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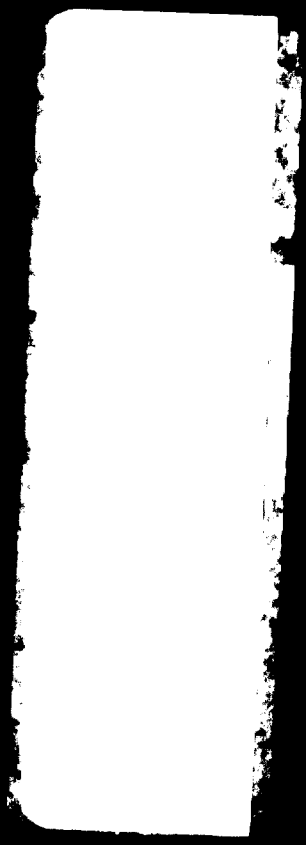
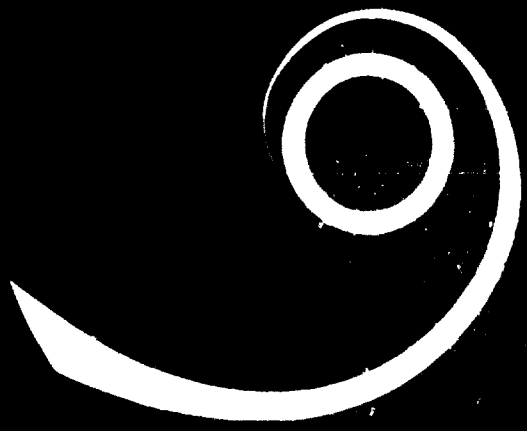
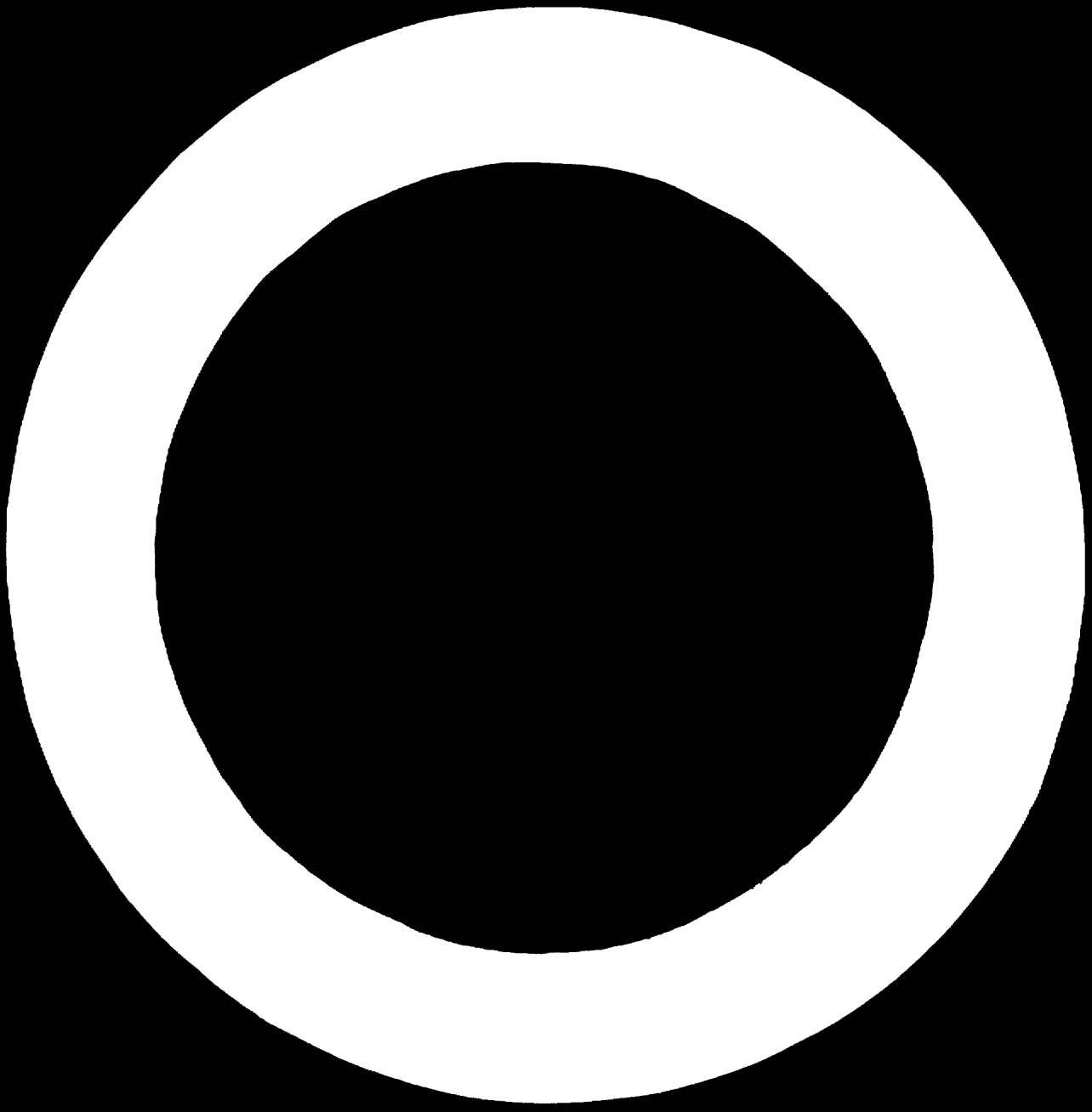
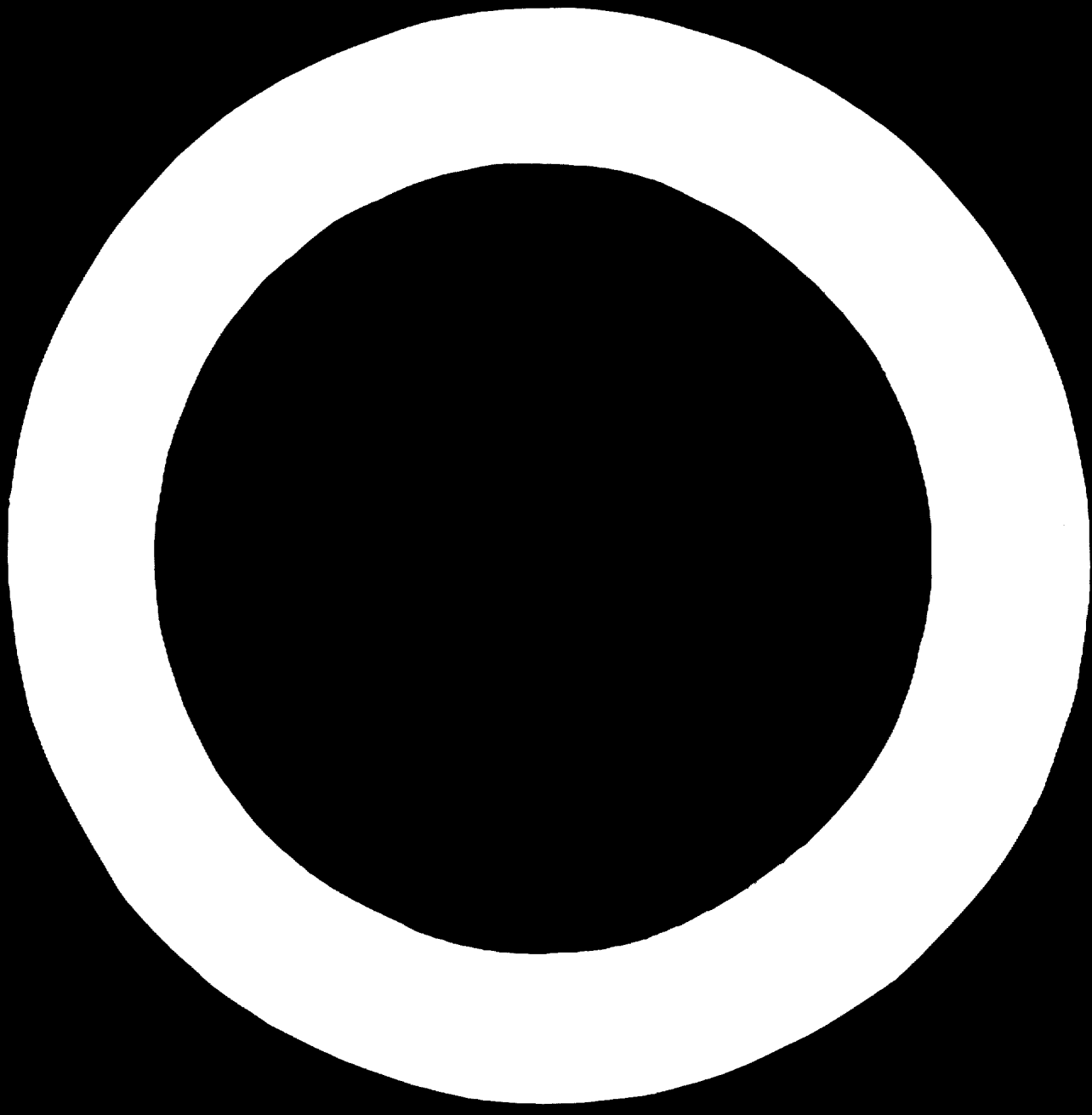
Industrial development

in the ARAB COUNTRIES









INDUSTRIAL DEVELOPMENT IN THE ARAB COUNTRIES

PART I Progress and problems

PART II Development of key industries

PART III Industrial situation in
Iraq • Jordan • Kuwait • Lebanon
Saudi Arabia • Syria and Yemen

Selected documents presented to the Symposium on Industrial Development in the Arab Countries

