1976 Plan to nearly 18 per cent during the current Plan. In addition it is planned that this subsector will be pushed with particular vigour during the years to come. During the time covered by both these plans, the agriculture and food industries will have accounted for 21.6 and 13.7 per cent, respectively, of the gross formation of fixed capital in the manufacturing industry sector.

As part of this industrialization effort, the involvement of the private sector increased to 66 per cent of total investment during the 1973-1976 Plan from only 39 per cent during the previous Plan (1969-1972). This share has declined during the current Plan for the reason that the public sector must absorb 70 per cent of the expected investment burden. The main reason for the substantial scope of the involvement by the public sector at this time is the start of a number of highly capital-intensive projects for essential products (cement, steel, phosphoric acid, nitrogen fertilizers, etc.).

III. DEVELOPMENT OF THE ACTIVITIES OF THE INDUSTRIES ENGAGED IN THE PROCESSING OF AGRICULTURAL PRODUCTS

Of the numerous agricultural commodities which are in one way or the other subject to processing the principal ones are sugar and its derivatives, grains and their derivatives, agricultural canned goods, wines, olive oil, milk and milk products, tobacco, meat and fish, beverages, etc.

During the decade 1970-1980 the following goals were set for the agricultural and food industry sector:

The continued integration of agricultural production in the industrial transformation process;

The satisfaction of rising demand and the achievement of national self-sufficiency in processed agricultural commodities;

The achievement of an export surplus;

The creation of the largest possible number of employment opportunities;

Participation in interregional trade in a manner consistent with regional agricultural development.

It should be noted that during this same ten-year period more than 200 million dinars were invested in the agriculture and food industries sector. The bulk of this investment (80 per cent) came from the private sector. Between 1976 and 1978, 916 new agriculture and food industry projects were approved by the Investment Promotion Agency (API), most of them falling under the category of small- and medium-scale enterprise.

These results attest to the will of the authorities to assist Tunisian promoters wishing to undertake industrial ventures within the framework of the small- and medium-scale industry development programme. Actions of this kind are enabling the Tunisian Government to adopt a more organic and systematic approach to the problems involved in the development of small- and medium-scale enterprise, such as studies on the degree of resource utilization and the possibilities for increasing it, and thus to introduce, as required, the corrective measures necessary to ensure the harmonious growth of the small- and medium-scale enterprise sector within the context of the country's economic and technical planning.

The structures and institutions which already exist have won high praise for the commendable way in which they are performing their tasks.

The institutional framework in support of the programmes for the development of the agriculture and food industries consists, specifically, of the following organizations:

The National Centre for Industrial Studies (Centre national d'études industrielles), which is responsible for preparing sectoral studies of a general nature and the technical and economic feasibility studies required for credit applications;

The Investment Promotion Agency (Agence de promotion des investissements), which is responsible for examining and approving projects;

The Industrial Land Agency (Agence foncière industrielle), which is responsible for the management of land for use as plant sites;

FOPRODI (Industrial Decentralization and Promotion Fund), which has been set up to assist entrepreneurs and small- and medium-scale enterprise and to encourage industrial dispersal through the granting of subsidies and soft loans and by assuming the responsibility for infrastructure construction projects.

The integration that has been achieved in the agro-industry sector is principally of the vertical kind. This kind of integration aims essentially at the development of agricultural products and for that reason promotes processing activities of a seasonal nature. More recently, there has been a trend towards greater horizontal integration, involving the processing of by-products. This newly emerging trend requires of the production units that they both diversify their production lines, introducing into them a degree of complementarity, and acquire the ability to operate in more than one area.

An example of production units of the kind that permit an increasingly high degree of horizontal integration in the agro-industry sector can be seen in the agricultural combines and in certain large poultry-raising enterprises. In fact, the combine structure appears to be extremely well suited to this form of agro-industry integration and may be expected to yield important economic benefits through reduced costs and diversified production as well as through increased labour productivity.

IV. THE INSTITUTIONAL FRAMEWORK FOR THE INTEGRATION OF INDUSTRIAL AND AGRICULTURAL ACTIVITIES

Of an importance not to be overlooked among the basic elements of the policy of agricultural industrialization is the institutional framework, which we shall classify under six categories according to the principal areas of activity of the institutions in question. These institutions have a bearing on all aspects connected with the encouragement of development, the promotion of production, marketing, extension services, supply, coordination and organization, certain specific projects, etc.