Kuwait, 1-10 March 1966

UNITED NATIONS
New York, 1967

NOTE

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INTRODUCTION

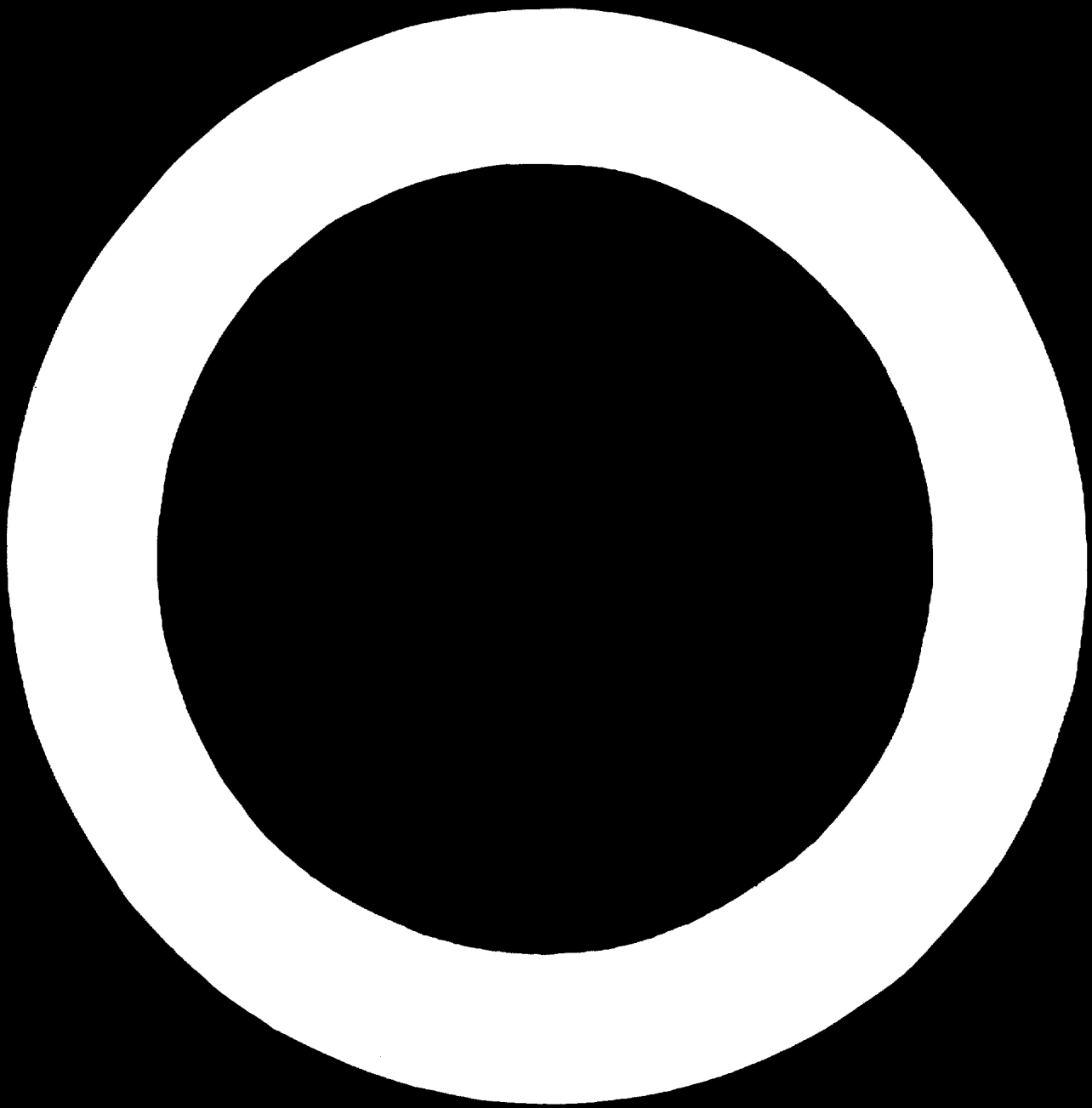
The United Nations General Assembly at its eighteenth session in 1963 adopted resolution 1940 (XVIII) calling for the convening of an International Symposium on Industrial Development, to be preceded as appropriate by regional and sub-regional symposia which would prepare the ground for the international symposium.

In accordance with this resolution, regional symposia were held in Asia and the Far East (December 1965), Africa[1] (January 1966) and Latin America (March 1966) under the auspices of the United Nations economic commissions of the respective regions, in co-operation with the United Nations Centre for Industrial Development at Headquarters. During the same period, a Symposium on Industrial Development in the Arab Countries was held from 1 to 10 March 1966 at the invitation of the Government of Kuwait, with the technical co-operation of the United Nations and in particular of the United Nations Economic and Social Office in Beirut.

The present volume contains extracts of selected documents presented to the Symposium on Industrial Development in the Arab Countries.

The purpose of the regional meetings was to study the existing situation and future prospects for industrial development in each region and to consider possible action which could be taken on a national, regional and international level to accelerate industrial development.

[1] Of the countries participating in the Symposium on Industrial Development in Africa, the following countries also participated in the Symposium on the Industrial Development of the Arab Countries: Algeria, Libya, Morocco, Sudan, Tunisia and the United Arab Republic.



Part I. PROGRESS AND PROBLEMS

A. *Co-operation in the Arab world to promote programmes of industrial development*

1. Integration of industrial development in the Arab world[1]

In the Arab countries there is a strong desire to develop the industrial sector of the economy. This desire is reflected in the numerous economic development plans that have been, or are about to be implemented. However, regardless of the varying degrees of progress that have been achieved, particularly during the last decade, one cannot consider that the Arab world, looked upon as a unit, has developed sufficiently to warrant its inclusion among the industrially advanced regions or countries of the world.

Arab industries are mainly of the light consumer goods type that rely on the processing of available domestic raw materials to meet part of the local demand. Furthermore, the small-scale establishment is the dominant type of industrial enterprise in the Arab world.

Small-scale production has contributed to the inefficiency that prevails in Arab industrial establishments. Reliance on primitive methods and equipment has had the inevitable result that Arab industry has failed to benefit from recent scientific and technological advances. This gives rise to two problems: first, the high production costs affect local consumers and the ability of Arab industrial products to compete in foreign markets; secondly, Arab industries are in general compelled to operate behind tariff walls.

With regard to the extractive industries (mining and quarrying), it can be safely said that this vital field has not been sufficiently developed. Furthermore, the role played by most Arab countries has been confined to the extraction and export of minerals (phosphate, iron ore, manganese, petroleum etc.) in crude form. Modification of this policy is desirable as part of the over-all industrialization policies that are being formulated.

Despite prevailing industrial backwardness in the Arab countries, progress is being made. Development is, however, individualistic in inclination, aim and style. Each political entity in the Arab world formulates and implements industrialization plans within its political frontiers and with a view to the realization of its own particular aims. However, it may not be appropriate to condemn this approach as it contains the solution, or part of the solution, to the problem of industrial underdevelopment.

This individualistic tendency does not take sufficiently into account a number of other factors, the most important of which is the limited size of the domestic market in each Arab country.

Observation of a number of existing industries in more than one Arab country shows that the ideal size of an industrial project is often not given sufficient consideration by the authorities concerned with industrial development. This attitude may, perhaps, be explained by the reliance of the authorities on tariff protection for local industries.

The result may be unhealthy competition, as evidenced in the case of two industries in particular. The first is the iron and steel industry, which already exists in the United Arab Republic, has been started in Tunisia, and is being planned in Iraq and Syria. The latter two countries seem to have planned for the establishment of such an industry despite the fact that success in this field requires the fulfilment of certain conditions such as the existence of a large market, whether internal or external; investment of very considerable human and financial resources; and the establishment or existence of subsidiary industries based on the wastes and by-products of the iron and steel industry. The second example is the petrochemical industry. This is a highly complex and dynamic industry that uses advanced technological processes and requires considerable capital and large markets. The petrochemical industry also faces strong competition from industrial countries that have acquired wide experience and have greater potentialities in this field. Nevertheless, Arab countries producing petroleum and natural gas are insisting on, or seriously considering, the establishment of petrochemical industries. The results may prove to be disappointing in the long run.

Other examples may be found which show the risks implicit in the tendency to industrialize each Arab country in isolation from the developments that are taking place in other Arab countries.

Co-operation among the various Arab countries in the matter of the type and size of the industry to be developed will assist in achieving the following results:

(*a*) Develop specialization in production, whereby each country concentrates on branches of industrial activity in which it has a comparative advantage; this will lead to the acquisition of experience and skills, raise standards of efficiency, and improve the quality of output to the extent necessary to enable such industries to compete with goods produced in countries well established in the field of industrialization;

(*b*) Minimize handicaps resulting from the scarcity of some factors of production such as capital, raw materials and skilled labour;

(*c*) Permit the best use to be made of the natural endowments of each country; this will discourage the establishment of industries in countries where they do not possess the necessary ingredients for success;

(*d*) Gradually raise the rate of development, especially in countries which have not been growing as fast as other countries in the area;

(*e*) Exercise a desirable impact on the other sectors of the economy, thereby expanding the volume of trade

[1] Paper presented by the Union of Arab Engineers.

and services among the Arab countries, expecially in the field of transport and communications;

(*f*) Permit the Arab countries in the long term to take their place among the industrially advanced regions and countries of the world, thereby enhancing their economic bargaining position on the international level;

(*g*) Lead to the eventual transformation of the Arab countries into a single market, representing a practical step in the direction of establishing an Arab common market on a firm and sound basis.

Notwithstanding these potential advantages of integration, it is acknowledged that there will be some small-scale industries that can best be established on a purely domestic basis. This will apply to certain industries for whose products the demand is mainly local, either because it is related to standards of living and consumers' tastes or because external demand is insufficient. Such industries would have to be established as domestic industries in accordance with the circumstances and requirements of each country. Integration is concerned more particularly with those major industries that can satisfy demand in more than one country, or whose establishment on the basis of specialization among the Arab countries proves rewarding.

A number of objections may be raised to integration; first, integration, which calls for the establishment of an Arab common market, may result in conflict with existing industrial interests which will be adversely affected by the implementation of such a step; secondly, integration may necessitate the introduction of basic modifications to existing industrial plans and structures; thirdly, integration favours the more industrially advanced Arab countries at the expense of the poorer and less industrialized countries.

No doubt some industries may be adversely affected or even cease operation. However, this may prove to be in the general interest of industrial development in the Arab countries. In the long run, it may be desirable that uneconomic industries, established without careful study, should cease operation.

The fact that some changes will have to take place in the industrial plans and structures of the Arab countries is both necessary and useful. Such changes will eliminate inherent contradictions and weaknesses and will enable development to proceed at a faster pace. These developments will be felt more in the case of plans that are being formulated or that are still in the early stages of implementation. Such plans may have to be reformulated in line with the requirements of regional integration.

It must be emphasized that no one Arab country possesses sufficient quantities of all the factors of production. Arab countries must, therefore, eliminate industries in which they do not have a comparative advantage and concentrate on those in which specialization is possible. Such action is in the interest of all the countries concerned.

We discuss below the measures needed to attain integration of industrial development in the Arab countries. An Arab industrialization agency should be established with the following functions:

(*a*) To conduct comprehensive and scientific studies of available potentialities and resources and of current needs and future requirements, and to study the conditions of industrial production in each Arab country with respect to types, costs and marketing in the domestic and external markets, and the problems encountered by industrial enterprises; this step requires that Arab countries supply the proposed agency with accurate information and statistics;

(*b*) To examine current industrial programmes and plans in each country separately in order to co-ordinate efforts in this field, minimize conflict and prevent the rise of unhealthy competition;

(*c*) To examine the possibilities for industrial production in areas selected for regional co-operation, such examination to concentrate on a limited period of five or ten years;

(*d*) To estimate, in accordance with principles to be agreed upon, the implementation period, the costs in local and foreign currencies and the required technical and organizational skills.