IV.1. Development institutions

These institutions are represented primarily by the land development offices. The first of these offices was OMVVM or the Office for the Development of the Lower Medjerdah Valley, which is located in the north-eastern part of the country and covers an area of 30,000 hectares. The mission of this public institution was to provide for the distribution of water for irrigation, the improvement of the State-owned lands, the distribution of land once all the prerequisites for good farming had been created, the dissemination of information on modern growing methods, the promotion of the use of agricultural equipment, chemical fertilizers, and disease-control agents, and finally the marketing of a portion of the agricultural products grown on the irrigated public lands.

By 1980, OMVVM had seen its role expanded to include all the public irrigated districts of the country.

In addition to OMVVM, four other land development offices have been created: OMIVAN for the Nebhana region, OMIVAL for the Lakhmès region, OPPIJ for the Jendouba region, and SONMIVAS for the southern region. Moreover, six new development offices are in the process of being established for the regions of Jendouba, Nabeul, Kairouan, Kasserine, Sidi-Bouzyd, Gafsa, Tozeur, Gabès, and Médenine.

IV.2. Research and extension institutions

Agricultural research in Tunisia is conducted by the National Institute of Agricultural Research (INRAT), the National Institute of Agriculture (INAT), and the Institute of Zootechnical and Agricultural Research (IRZA), whose function is to select the plant varieties and animal breeds best suited to the local conditions of the country. In the agro-industry area, the National Institute of Nutrition, the Institute of Food Technology and the Central Laboratory are responsible for monitoring the quality of processed agricultural products and disseminating information on new methods.

The Agricultural Extension Service Office of the Ministry of Agriculture is responsible for disseminating the results of agricultural research.

IV.3. Production institutions

There are a number of institutions operating in the Tunisian agriculture and food sector. Some, like the Office of Public Lands and the National Fisheries Office, work directly in the area of agricultural production; some, like the Grains Office, the National Oil Office, and the Wine Office, are engaged in the marketing of agricultural products; some, like the Office for Animal Husbandry and Pasture Lands, are involved in promotion; and still others, like STIL, the National Tobacco Monopoly, the Ellouhoum Company, the Tunisian Sugar Company, etc., are concerned with the processing of agricultural commodities.

For the marketing of the country's principal agricultural products (grains, olive oil, and wine), the Government has established special offices, such as the Grains Office, the National Oil Office, and the Wine Office, which are responsible for regulating the market for these commodities and for assisting Tunisian producers through a variety of direct and indirect benefits:

Guaranteed sales outlets for agricultural production;

Growing season credits for each activity;

Equipment credits for the modernization of the means of production;

The integration of agricultural production in the industrial transformation process;

Access to foreign markets;

The introduction of innovations in the areas of cultivation practices and equipment;

Assistance in controlling parasitic diseases and encouragement of the use of chemical agents.

The importance of the role played by these institutions can be seen in the figures for their share of investment and production in respect of overall agricultural investment and total production in each activity. The total investment flow channelled through these institutions goes towards the development and industrialization of Tunisian agriculture.

During the current Five-Year Plan (1977-1981) the public institutions have accounted for the following shares of the investments allocated to the subsectors indicated;

Subsectors	Share of public institutions	Share of private sector	Total
Forests and CES	100 %	-	100 %
Agricultural water management	93 %	7 %	100 %
Stock-raising	42 %	53 %	100 %
Arboriculture	4 %	56 %	100 %
Agricultural equipment	9 %	92 %	100 %
Fisheries and port infrastructure	73 %	27 %	100 %
Studies and extension services	100 %	-	100 %
Total	66 %	34 %	100 %

With the exception of the subsectors "arboriculture" and "agricultural equipment", where the role of the public institutions is very modest, in all the other subsectors they frequently account for the major share of the investment. In addition, the importance of this role can likewise be seen in their contribution to the total investment figure for agriculture, which amounts to around 66 per cent.