Upon completion of this study, a joint plan of action should be formulated. This plan would define the order of priorities to be accorded to the different industries and specify the means and areas of implementation in a manner that took account of both collective and individual interests.

Such a procedure would permit the achievement of the following objectives: Exploitation of idle resources; Assurance that work was commenced only on those lines of production where all or most of the elements necessary for success had been ensured; Application of the principle of the division of labour on a regional level, and specialization in branches of industry yielding the highest rate of return; Elimination of existing harmful competition; Gradual elimination of existing discrepancies in the levels of industrial development among different Arab countries.

Agreement would also be required on a common plan for industrial financing. Such an agreement should cover the steps described below.

First, an Arab industrial financing institution (or bank) would be established, its capital to consist of contributions by members of the Arab League and oil concessionaries operating in the Arab countries. The contribution of the concessionaries would be fixed in accordance with their ability to pay or on the basis of their average earnings during a specific period of time. Individuals and companies might also subscribe to the capital of the institution (or bank).

The institution (or bank) would extend medium- and long-term loans to finance the expansion, renewal and construction of industrial projects included in the over-all plan, such loans to be extended only after the bank had ascertained that the required financing was not available locally. Sufficient collateral for the repayment of such loans would have to be provided by member States.

A second step would be the encouragement of direct participation in industrial undertakings, provided that adequate guarantees were given for the remitting of interest and capital, and against nationalization, as stipulated in the law of the African-Arab Bank. Such guarantees would have to be incorporated in an inter-Arab agreement.

A third step would be the organization of procedures for obtaining loans, both from Arab countries and abroad. A special body would have to be set up for the purpose to define the duration and the rate of interest to be charged on the loans. Sufficient collateral must be provided for the repayment of the loans in the

currency in which they were extended. The special body would also undertake, in collaboration with the proposed industrial institution and the country concerned, the task of negotiating loans to finance the industrial development plan with private foreign institutions and the United Nations.

A prerequisite for the launching of a successful industrialization programme is the presence of highly qualified human resources. This requires the adoption of the measures indicated below. Arab institutes must be established to deal with statistics, planning, administration and management (with curricula emphasizing, above all, matters relating to the industrial sector). Such institutes would provide sufficient numbers of graduates for employment in various common Arab projects.

There must be an increase in the exchange of industrial experts and technicians between Arab countries. In that connexion, it might be advisable to prepare a list of such experts and technicians, arranged according to their different fields of specialization, leaving to each Arab country the freedom of choice of experts and technicians.

Restrictions must be removed on the movement of industrial labour, especially skilled labour, and sufficient material and social amenities provided for the labour force.

Agreement must be reached among the Arab countries concerning the standardization of specifications of industrial products.

Industrial development will be deficient and will fail to attain its real objective, namely, integration, if it is not accompanied by a co-ordinated and comprehensive plan in the field of transportation and communication. This requires, first, the standardization of gauges and the raising of efficiency of the railway system, and, secondly, the expansion of inland road networks connecting neighbouring Arab countries with one another. Perhaps the time has come to reactivate one such project, namely, the inland road connecting the Mediterranean Sea to the Arabian Gulf. The purpose of building this road is to link the sea ports of Beirut, Tripoli and Latakia, on the one hand, to those of Basra, Kuwait and Dammam on the Arabian Gulf, on the other, with subsidiary roads branching to important centres in Iraq, Jordan, Saudi Arabia and Syria.

The United Nations can also assist in the programme of integrating industrial development in the Arab countries through its different organs and specialized agencies and through other institutions that are closely related to it by providing technical experience and know-how along the lines indicated below.

The United Nations could organize geological missions to co-operate with Arab specialists in undertaking comprehensive geological surveys and exploration works to determine the availability of minerals, location and magnitude of reserves, and to assess the prospects of the commercial exploitation of such deposits. Such operations should be comprehensive and on a large scale. It is important to point out that it is not enough for the United Nations to provide experts and technicians; it should, rather, provide modern equipment and machinery.

The United Nations could provide assistance in the fields of statistics, technology and industrial management and planning. While it is true that the United Nations has extended assistance to the Arab countries in other areas, it is important to place more emphasis on the industrial aspects of economic development. The United Nations could contribute financially and technically to the establishment of the proposed institutions. In fact, the United Nations might find it necessary to establish such institutions and to finance the training programmes.

The International Bank for Reconstruction and Development might also have to expand the scope of its activities in the field of industry in co-operation with the proposed Arab industrial bank.

The organization by the United Nations of periodic conferences for the Arab countries to discuss the different aspects of industrial development would be useful.

2. Industrial development planning in the Arab countries[2]

A general review of industrialization in the Arab countries

Efforts are being made to develop the industrial sector in member countries of the Arab League. In Saudi Arabia, iron and steel and cement industries are being established. In Kuwait, progress is being made in the cement and petrochemical industries. The Sudan is giving special attention to the development of the sugar, cotton spinning, weaving, tanning, paper, cement, plastics and foodstuffs industries. In Jordan, cotton textiles, oil refining, rope, hides, cement and batteries are making headway. In Iraq, similar progress is being made in the textile and food-preserving industries and in oil refining. Iraq has recently embarked on the implementation of an extensive industrial programme within the five-year plan 1965-1969. Total investment in this Iraqi industrial programme is estimated at ID 187.2 million.

In the United Arab Republic, industrial production has increased very considerably over the last ten years as a result of the execution of the industrial projects included in the first industrial programme, 1957-1960, and in the first five-year plan, which ended in July 1965. At present, an extensive industrial programme representing an investment of L.E. 1,000 million is in progress in the second five-year plan, 1965-1970. One of the main targets of the present industrial programme in the United Arab Republic is the promotion of heavy industry such as iron and steel, engineering and chemicals.

Industrial development in the area is characterized by several features. First, the average rate of industrial development varies considerably from one country to another. Second, the level of industrial development in the Arab League countries is, in general, still in the

[2] Paper presented by the General Secretariat of the League of Arab States.

first phase.[3] Even in Egypt, the most industrially advanced country of the area, industrialization is still in the first phase, though about to enter the second phase. Third, in these countries industrial activities are not yet co-ordinated or integrated at the regional level.

It is expedient to highlight some of the social features of the region which affect the progress of industrialization in the Arab countries. Two such characteristics suggest themselves. First, the level of economic and social progress in all the Arab countries indicates that these countries are still in the early stages of development in terms of the level of *per capita* income, production, education (especially higher education), scientific research, and the level of technological progress and administrative organization. Second, there is a marked contrast in the degree of sectoral growth of industry between one Arab country and the other. This sectoral contrast persists in the economic and social fields in Arab countries irrespective of the prevailing political régimes and economic systems.

These features of the social milieu in the Arab countries, together with the contrasting level of industrial development, undoubtedly exercise a considerable effect on the shape of their future and on the choice of industrial policy.

Major problems of industrial development planning in the Arab countries

The process of industrial development in the developing countries gives rise to many problems, some of which are purely economic or political, while others have socio-economic dimensions. Among the latter is the controversy regarding the ultimate goal of industrial development: is it to raise production or to increase the opportunities of remunerative employment in the country?

Where these problems can be approached on an individual country basis, their solution is greatly facilitated. However, if the problems under consideration are regional, covering many countries with varying economic, social and political characteristics, their solution becomes difficult. It may well be that what suits one region or country may not apply to the other, because of the political, economic and social differences in the various countries.

With this in mind, an attempt is made below to outline the main problems confronting the progress of industrial development in the Arab countries. However, it should be emphasized that the discussion of these problems does not aim at providing decisive solutions and specific opinions or policies. The aim is to encourage a discussion which may prove helpful to the co-ordination of industrial development.

[3] Industrial phases indicate the relative position of various industrial units in the industrial structure of a country. Professor Hoffman divides the process of industrialization into four main phases, depending on the relative importance of industries producing consumer goods and those producing capital goods. In the first phase, consumed goods rank high in industrial production, amounting to about five times the net production of capital goods. With the development of industry, capital goods gradually grow in importance until the ratio is reversed, i.e. when their production amounts to five times the production of consumer goods, at which stage the fourth or last phase of industrialization will be reached. *See* W. G. Hoffman, *The Growth of Industrial Economics* (Oxford University Press, 1958), pp. 1-5. Accordingly, the statement that industrialization in a certain country is still in its first phase indicates that production of traditional consumer goods still constitutes the bulk of total industrial production.

The main problems facing industrial development planning in the Arab countries are enumerated below.

Choice of the production technique

Choice of production technique is closely related to the two main factors of production, capital and labour. The national reconciliation of these two factors will ultimately shape the level of economic and social development in any country as well as influence the structure of its industrial growth.

The importance of this choice in the Arab world is clear in view of the wide variations in the availability of labour and capital. Thus, whereas in Kuwait there is an abundance of capital funds and a shortage of labour, other countries, such as Egypt, suffer from a reversed relationship between the two factors. Moreover, countries like Sudan and Jordan suffer from a shortage in both capital and skilled labour.

These variations in the availability of capital and labour pose an acute problem, especially in drawing up a common or regional plan for industrial development in the area as a whole. What renders the problem even more acute are the divergences in the economic systems as well as in the social and political régimes in the Arab countries, as most of the decisions regarding the quality of the factor of production to be employed have social and economic implications.

Choice of the type of industry

Countries with recent experience in industrial development are confronted with a choice of the type of industry to be established. This choice assumes greater significance in countries with comprehensive planning and in those in which the State plays a significant role in economic activity. In the private enterprise or capitalist countries, effective demand is the chief determinant of the nature of industrial output. The situation is different in the centrally planned economies. Here, while the demand for capital goods may be limited by the small demand for consumer goods the State may nevertheless decide to give priority to the promotion of industries producing capital goods for which the demand is expected to rise, *pari passu*, with industrialization. Accordingly, industries producing capital goods may be favoured at the expense of those producing consumer goods during the first stages of industrialization.

The choice of the type of industry is not confined to a selection of one of the three basic groups of industry (i.e. industries producing consumer goods, capital goods or intermediate goods), but also includes the selection of the type of industry within each group.

Variations in the levels of economic and educational development among the various Arab countries are a factor in the choice of industries. In Egypt, for example, the level of education and economic development in general, and the level of higher education and industrial growth in particular, seem to encourage the expansion of industries producing capital goods. In the Sudan, the same considerations do not appear to warrant the encouragement of such industries, but call for the expansion of industries producing consumer goods.

Conditions in Kuwait, which enjoys the highest *per capita* income in the world, seem to favour the establishment of industries producing luxury consumer goods. On the other hand, conditions in Jordan (where the level of *per capita* income is much lower than that

of Kuwait) may favour the development of industries producing essential consumer goods.

Selection of location for industrial projects

The location for industrial projects has become one of the important factors of industrial development planning in the Arab world owing to the size of the area and the great variations in geographic, economic, social, political, national and historical circumstances. Each country is divided into various regions, districts or provinces *(mohafazats)*, and each of these regions differs from the other with respect to natural and human resources, as well as geographic structure. There are also variations in income among various regions within the same country.

If, for the sake of argument, each country in the Arab world is regarded as a single region, the wide discrepancy in the income levels of the various Arab regions becomes apparent. Thus, *per capita* income in Kuwait is ten times greater than that of the neighbouring region of Jordan. If the variations in the economic, political and social circumstances prevailing in the Arab world are also taken into account, the magnitude of the difficulties involved in the problem of the regional allocation of industries and projects becomes apparent.

Factors influencing industrial development

The factors enumerated below also merit consideration.

Size of the market

Chief among the factors affecting industrial development in the newly industrialized countries is the size of the market. This factor, moreover, contributes to the shape, type and location of industries to be established or promoted, especially if the area of the country concerned is relatively vast, as happens to be the case in the Arab world. The size of the market is closely linked with the size of population and level of income.

All Arab countries suffer, in one way or another, from the problem of the narrowness of the market. Jordan is severely restricted in this regard. Prospects of industrial development in Syria, Libya and Jordan seem to be doubtful, essentially because of the narrowness of the local market. Nevertheless, if industrial expansion were planned on the basis of the size of the market in the Arab world as a whole, then the prospects of Arab industrialization would improve.

Natural resources

The most convenient form of industrialization in the developing countries lies in the expansion of those industries that depend basically on locally produced raw materials. This implies, *inter alia*, that the greater the supply and variety of natural resources in a developing country, the easier will its industrialization become, and *vice versa*.

Viewed individually, most of the Arab countries, if not all, suffer from shortages of raw materials. Kuwait, Saudi Arabia and Libya, for example, are rich in oil resources, but lack minerals (e.g. coal and copper) as well as agricultural raw materials. Tunisia is endowed with abundant iron ore resources, but suffers from a scarcity of coal. Nevertheless, when viewed as a group, the Arab countries become a highly endowed entity with a wide variety of mineral and agricultural raw materials.

Conclusion

The foregoing analysis has posed some problems pertaining to industrial development planning in the Arab world. Among these problems mention has been made of the choice of the means or techniques of production; the decision as to the type of industry to be established or promoted; and the selection of suitable locations for the establishment of industrial projects.

Chief among the causes of these problems are the circumstances that the industrial movement in the individual Arab countries, as well as in the Arab world as a whole, is still in its early stages, and that variations exist in many aspects of social and economic life among the Arab countries as a whole and even within each individual country.

These difficulties call for the rapid co-ordination of the industrialization process in the Arab countries.

While the present paper does not aim at providing decisive solutions for the acceleration of the industrial process in the Arab countries, the brief analysis presented here may contribute towards formulating general guidelines that can be used to facilitate the process of industrial development planning in the Arab world.

As a first step in this direction, an estimate should be made of the Arab countries' requirements of manufactured goods in the form of consumption, intermediate, or capital products in the fields of engineering equipment and machinery; iron and steel; petrochemicals; cement; petroleum products; leather products; (including shoes), and all kinds of textiles (i.e., cotton, woollen and synthetic).

Having established the industrial demand, the next would be to arrive at an optimum allocation of the industries concerned on the basis of existing production potential and possibilities in each country. It was mentioned above that the selection of suitable sites for the establishment of industrial projects presents an important problem to industrial development planning in the Arab countries. For commodities whose production does not require large capital funds, the selection of the location of industry may become relatively easy. However, when it comes to industries requiring large investment outlays, e.g. iron and steel, oil refining, and machinery and equipment industries, great difficulties may arise. For this reason it would be expedient to prepare studies on the economic conditions of each Arab country within the framework of the general economic situation in the Arab world as a whole. These studies should cover the following: distribution of natural resources; distribution of human resources; preparation of scientific, advanced and uniform systems of national accounts; preparation of detailed studies on inter-Arab trade; and preparation of detailed studies on the Arab countries' present needs for manufactured goods and the present potential of each of them for satisfying those needs.

It is believed that, in the light of such studies, it would be possible to select the most suitable location for the establishment of industrial projects intended to satisfy the bulk of the Arab countries' requirements for manufactured goods.

Once the optimum allocation of industrial projects among the Arab countries is achieved, each country may proceed to apply whatever means or techniques of

production it deems necessary in the light of its own social and economic circumstances.

These are some of the preliminary steps which may provide a basis for the process of industrial development planning in the Arab world. The formulation of long-run policies designed to provide scientific and sound solutions to the problems of industrial development planning in the Arab world requires the setting up of a full-fledged research organization. It is hoped that the establishment of such a body will receive adequate consideration from Arab countries.

3. Industrial planning, programming and policies in selected countries of the Middle East[4]

Prior to recent trends in planning, development activities in the public sectors were undertaken in most of the countries of the Middle East through development or extraordinary budget programmes. Such activities, however, were modest in magnitude and comprised mainly a few projects, primarily of an infrastructural type, selected on an *ad hoc* basis. More recently, development plans in most of the countries covered by this study have either been formulated and executed or are in the process of being formulated. The following list shows the number of development plans chronologically and by country:

Iraq:
- First plan, 1951-1956
- Second plan, 1955-1959
- Third plan, 1956-1961
- Provisional plan, 1959/60—1961/62
- Detailed five-year plan, 1961/62—1965/66
- Five-year plan, 1965-1969

Jordan:
- Five-year plan, 1962-1967
- Seven-year plan, 1964-1970 (not officially released)

Kuwait:
- Five-year plan, 1966-1970 (being formulated)

Lebanon:
- Five-year plan, 1959-1964
- Five-year plan, 1965-1969

Saudi Arabia:
- Five-year plan, 1965-1969 (being formulated)

Syrian Arab Republic:
- Ten-year perspective plan, 1958-1967
- First five-year plan, 1960/61—1964/65
- Second five-year plan, 1965-1969 (being revised)

At the beginning, planning in Iraq, Jordan and Syria meant mainly a series of unrelated development projects in the public sector. In subsequent years, the planning of the public sector was more systematic and attempts were made to cover the private sector. Over-all targets and projections at various levels of aggregation were also made available. Thus for Lebanon has not entered the field of development planning proper. Both of Lebanon's five-year plans are, in fact, only partial programmes related to public investment, emphasising infrastructure and other basic facilities. Kuwait and Saudi Arabia are presently engaged in formulating their development plans.

The planned growth rates in Iraq and Syria have been set at slightly higher levels than those attained in the recent past. In contrast, the planned growth rate in the two Jordanian plans was set at a level lower than that which was actually realized prior to each of the two planning periods.

Until recently, the manufacturing sector played a limited role in the development programmes and plans discussed above. The last two Iraqi five-year plans showed a marked shift in emphasis from agriculture to industry, with a consequent rise in the share of manufacturing industries in the total investment allocation of the public sector. In Jordan, most of the public investment in the field of manufacturing in the period 1953/54-1964/65 was confined to the purchase by the Government of equity capital in the major manufacturing industries and to government contributions to the industrial development fund.

In Syria's 1946-1956 extraordinary budget actual expenditure on industry amounted to 13.6 per cent of total expenditure. The share of this sector in the total allocation of the extraordinary budget (1956-1961) comprised 16.4 per cent. The first attempt at planning the industrial sector in Syria was made in 1958, when the first five-year industrial plan was formulated. In that plan, implementation of most projects in the manufacturing sector was entrusted to the private sector.

In Lebanon, the recently announced five-year plan (1965-1969) is a continuation of the Government's policy of confining its activities to infrastructure (as was the case in the 1959-1964 plan), leaving other economic activities as much as possible to private initiative.

The allocations for industrial development in Saudi Arabia in 1963 and 1964 were modest, amounting to about 5 per cent of the total allocations for development. The recent establishment of the General Organisation for Petroleum and Minerals (PETROMIN) in Saudi Arabia and its vast programme, which includes twenty-seven industrial projects at an estimated total cost of about SR 1,000 million, indicates a trend towards a greater emphasis on this sector.

In all three countries for which integrated plans have been prepared, the planned growth rate in the industrial sectors has been set at a higher level than those of the corresponding aggregate plans.

While the planned growth rate of the industrial sector in Iraq was found to be equal to the actual rate of industrial growth, that of Jordan was considerably lower than the actual rate realized in the preceding periods. In contrast, the planned rate of industrial growth in Syria was higher than the actual rate achieved.

In the most recent plans of Iraq and Jordan, the industrial sector received the second highest share of total investment. In Syria, the industrial sector was given the third highest share of total investment. The manufacturing sector alone received about one-half of the total investment allocations for the industrial sector in Iraq and was relegated to second place in Jordan and Syria.

Comparing the investment patterns in Jordan's five-year and seven-year plans, we find that, in the latter, more funds were allocated to the development of industry (primarily mining) and tourism, with a

[4] Paper presented jointly by the Centre for Industrial Development and the United Nations Economic and Social Office in Beirut.

resulting reduction in the share of the manufacturing sector in total investment.

Other planning objectives in those countries include those enumerated below.

Economic diversification

Diversification is considered an important long-run development objective, and the industrial sector is to play an important role towards attaining that objective. In various countries of the Middle East, the problem of diversification has been given special importance for two reasons: first, most of those countries suffer from recurring droughts, causing periodic fluctuations in agricultural output, and, secondly, it is the strong desire of the oil-producing countries of the Middle East to reduce their dependence on the petroleum sector.

Creation of new job opportunities

This is one of the objectives of planning in Iraq, Syria and Jordan, although it has been relegated to secondary importance. Thus, in Jordan's five-year plan (1962-1967), employment was given second priority. In the seven-year plan, it was relegated to third place. Iraq's five-year plan (1965-1969) takes cognizance of the problem and considers reduction in the volume of unemployment a major social objective, the ultimate solution of which is a long-term project.

Improvement in the payments position

Jordan's seven-year plan (1964-1970) was formulated on a new basis, namely, a reduction in foreign budgetary support, this being the most important departure from the assumptions of earlier plans. The manufacturing sector is expected to contribute to this improvement in two ways: on the one hand, imports of manufacturing products are planned to remain at approximately the 1963 level; on the other hand, local production is planned to increase over the seven-year period by an amount sufficient to fulfil the projected increase in consumption with only a small portion of the increase going to exports. In Iraq, the manufacturing sector is also expected to contribute during the planned period 1965-1969 to an improvement in the balance of trade, primarily through import substitution.