With respect to production, the following table indicates the share accounted for by the private and public sectors in each of the agricultural activities indicated during 1978:

Activities	Share of public institutions	Share of private sector	Total
Cultivation of cereals	8 %	92 %	100 %
Arboriculture	14 %	86 %	100 %
Market-garden crops	24 %	76 %	100 %
Fodder production	74 %	26 %	100 %
Industrial crops	40 %	60 %	100 %
Fisheries	17 %	83 %	100 %

Source: Economic Budget.

Although in terms of agricultural production as such the extent of the influence of the public institutions varies from one activity to another, the total effect is to give clear evidence of the political will to modernize the Tunisian agricultural sector.

IV.4. Service institutions

There are a large number of service institutions working on behalf of agro-industrial development in Tunisia. Among the principal organizations of this kind are the National Company for Mechanized Farming, the National Company for the Protection of Plant Life, the service co-operatives, the regional transport companies, etc.

The main responsibilities of these organizations are to make available to growers the equipment they require for the preparation of the soil and the treatment and harvesting of crops, to establish repair-shops for the servicing and maintenance of the country's agricultural machine pool, and to assist farmers commercially by supplying them with all the items they require and helping them to market their products.

IV.5. Co-ordination institutions and interprofessional bodies

Regional Agricultural Development Offices (CRDAs) have been established in each governorate. These offices are responsible for all the regional services of the Ministry of Agriculture. They have an important function in participating in the extension services for the farming community.

The work of the interprofessional bodies extends simultaneously into the areas of supply, production assistance, and marketing. These bodies include the Interprofessional Citrus and Fruit Association, the Interprofessional Vegetable Association, the Interprofessional Date Association, the Obligatory Association of Wine-Growers, and the Interprofessional Canned Foods Association.

IV.6. Specific projects

Among its programmes in the field of agriculture, the Tunisian Government has, with the assistance of specialized international organizations, in particular the United Nations Food and Agriculture Organization (FAO) and the Swedish International Development Authority (SIDA), and the aid of friendly countries, undertaken a variety of more or less specialized projects designed to be of limited duration and local impact.

The objectives pursued in these projects are of two kinds:

To increase agricultural production through the introduction of new growing methods;

To check the exodus of the rural population.

CONCLUSIONS

The conclusions to be drawn from the foregoing observations are the following:

Since independence, the role of the State in Tunisia in promoting the development of agro-industry has been a real and predominant factor within the over-all context of the country's economic and social development.

This promotional effort has extended to all areas of basic infrastructure in both the agricultural and industrial sectors.

In the agricultural sector, these promotional activities have been carried out on the basis of established priorities: water management, the cultivation of cereal crops, and stock-raising.

Although ultimately based on a comprehensive model, Tunisian planning is systematically readjusted to provide the programmes needed in each sector of the national economy.

Under the provisions of the Fifth Plan, virtually all the country's water resources will be harnessed through the building of dams; the large irrigated areas are situated for the most part in the upper and middle Medjerda Valley.

The concentration of the development effort on a few sectors (water management and poultry raising) will give rise to problems concerning supply and the sale of the production. The operation of the large irrigated zones will make it necessary to bring the technical services closer to the growers. These considerations justify the recent establishment of six new land development offices.

The concentration of the agricultural commodity processing units in the vicinity of the major urban centres is resulting in bottlenecks in the supply of raw materials. Through POPRODI, the Government is engaged in a genuine effort to bring about industrial dispersal, but so far these efforts have produced only partial results.

The new national policy in the area of agro-industry should, by taking advantage of scientific progress and advances, develop and improve specific technologies appropriate to the social and economic conditions of the country. Not only should the aim in the development of these technologies be total national integration (i.e. the production of all constituent components in Tunisia), but the technical choices involved must be made with an eye to the mobilization and rational use of the country's human and natural resources. This purposeful marshalling of human and technical assets is all the more imperative considering that the agricultural population is not expected to increase.

In the light of the disparities that exist between the targets that have been set for Tunisian agriculture and the results that have been achieved, fresh thought must be given to this sector. This thinking must be informed by a policy designed to encourage study and research within a larger programme providing for clearly defined priorities.

Accordingly, a decentralized agricultural plan broken down by individual regions and based primarily on the mobilization of the creative will of the peasants can be used as an effective tool for the development of the rural zones. The new technical choices hold the key to the maximally effective exploitation of natural resources which are in fact quite adequate to ensure that Tunisia can become self-sufficient in food.