Geographical distribution

In the latest Iraqi plan (1965-1969), the needs of backward regions of the country are stated to have been taken into account in selecting the location of certain development projects. Similar factors are stated to have been taken into consideration in Syria's second five-year plan.

Economic co-ordination

This is another concern of planners and is explicitly mentioned in the latest Iraqi plan. Several countries are now reconsidering their industrial development policies so as to take account not only of their domestic markets but also of external markets, especially those of neighbouring countries.

In Syria, fragmentary and incomplete implementation data covering part of the first five-year plan (1960/61 to December 1963) indicate that the net national product fell slightly short of the planned target set in the annual plan for 1960-1961 and exceeded those targets in the subsequent two and one-half years. Such performance which, on the average, was higher than the growth rate set for the planning period as a whole, reflected in part the boom in the agricultural sector; that sector, although depressed in 1960-1961, experienced good harvests in subsequent years. Actual annual investment had fallen short by about 22 per cent of the annual investment target, a fall mainly attributable to the failure of the public sector to achieve its investment targets. The private sector had partly compensated for such failure by over-fulfilling its targets.

In the manufacturing sector, except for investment figures, no adequate sectoral targets are given. This is due, in part at least, to the fact that a good number of the projects included in the manufacturing sector could not be adequately prepared, either technically or economically, and hence the expected contributions could not be assessed. For those reasons, and because of the relatively inadequate implementation and follow-up machinery, full assessment of actual performance in the manufacturing sector is not possible. Available data indicate, however, that expenditure on manufacturing fell short of the set target. The public sector showed a lower performance than the private sector. Underfulfilment in the public sector may be attributed to a number of factors. Projects included in the public sector had been inadequately studied, resulting in delays in the execution of certain projects as well as in the abandonment of others. Furthermore, the administrative machinery for the execution and supervision of government projects was still in the process of being organized. In the private sector, the level of performance was probably attributable, *inter alia*, to an attitude of uncertainty on the part of the private investor.

In Iraq, data relating to the performance of the manufacturing sector are also fragmentary. Plans prior to the recently announced plan covered only the public sector's investment programmes. Actual investment in those programmes has consistently fallen short of planned targets. Data relating to the three years 1961-1963 of the five-year plan (1961/62-1965/66), indicate that actual investment averaged about 52.5 per cent of total actual allocations for those years, an order of magnitude similar to actual performance in the preceding years. The industrial sector's performance was among the lowest, representing 29.3 per cent; that of the manufacturing sector alone amounting to about 10 per cent. This is to be explained, in part, by the relative political instability which probably weakened the decision-making powers of the various government authorities; moreover, although Iraq has been developing the machinery for the formulation, implementation and supervision of project execution, such machinery is still inadequately staffed. The poor performance may also be attributed to the fact that most of the projects included in the plan were not fully studied from either the technical or the economic points of view.

It is too early to assess the results of the Jordanian seven-year plan, which is in its first year of operation. However, work on a number of manufacturing projects is known to have started.

Because of inadequacy or unavailability of data, modest techniques of planning have been adopted in the formulation of these plans. Projections of consumption demand were made on the basis of limited family budget studies and other studies giving the income elasticity of demand for consumer goods and services in certain countries with similar conditions. Estimates of the labour force in certain cases were made on the basis of

population distribution by age, sex, social conditions and the expected annual rate of increase in population. These projections represent the supply of labour. In other cases it was assumed that the growth in employment would correspond to the planned growth in GNP after taking into consideration the increase in productivity.

Planning the industrial sector and sub-sectors varied in the three countries from rather fragmentary to comparatively detailed planning. In Iraq, Jordan and Syria, projections were made for consumption, production and contribution to employment. Only limited information is available to indicate the techniques used in preparing those estimates. In Iraq, projections of consumption by major industrial sub-sector were based on assumed income elasticities derived from the family budget for Baghdad. As to the projection of the production pattern, some use is known to have been made of the data contained in *A Study of Industrial Growth*, published by the United Nations.[5]

In Jordan, the rise in consumption was based on the expected increase in population, and on an assumed small increase in the standard of living. Estimates of value added in manufacturing were assumed to be in the same proportion as that of the value added to the value of total production in 1961. Imports were assumed to be maintained at about the 1963 level. Projections of aggregate employment in the manufacturing sector were based on a growth rate equivalent to that of production, adjustment being made for the estimated increase in productivity for the duration of the plan. Foreign exchange requirements included estimates of imports required for production (i.e. raw materials, fuel etc.) as well as the imported component of investment.

A number of criteria have been proposed for project evaluation. In the Syrian plan, the main criteria were stated as follows: contribution to national income; financial needs of the project in both local and foreign exchange; economic viability; foreign exchange savings; contribution to employment and maturation period of the project.

Similar general criteria have been proposed in both Jordan and Iraq. It is, however, apparent that only simple evaluation and not systematically applied methods based on the above general criteria were followed in the selection of projects and the connexion with the over-all targets of the plans.

In most of the countries under study, the public sectors have been increasingly involved, through direct and indirect measures, in the development of the manufacturing sectors. Lebanon has been an exception to that trend.

In Jordan, for example, although industrial policy is also based on the assumption that industry belongs mainly to the private sector, it is generally recognized that the role of the Government in that field is crucial.

One of the most effective instruments for the encouragement of industry in Jordan has been the purchase by the Government of shares in new industrial firms. Thus, the Jordan Government has subscribed to the capital of seven major manufacturing industries to the extent of JD 1.6 million, representing about 39 per cent of their total paid-up capital.

In Kuwait and Saudi Arabia, where economic policies are by and large similar to those in Jordan, greater amounts of public funds have been committed to manufacturing, as evidenced by the very large investment programme of PETROMIN in Saudi Arabia and the increasing public funds committed by the Kuwait Government to the Shuaiba industrial complex and the extension of loans to a number of large-scale manufacturing projects, such as the ammonia plant and the petroleum refinery in Kuwait. Unlike Jordan, however, insufficiency of private capital is not the primary cause of government participation. Rather, it is the desire to accelerate the pace of industrial development and diversify economic activities in order to relieve the country of complete dependence on petroleum.

Until recently, Iraq and Syria held strongly to the principle that the bulk of manufacturing activities should be left to the private sector. The recent nationalization measures in Iraq and Syria shifted ownership of the important manufacturing industries to the public sector.

Government policies and measures undertaken to promote industrialization in the various countries of the Middle East are varied. They range from provision of basic services, as in Lebanon to active encouragement, guidance and indirect control, as in Jordan, Kuwait and Saudi Arabia, or even direct control and management, as recently introduced in Iraq and Syria.

Co-ordination of different economic and social policies has already been recognized by most countries in the region as a prerequisite to economic planning. Iraq has already made reference to the fact that the achievement of the objectives of planning depends to a large extent on the degree of co-ordination of such policies.

Maintenance of monetary stability and the creation of a financial environment conducive to growth are the main functions of monetary authorities. This implies, *inter alia*, the existence of a proportionate relationship between the flow of money and the full utilization of available resources. Evidence of internal stability attained in most countries of the Middle East is provided by the behaviour of prices in relation to growth in income and money supply. The fact that prices have risen moderately in recent years indicates the existence of a balanced relationship between the money supply and the level of output.

Internal financing is the major source of financing for Iraq and Syria. In contrast, about 40 per cent of the total of Jordan's investment programme is expected to be provided externally. In Iraq, oil royalties are the major source of development financing, while in Syria revenues from taxation are heavily relied upon as a source of financing planned investment. Foreign loans to Jordan are expected to increase throughout the seven-year plan. In contrast, Syria and Iraq have not relied in the past on large external financing, although more recently both countries have been moving away from earlier investment policies and practices by resorting to external sources of finance.

Except in the case of the petroleum-producing countries, it does not seem likely, however, that internal measures alone will be sufficient to generate the volume of investment needed to meet targets of the magnitude required to stimulate industrialization on a relatively large scale. It seems essential that every effort should be made to obtain foreign investment.

Although not practised in the past, resort to internal borrowing and deficit financing is presently planned on a modest scale by some of the countries under consideration.

[5] United Nations publication, Sales No.: 63.II.B.2.

Almost every country in the region has developed monetary institutions whose statutes lend themselves to adequate monetary policies designed to regulate the flow of money, stabilize fluctuations in economic activities and create the necessary environment for economic growth. Central banks in most of those countries have been vested with sufficient powers to regulate money and credit creation and reconcile it with the real needs of those countries' progressively expanding economies. Jordan, however, does not possess that type of flexibility. Its central bank lacks the legal powers to modify the currency reserve requirement and may, therefore, be unable to expand or contract the quantity of money should the need arise for making additional funds available for financing Jordan's development plans.

Despite the fact that the proportion of gross national product saved is high in most of the countries for which data are available, there are strong indications that the proportion of disposable income saved by the private sector is low.

In order to mobilize private savings, Jordan plans, among other things, to encourage the growth of savings deposits in commercial banks by influencing the rate of interest paid on such deposits. In addition, Jordan plans to establish convenient banking facilities in urban and rural areas, and to mobilize the substantial volume of hoarded wealth.

In Saudi Arabia, the mobilization of private savings poses a problem since interest is prohibited on religious and legal grounds. The possibilities of financing with borrowed money are therefore somewhat restricted.

In a number of countries, substantial amounts of domestic savings are known to have been invested abroad. There are reasons to believe that considerable Jordanian, Kuwaiti, Saudi Arabian and Lebanese funds are invested in foreign securities, partly because of uncertainties, and partly because of lack of attractive domestic investment opportunities. Jordan has entertained for some time the idea of adopting measures to encourage the growth of an organized capital market.

The fact that private savings are scarce and cannot be relied upon to supply investment funds on a scale considered adequate, makes it difficult to sustain planned rates of growth in the industrial sectors without establishing and improving the existing specialized financial institutions and providing credit facilities on a wider scale. Credit assistance is especially important to small and medium-sized industries. Shortage of financial resources for plant expansion and renewal, and for working capital, is the real problem of those industries. For a variety of reasons, commercial banks are unlikely to meet their urgent needs.

Industrial banks have either been established or are being planned in practically every country of the region. The amount of and the conditions under which credit was extended to industry in the past varied from one country to another but was, on the whole, far from adequate to meet the progressively expanding credit needs of industry. Recently, steps have been taken by all those countries to strengthen credit availability for industry by creating or planning for the creation of stronger and more effective specialized institutions.

To supplement domestic savings, laws designed to encourage the inflow of foreign investment funds have been enacted in several countries. Foreign capital is treated on an equal footing with domestic capital employed in similar industries; repatriation, in foreign currencies, of reasonable annual profits and capital is permitted provided that the capital involved is imported and exported through official channels. In Lebanon, Kuwait and Saudi Arabia, capital is allowed to flow freely into or out of the country without restrictions. Indications are that, despite the various incentive measures adopted, foreign investment capital has failed to be attracted into the region on any significant scale.

Practically every country in the region has promulgated laws for the encouragement and promotion of the private industrial sector. Most industrial laws provide incentives such as tax exemptions and tariff protection, as well as other forms of assistance; in some cases, they grant monopoly concessions. Eligibility for the benefits specified in most of the incentive laws has been made subject to the prior registration and licensing of industrial enterprises. Most of these laws require that applications for the establishment of new industrial projects should be accompanied by detailed economic and technical studies.

The Governments of Jordan and Saudi Arabia have granted a number of concessions for the promotion and development of specific industrial undertakings. In Jordan, some of these concessions are exclusive and extend over periods varying from thirty to fifty years. For the duration of the concession, Jordan has undertaken to ensure such firms absolute protection, including prohibition of the establishment of rival firms.

In the field of policies related to the protection of domestic industries, countries of the Middle East may be classified into two main groups: those that have relied heavily on both quantitative and qualitative import restrictions, primarily for revenue and the conservation of foreign exchange and secondarily for protection reasons; and those that have, for one reason or another, refrained from the imposition of restrictive measures.

Iraq, Jordan and Syria have relied relatively heavily on restrictions relating to high tariffs and quantitative restrictions. Imports of only a few goods into Lebanon are prohibited. Although tariffs have so far been imposed in Lebanon primarily for revenue purposes, the new industrial law as outlined in the draft legislation has set the country's future tariff policy on new lines.

Neither Kuwait nor Saudi Arabia has tariff restrictions of significance on imports or any licensing requirements, except in regard to a few prohibited items. It has been the established policy of both Governments to minimize as much as possible the imposition of restrictions on the private sector. The fact that both countries depend heavily on imports has caused importers to assume a dominating market position and to extend their power in different directions.

This situation has not only presented the Saudi Arabian industrial entrepreneurs with considerable distributional difficulties, but has also contributed to the slow growth of industries. In 1960, an International Bank for Reconstruction and Development mission to Saudi Arabia expressed the view that the granting of temporary protection in the form of import duties on competing products from abroad was sound where the type of enterprise gave reasonable prospects of eventually becoming competitive. On 27 May 1962, royal decree No. 50 published provisions permitting the Ministry of Commerce and Industry to recommend to the Council of Ministers the adoption of measures suitable for the protection of local production.

Kuwait, too, has recently provided for the use of import tariffs as an instrument for the encouragement

purposes; fourthly, training of manpower in skills designed to match employment needs and, fifthly, placement of trained workers.

An adequate assessment of future demand for labour requires a quantitative and qualitative analysis of the types of jobs that will be created as a result of plan implementation. In some plans no demand projections were made, and employment targets appear to have been determined solely in relation to supply. In other plans, although the number of industrial jobs that would be created during the plan period was estimated, no other details were given. Such a state of affairs indicates, first, how little the manpower situation appears to have been considered in the formulation of the plan and, secondly, the need for some form of plan formulation in order to absorb manpower surpluses. Furthermore, the classification of manpower requirements has not been accompanied by details of specific training policies.

National Governments in each of these countries are increasingly displaying interest in manpower planning but, as yet, comprehensive policies covering all stages of such planning (i.e. assessment of job opportunities, vocational guidance, recruitment schemes, training and operation of a job placement system) have not been adequately formulated. The nearest approach to manpower planning is to be found in Iraq. Through the Ministry of Planning, the supply of manpower for the plan period was assessed. On the demand side, government ministries were requested to prepare details of their manpower requirements, analysed in terms of skills and quality. An assessment was then made of available training facilities and recommendations submitted suggesting changes in the country's manpower programme, covering such aspects as recruitment of labour, nomination for training, improvement of training institutions, provision of better equipment and higher teaching standards, improvement of educational curricula, introduction of accelerated vocational training, and assurance of employment opportunities. Reports recently issued in Iraq, Jordan and Syria call for the adoption of complete manpower planning.

In the early nineteen-sixties, increased efforts to improve labour productivity were noticeable in each country of the region. In Iraq, where vocational and technical training is given in vocational training centres, industrial schools, technical institutes and engineering colleges, certain measures were recommended for improving labour productivity.

Remedial proposals similar to those recommended for Iraq have also been made in Syria. There, a manpower classification has been prepared and manpower studies are under way. Tentative assessments of future requirements for engineering and technically trained personnel for the period of 1965-1969 were produced by the directorate for technical education of the Ministry of Education. In addition, the Syrian Ministry of Industry was reported to have planned for the introduction of accelerated industrial training courses for adult workers in 1964. An apprenticeship training programme, consisting of two years' schooling and one year's training in industry was to be launched within the coming five years. In Jordan, Kuwait and Saudi Arabia, data available on policies and plans for vocational training are less extensive; such data as exist, however, suggest that progress is being made in this field.

4. Financing of manufacturing industry in selected countries of the Middle East[a]

The present study covers the following six countries: Iraq, Jordan, Kuwait, Lebanon, Saudi Arabia and Syria. It deals with the institutional framework and government policies for the promotion of industrial financing, and provides a quantitative assessment of the role and relative importance of the contribution of various sources of industrial financing (commercial banks, specialized financial institutions, Government, foreign sources and the domestic private sector). Reference is also made to working capital requirements and their financing.

Fiscal legislation providing for tax exemption for new industrial establishments exists in all six countries in varying degrees. The period of tax exemption ranges from three years in Syria to ten years in Kuwait. Legislation providing for partial exemption on reinvested earnings exists in Iraq, and a draft law containing such a provision is currently under consideration in Lebanon. Legislation providing for statutory reserves exists only in Jordan.

As far as foreign capital is concerned, a generally liberal policy for the encouragement of foreign investment exists in most of the countries under consideration. Foreign capital in most of these countries is entitled to all the privileges enjoyed by national capital. However, despite this incentive, actual foreign investment in manufacturing industry, other than oil refining, remains insignificant. This is largely due to the limited size of the domestic market and the inadequacy of export possibilities.

However, owing to the favourable geographical location and economic environment prevailing in Lebanon, there is some investment of foreign capital in industries other than oil refining. In the case of Iraq and Syria, although the existing legislation may be regarded as favourable to foreign investment, general political conditions constitute a deterrent factor.

It may be said that the role of the central banks of the region in promoting industrial financing has been very limited. Those banks have not developed to the stage at which they would be able to influence the commercial banks to channel substantial funds to industry.

In addition to indirect measures in the form of legislation to encourage and promote industrial financing, the Governments of the countries covered by this study are taking certain direct measures designed to increase the availability of industrial financial resources. These measures consist of direct provision of capital to specialized financial institutions and government industries, participation in mixed companies, and direct loans to industry.

The industrial banks of Iraq and Syria and the Kuwait Credit and Savings Bank are fully government-owned, while the Jordan Industrial Development Bank, the Development Bank of Jordan and the BCAIF

[a] Paper presented jointly by the Centre for Industrial Development and the United Nations Economic and Social Office in Beirut.

(Banque de crédit agricole, industriel et foncier) of Lebanon are mixed enterprises.

Direct participation by Government in industry varies from one country to another. Iraq was the most active in establishing fully government-owned industries. Before nationalization, in terms of invested capital, these industries constituted more than one-half of the entire industrial sector. There are no fully government-owned industries in Jordan (with the exception of those run by the army), and no such industries exist in Lebanon. The efforts of the Saudi Arabian Government in this area have not been very successful. Before the first nationalization measures of 1961 in Syria, the only government industry was the Homs oil refinery. At the present time, there seem to be certain financial difficulties facing the nationalized industries which may prompt the Syrian Government to take measures to provide additional finance.

So far, only the Governments of Jordan and Kuwait have participated to any considerable extent in the equity capital of industrial enterprises. The participation of the former amounts to about one-fourth of the combined paid-up capital of ID 9.2 million of eight large industrial companies, and that of the latter to three-fifths of the combined paid-up capital of KD 18.9 million of six major industries. The Saudi Arabian Government has more recently, through PETROMIN, (General Organization for Petroleum and Minerals) embarked on the promotion and establishment of fourteen large industries which will be financed largely by the Government in conjunction with the private sector. The Government plans to provide three-fifths of the total equity of the thirteen projected mixed companies.

Government financing in the form of loans was provided by the Iraqi Government to the Daura and Al-Qayara oil refinery. Apart from participating in the equity capital of the PETROMIN projects referred to above, the Saudi Arabian Government will also provide loans through that body to finance part of the fixed capital of those projects.

Most commercial bank loans to industry are given for less than one year. However, part of such short-term loans become, in effect, medium-term loans that go to finance fixed capital, as many of them are subject to renewal. There is, of course no way to ascertain the importance of such loans.

Statistics on industrial credits from commercial banks must be treated with caution. First, many industrialists in the Middle East are, at the same time, merchants and/or dealers in real estate. It is therefore not uncommon that a credit obtained for industrial purposes ends up as a commercial credit. Secondly, there is no way to assess the degree of accuracy of the figures on industrial loans from commercial banks.

The proportion of outstanding industrial credits to total claims on the private sector of commercial banks at the end of 1964 was 6 per cent in Iraq, 9 per cent in Kuwait, 12 per cent in Lebanon, 11 per cent in Jordan and 24 per cent in Syria. The relatively high proportion of industrial credits to total credits extended by commercial banks in Syria reflects the increasing indebtedness of Syrian industry to the banking system as a result of the declining role of self-financing since 1961. Figures for Saudi Arabia are not available.

Traditionally, foreign banks in the region primarily finance foreign trade. Their role in providing industrial credit is relatively insignificant.

Based on their operations, the following are purely credit institutions: the Development Bank of Jordan, the Industrial Development Fund of Jordan, the Kuwait Credit Bank (incorporated with the Credit and Savings Bank), and the BCAIF of Lebanon. It is also possible to include in this category the Syrian Industrial Bank as its participation in industrial enterprises is negligible. Thus the Industrial Bank of Iraq is the only institution which, in addition to providing credits, has participated to a considerable extent in the equity capital of a number of industrial companies.

Contrary to what might have been expected, and with the exception of Iraq, it is the commercial banks and not the specialized financial institutions which have provided the bulk of industrial credits. In Jordan, Kuwait, Lebanon and Syria, industrial credits from the commercial banks are estimated to be between six and eight times as great as those extended by the specialized financial institutions. In the absence of a specialized financial institution in Saudi Arabia, all industrial credits in that country are extended by commercial banks. By contrast, credits from the Iraqi Industrial Bank are estimated to be 50 per cent greater than the estimated industrial credits from commercial banks.

Foreign private investment in the region has been concentrated mainly in the oil-refining industry. Foreign private investment in manufacturing industry other than oil refining is greatest in Lebanon, estimated at about $17 million, followed by Kuwait and Saudi Arabia, where it is estimated to be between $2 to 3 million. Foreign investments are insignificant (less than $1 million) in Iraq and Jordan. In the case of Syria, industrial capital owned by nationals of Kuwait, Saudi Arabia, Lebanon and Iraq, is estimated at 2 per cent of the total capital invested in industry.

The role of international financial institutions in industrial financing in those countries was negligible up to the end of 1965.

The only significant bilateral aid was provided by the Soviet Union to Iraq, involving an amount of ID 50 million, later raised to ID 65.2 million. Syria and Lebanon received $5 million each from USAID (United States Agency for International Development), of which, however, only a small proportion was utilized by Syria; Jordan received $0.5 million from the same source.

Foreign suppliers' credit in the form of instalment credit is extensively utilized, in particular for the importation of expensive capital goods.

Assessment of the role of the domestic private sector is possible only in terms of invested capital. Data concerning accumulated reserves and retained profits are not available. On that basis, it is estimated that more than 90 per cent of the industrial sector is owned by the domestic private sector in Lebanon and Saudi Arabia and more than 80 per cent in Jordan. After nationalization in Iraq, only one-fourth of the industrial sector remained in private hands. In the case of Syria, virtually the entire organized industrial sector has been nationalized, leaving only the small establishments in the hands of the private sector. Statistics in Kuwait are insufficient to provide a basis for such estimates. In the case of eleven industrial joint-stock companies, representing the bulk of Kuwaiti industry (combined

paid-up capital KD 20 million), one-third of the shares is owned by the domestic private sector.

It may be noted that there is only one stock exchange in the region, located in Beirut, but its role is in any case insignificant so far as the promotion of industrial financing is concerned.

It may generally be stated that, as in many other developing countries, planning authorities and other agencies in the region concerned with finance do not seem to realize the importance of working capital requirements and the financing of those requirements. An adequate study of such requirements would serve many useful purposes. Failure of industrial development projects or unnecessary idleness of plants after their construction might be prevented by taking account of such requirements in industrial development plans. Bankers could use such studies as a guide in judging credit applications, and management agencies and company managers as a guide in judging of the relative efficiency of an industry.

5. Industrial co-ordination among the Arab countries[7]

Economic development in the Arab countries is characterized by the following:

(*a*) Low productive capacity and, consequently, low rates of growth of national income, arising from lack of balance among the various components and improper utilization of natural resources;

(*b*) Unbalanced growth of the different productive sectors, especially the industrial sector, which remains primitive and relies on non-capitalistic production methods;

(*c*) Unbalanced expansion in the capital and consumer goods industries, with the latter predominating;

(*d*) Lack of managerial and other skills essential for the raising of industrial production, and inadequate guidance in the techniques of agricultural production;

(*e*) Low productivity;

(*f*) Inadequate transport and communication facilities.

In short, if economic development is to proceed satisfactorily in the Arab countries, it is necessary to develop the productive base in each country. In this process, however, care must be taken to avoid unnecessary concentration on the agricultural sector and to lay increasing emphasis on the industrial sector.

The Arab countries are well aware of these circumstances and are taking action towards a solution. But the wide discrepancies in the degree of development among various Arab countries and in their natural, technical and financial resources have led to a state of discord and weakness which has adversely affected the prospects of industrial development, both on the country and regional levels.

Industrial co-ordination implies surveying, assessing and determining economic potentialities and available natural resources in each Arab country with a view to ascertaining the extent to which those resources are utilized and exploring the possibility of exploiting those resources in the best possible manner.

Industrial co-ordination should be understood and discussed within the context of agricultural, social and financial co-ordination in view of the interdependence that exists between various economic sectors. Industrial co-ordination among Arab countries should be understood and applied in the light of the over-all principles of economic planning. Such co-ordination is beset by a number of serious difficulties, such as differences in economic systems, some countries having adopted Arab socialistic methods, while others still adhere to the capitalistic system, and differences in the stages of economic development reached by different Arab countries, and in the size and progress of their industries.

Before considering the question of co-ordination, it is perhaps appropriate to refer briefly to certain factors that affect the choice of industrial location, and how this has influenced the development of Arab industries in the past. Those factors are:

Proximity to the sources of raw materials, in view of the tendency to establish projects near the site of raw materials;

Availability and low cost of labour, since there is a tendency to establish industrial projects near populated areas;

Prospects of making use of internal and external funds;

Proximity to markets;

Mode of consumption;

Historical factors, as in the case of the spinning and weaving industries in Syria and the United Arab Republic; most industries were organized in such a manner as in some way to complement those of the capitalist States which commanded influence at one time or another in those countries; and

Location, as determined by the theory of comparative advantage and of relative production costs.

Industrial co-ordination among the Arab countries should make use of the known principle of the division of labour, so that one country may specialize in producing one commodity, or in one of the processes required for its production. This division of labour and specialization can lead to two important results: mass production and industrial integration.

Industrial co-ordination among the Arab countries will provide a link between industries and their output, so that the output of some industries, in one or more Arab countries, will form the raw materials for other industries in other Arab countries. Co-ordination will undoubtedly help to create additional demand for industrial products, strengthen the centres of production, and enhance the Arab economy as a whole. Furthermore, industrial co-ordination is essential for the achievement of Arab economic unity.

Industrial co-ordination among the Arab countries may be justified on the following grounds:

Scarcity of capital, with a tendency to concentrate on agricultural investments;

Narrowness of the domestic market, reflecting a general weakness in demand due to low *per capita*

[7] Paper presented by the General Secretariat of the League of Arab States.

income, low population density, and high transport costs; this weakens the demand for industrial products and makes it difficult for industrial plants to attain the optimum volume of production needed to achieve substantial economies in production and marketing;

Shortage of skilled workers and their uneven distribution;

Uneven distribution of natural resources, and

Low productivity, reflecting the use of poor equipment, a general weakness in the level of skills, and the non-application of modern scientific management techniques.

Further justification for Arab industrial co-ordination can be found in the resolutions and charter of the Arab League. Article 4 of the charter provides for the establishment of a permanent committee to lay down the bases of co-operation among the Arab countries, in the form of draft agreements. This has led to the establishment of the Permanent Committee for Economic Affairs, the Economic Council and the Economic Unity Council. This is in addition to the Economic Unity Convention, which ensures co-ordination of agricultural and industrial policies, and internal trade, and the standardization of economic legislation, whereby the citizens of the contracting countries engaged in agriculture, industry and trade are given similar treatment. Similarly, the agreement governing the establishment of the Arab Common Market provides that preference shall be accorded to the exchange of industrial products.

Industrial co-ordination among the Arab countries should take into account three different cases, namely, the case of industries yet to be established in the Arab countries; that of existing industries; and the case of Arab countries which have not yet embarked on industrialization.

Co-ordination of future industrialization policy faces a number of theoretical and practical problems, such as choosing between balanced and unbalanced growth. In the case of the Arab countries, it is preferable to follow a policy of unbalanced growth, whereby a base of capital goods industries will be established which in turn will serve as a base for rapid economic development.

Furthermore, industrial co-ordination among the Arab countries requires a choice between heavy and light industries. We believe that preference should be given to heavy industries. It must be pointed out, however, that a policy which emphasizes light industries has the following points in its favour:

Light industries require small initial capital, and the cost of replacement and maintenance is low, suiting the needs of the Arab countries, where capital is scarce;

Light industries, because they use labour-intensive techniques, are capable of providing relatively large employment opportunities;

Light industries have a high output-capital ratio, and a relatively short investment period;

The training experience gained in the light industries is very useful in learning the more advanced and complex techniques required for the establishment of heavy industries;

Light industries do not give rise to inflation, as is the case with heavy industries.

In addition to the need for making a choice between balanced and unbalanced growth, light and heavy industries, there is a third choice which has to be made, namely, between capital-intensive and labour-intensive production methods. Actually the problem is not one of choosing one alternative to the exclusion of the other, but that of reconciling the two approaches.

Reliance on capital-intensive methods by the Arab countries is justified on grounds of prevailing poverty, low rates of savings, income, and productivity, and a rapid rate of population growth. This method could also lead to substantial increases in the national income. In addition, it is consistent with the preference for unbalanced growth and heavy industries.

We should, however, take into consideration two important problems that present themselves in connexion with capital-intensive industries. The first is the shortage of financial resources, which may constitute an obstacle in the way of meeting the cost of the capital-intensive method. The second is the problem of disguised unemployment, which calls for the adoption of labour-intensive methods.

Capital-intensive methods should be used in the basic industries, which are indispensible for rapid economic development. Consequently, when planning Arab industrial co-ordination policy, the largest share of capital resources and technical skills should be reserved for the basic industries, and the remainder for the consumer goods industries, relying on labour-intensive methods. Should the needs and interests of the capital and consumer industries conflict, preference should be given to the former.

Another very important problem which obstructs Arab industrial co-ordination relates to the pattern of investment, on the manner of distributing investment resources among the different sectors of the national economy and the choice of a suitable criterion for evaluating the different investment alternatives and choosing among them.

The choice of the pattern of investment constitutes one of the most complicated problems facing Arab economic planners. When formulating industrial planning policy, the economic conditions prevailing in each Arab country must be taken into consideration. It should be noted that considerations concerning the relative importance of investment between the different sectors, and within each sector, will have a great effect on the development strategy to be followed. Such considerations should be based on a careful analysis of the structure of the national economy, the desired economic and industrial targets, and the available means to be employed to achieve them. These targets and priorities depend to a great extent on the stage of growth through which the country is passing.

Industrial co-ordination policy among the Arab countries may be carried out on the same lines, and using the same pattern of investment, as that adopted by the socialist countries. It consists of a number of stages, which are described below.

In the first stage, the development of the agricultural sector is carried out. Simultaneously, the basis for industrial development will be laid down, requiring the fulfilment of two conditions, namely, the establishment of projects in the field of power generation and communication, and the establishment of small and rural industries side by side, their labour-intensive nature being such as to help in combating the increasing un-

employment, in addition to effecting a rapid increase in output which mitigates inflationary pressures.

In the second stage, investment resources should be used mainly for the development of the basic heavy industries, which provide the necessary industrial structure on which to base subsequent development. At that stage, it does not seem advisable to invest the available resources in the manufacture of consumer goods, since that might lead to competition with the rural industries which need encouragement.

In the third stage, emphasis should continue to be laid on developing the basic heavy industries, and more funds should be channelled to that sector to cover industries in addition to those established in the second stage. It is possible at that stage to divert investments to specific industries such as ship-building, railways and aircraft. Some funds may also be allocated to develop consumer goods industries in such a manner that they will not directly compete with the small and rural industries. By the time the third stage is over, the national economy should have developed sufficiently to eliminate the residue of underdevelopment and stagnation.

One of the most important bases for co-ordinating industrial development among the Arab countries is the establishment of uniform and general criteria for the selection and approval of investment projects with a view to avoiding inconsistency, duplication and economic loss.

Any analysis and evaluation of sectoral investments in connexion with the establishment of industrial co-operation among the Arab countries must take the following points into consideration: That priority should be given to projects forming part of the industrial base, so as to give an impetus to the growth of the national economy; That priority should be given to projects which help to achieved balanced growth, so as to prevent the rise of any real or monetary gaps in the national economy, and That priority should be given to projects that correspond to social needs so as to help in meeting and satisfying the desires and preferences of individuals.

Turning to the case of existing industries in the Arab countries, we find that these industries were established on the basis of local specialization or of the needs of the national economy. Co-ordination of those industries is necessary for the following reasons: it will help in solving the problem of the shortage and uneven distribution of the factors of production, and make it possible to establish large production units that could take advantage of economies of scale; it will result in marketing advantages, especially under the Arab Common Market, and will help in overcoming foreign competition, and it will strengthen existing industries through industrial integration.

In the past, some measure of integration was achieved between the industries of some Arab countries and those of the Western countries. Such integration when achieved to serve the interests of the foreign country concerned, is a quite different matter from co-ordination among the Arab countries in the interest of all Arabs. History shows that there has always been competition between foreign and Arab industrial products and that the latter have always been at a disadvantage. This is additional justification for industrial integration among the Arab countries.

Integration, moreover, will help to unify industries scattered throughout the Arab countries, and to organize and consolidate the industrial policy which constitutes the basis for the achievement of an over-all economic unity among the Arab countries. Furthermore, economic planning becomes easier, in integrated production units.

As to the actual manner of co-ordinating existing industries, it is necessary first to study them analytically in order to evaluate each separately and estimate the prospects of performance and success, and finally to formulate recommendations for their reorganization.

It is also necessary to consider these industries horizontally by concluding agreements between those at similar stages of production, so that each industry maintains its technical independence but pursues its general policy in accordance with provisions stipulated in the agreement. In addition, these industries could, if necessary, be integrated by means of what is known as forward or backward linkage.

In the event that existing industries refuse to be subjected to co-ordination, the problem could be solved by assigning them specific markets to be shared on the basis of expected competition, proximity to or remoteness from factories, and with due regard to transport and shipping costs. In this case, it is desirable that these industries adhere to a well co-ordinated industrialization and investment policy.

There remains the case of those Arab countries which are at present unable to participate in a co-ordinated industrial programme owing to their poor natural and economic resources. In order to promote industrial co-ordination in those countries, the following steps may be considered:

To urge those countries to buy Arab industrial products even if such products are more expensive and of inferior quality by comparison with similar imported foreign products;

To encourage the nationals of those countries to invest their idle funds in the co-ordinated Arab industrialization programmes by allowing them to share in the profits, and demonstrating the economic and financial gains which could be derived from such activities;

To promote the spirit of Arab nationalism in them;

To persuade the Governments of those countries to impose high or prohibitive customs tariffs on competing foreign industrial products;

To urge the Governments of those countries to contribute to financing Arab industrial co-ordination; the Arab League made a sincere effort in that direction when it asked its secretariat to prepare a questionnaire on industrial co-ordination and send it to the member States; the secretariat has not, however, received the necessary data so that the committee concerned has been unable to meet since 1961.

The Arab League's secretariat took the opportunity of the presence of Arab experts on industrial co-ordination in Cairo in July 1963 to approach them on the subject. The experts advised the secretariat to send a memorandum to the member States requesting them to prepare the necessary data on industrial co-ordination. They also advised the secretariat to invite Arab experts in that field to visit the member States in order to explain the importance of industrial co-ordination; to obtain the required data and statistics, together with

a report on the industrial situation in each Arab country, and to persuade the responsible authorities in those countries to establish technical machinery to complete the submission of the required data in preparation for convening the necessary meetings.

Arab industrial co-ordination should be promoted by the establishment of joint planning boards responsible for the formulation and co-ordination of industrial plans and programmes; follow-up machinery should also be established to ensure the proper implementation of such plans. Industrial co-ordination will also require the compilation and standardization of industrial statistics. In this connexion, it is advisable to establish joint central statistical organs to undertake the compilation and classification of statistical data.

Efforts should be made to standardize planning terminology and systems of national accounting in order to provide the uniform data needed for the planning of Arab industrial co-ordination programmes.

Finally, we turn to the constructive steps that have been taken by the Technical Committee on Industrial Co-ordination. That committee issued the following recommendations:

That the Arab countries should supply the secretariat with all surveys and studies on industrialization and industrial policy;

That the Arab countries should furnish the secretariat with studies related to their economic plans, especially industrial plans;

That the secretariat should obtain the studies and reports issued by the United Nations on industry and industrialization policy, to be presented to the committee at its next meeting.

The Arab experts on industrial co-ordination suggested that co-ordination might start with the main projects included in the respective development plans of the Arab countries. The following should also be taken into account in the planning and implementation of co-ordination among the Arab countries:

The size of the industrial units to be grouped;

The co-efficients of cost and productivity in the establishments to be grouped and co-ordinated;

Modes of management and production;

Whether units belong to the private or to the public sector;

Development of a general target for the grouping or co-ordination of industries, and

Development of co-ordination in the agricultural, social and services fields related to production.

The Arab League's secretariat submitted the report of the Arab industrial co-ordination experts to the Economic Council at its ninth regular session (9 to 17 December, 1963). The Economic Council then adopted resolution No. 210, of 17 December 1963, in which it urged the Arab countries to furnish the data requested in the questionnaires. The resolution also provided for the formation of a committee of experts to devote itself to that task to prepare a study on the subject of industrial co-ordination in the Arab countries.

The Economic Council also resolved that an economic planning and industrial co-ordination committee should be formed to work under its supervision. Its functions would be to standardize the basis for studying investment projects and the criteria for choosing among them; to standardize a framework for development plans and programmes, including the classification of data and the standardization of planning terminology; and to organize the exchange of information and the results of studies undertaken by the planning departments of the Arab countries. The meeting of the economic planning and industrial co-ordination committee is scheduled to be held in Kuwait on 15 November 1965.

6. Standardization and industrial development within the framework of an Arab common market*

The Arab world has witnessed a great change in its economic structure in recent years. This stage in the history of the Arab countries has been characterized by persistent efforts to develop all aspects of their social and economic life. Efforts in regard to measures and specifications have achieved notable success, because most Arab countries realize the importance of standardizing their system of measures and eliminating the diversity of local systems prevailing in each country and the foreign systems which are incompatible with Arab needs. Efforts in this field, though of a scattered nature, have crystallized in the decision to adopt the decimal metric system of measurement. This system has been adopted by most Arab countries and is expected to become universal within a few years. The Arab countries will thus have taken an effective and constructive step in the direction of economic unity.

Some Arab countries have taken part in international activities in regard to standardization and measures. Thus the United Arab Republic, Morocco, Tunisia and Jordan joined the International Bureau of Weights and Measures and the International Organization for Standardization.

Interest in the application of standardization methods in the economic and industrial fields has extended also to the field of specifications. The Arab countries have issued successive specifications fixing the standards of quality for both local and imported products. This interest was soon directed to the organization of specialized machinery to deal with specifications and measures and the establishment of national organizations for the purpose of regulating this activity in each individual country, and to participation in international efforts in this field. National organizations were successively established in the United Arab Republic, Morocco, Lebanon and Iraq. These four Arab organizations have joined the International Organization for Standardization in Geneva. Sudan, Saudi Arabia, Kuwait and Libya are at present endeavouring to establish similar organizations.

The Arab countries have realized that co-ordination and standardization of measures and specifications at both the Arab and the international levels is necessary for the success of Arab industrial and economic co-operation and in order to create a recognized status for Arab production in international markets. Consequently the Arab Economic Council, at its sixth session, and upon the suggestion of the United Arab Republic,

* Paper presented by the Council for Arab Economic Unity.

decided to establish a permanent technical committee for specifications and measures to unify the different systems existing in the Arab countries.

In accordance with the council's decision, the committee was formed and held its first meeting at the Arab League secretariat in Cairo from 21 to 26 January 1961. It was attended by representatives from Iraq, Jordan, Kuwait, Lebanon, Saudi Arabia, Yemen, the United Arab Republic and Algeria.

At its first meeting, the committee decided that its main object would be to co-ordinate and standardize specifications and measures in the Arab States preparatory to the establishment of the Arab organization for measures. To that end, it would continue endeavours aimed at establishing national organizations for specifications and measures in the Arab States; arrange for the national organizations to join similar international organizations, and take all necessary steps to facilitate the exchange of information among the Arab States regarding the following:

Applied specifications, and those to be enforced in the future, with respect to raw materials, local and imported products;

Existing and future facilities for testing conformity with the standards and specifications laid down and the methods and systems followed;

Applied system of measures and weights, stamping, calibration, application of the decimal metric system and the problems which might obstruct application, if any;

Particulars regarding available specialists and experts in the field of standardization in the Arab countries, and

Annual plans in the field of standardization, starting with the 1962 plan.

The committee also undertook to facilitate the exchange of views and observations regarding draft specifications prepared in the Arab countries before their adoption; to make use of technical training possibilities at the different levels through the existing machinery and organizations and those to be established in the Arab States; to organize seminars for specialists and persons interested in specifications and measures (such seminars to be held during the meetings of the permanent committee) and to arrange visits for experts, and to endeavour to unify technical and scientific terminology in the Arab countries.

The committee discussed the importance of standardization in the economic field, especially in connexion with facilitating industrial co-ordination among the Arab countries and promoting production and trade. Some delegations presented specific memoranda on the subject. The committee also discussed in detail the current position of specifications and measures in the Arab countries, and the progress made in implementing the Economic Council's resolutions calling on the Arab States to enact the necessary legislation for the establishment of national organizations and urging the member States to exchange information in the field of measures and specifications. It was found at the meeting that some States had already established national organizations and others were in the course of doing so. In view of the great importance attached to such national organizations, the committee recommended their establishment during 1961. The committee also recommended that the national organizations should, as soon as they were formed, join the International Organization for Standardization in order to strengthen the Arab position.

Three years later, the committee held its second meeting in the offices of the Arab League secretariat in Cairo from 1 to 6 May 1964. The meeting was attended by representatives from Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Tunisia and the United Arab