In the agro-industry area, the industrialization effort mounted to date has provided Tunisia with a significant capacity for the industrial processing of agricultural commodities. The task of the next few years, therefore, should be to strengthen the existing industries and to increase the level of integration, specifically by promoting the agricultural machinery industries (up-stream) and by developing agricultural by-products through further processing (down-stream).

Because of the small size of the Tunisian market, it will be necessary to continue the effort to promote exports by seeking new markets and by improving the competitiveness of domestic producers. This in turn will require the lowering of production costs and the introduction of industrial quality-control standards.

Under these conditions, the agriculture and food industry sector may well become an important arena of development during the decade ahead.

Annex 1Gross Domestic Product (GDP) in agriculture
and other sectors of the national economy
1962-1976

Unit: millions of dinars

Year	GDP in agri- culture	GDP in the other sectors (indus- tries and services)	Total GDP	Agriculture GDP as a percentage of the total GDP
<u>In constant prices for</u>				
<u>1966</u>				
1962	75.7	254.4	330.1	22.9
1963	105.5	268.3	373.8	28.2
1964	90.7	295.0	385.7	23.5
1965	103.8	301.5	405.3	25.6
1966	92.6	314.6	407.2	22.7
1967	82.9	319.9	402.8	20.6
1968	96.4	347.0	443.4	21.7
1969	87.6	368.5	456.1	19.2
1970	93.0	390.7	483.7	19.2
1971	116.0	420.2	536.2	21.6
<u>In constant prices for</u>				
<u>1972</u>				
1972	228.2	719.2	947.4	24.1
1973	206.7	737.7	944.4	21.9
1974	231.4	811.8	1 043.2	22.2
1975	238.1	897.0	1 135.1	20.9
1976	272.8	897.5	1 270.3	21.5

Annex 2Investment patterns under the various development plans

Unit: millions of dinars

Annex 3

Breakdown of investment by subsector

	Fourth Plan (1973-1976)		Projections for Fifth Plan (1977-1981)	
	Millions of dinars	%	Millions of dinars	%
Water management	47.0	23.4	221.8	44
Stock-raising	23.0	11.4	60.0	12
Fisheries	18.5	9.2	44.4	9
Arboriculture	26.5	13.2	54.7	11
Agricultural equipment	59.0	29.3	74.8	15
Forests and CES	14.6	7.2	27	5
Studies, research, extension services	7.7	3.8	17.3	4
Others	5.1	2.5	-	-

Annex 4

Gross formation of fixed capital by sector under the various development plans

	Ten-year Plan (1962-1971)		Third Plan (1969-1972)		Fourth Plan (1973-1976)		Projections for Fifth Plan (1971-1981)	
	Millions of dinars	%	Millions of dinars	%	Millions of dinars	%	Millions of dinars	%
Government	447.1	36	195	29	287.6	18	750.0	17.9
Public Enterprises	449.7	36.2	240	37	592.4	37	1 720.0	40.9
Private Enterprises	236.9	19.1	150	23	491.3	31	1 150.0	27.4
Households	107.5	8.7	70	11	231.7	14	580.0	13.6
TOTAL	1 241.2	100.0	655	100.0	1 603.0	100.0	4 200.0	100.0

Gross formation of fixed capital in agriculture
during the period 1973-1976

(in millions of dinars)

Government	59.5	29.5
Public Enterprises	26.5	13.2
Private Enterprises	115.5	57.2
TOTAL	<u>201.5</u>	<u>100.0</u>

Annex 5

Breakdown of credits granted by economic sector
(in millions of dinars)

Year	1970	1973	1976	1978
<u>Agriculture</u>	23 427	32 084	58 057	81 293
Industry	88 987	144 618	337 773	497 584
Services	77 220	161 575	381 994	474 889
TOTAL	189 634	338 277	777 824	1 053 746
<u>Relative shares (%)</u>				
Agriculture	12.4	9.5	7.5	7.7
Industry	46.9	42.7	43.4	47.2
Services	40.7	47.8	49.1	45.1

Source: Risks Department; reports of the Central Bank of Tunisia.

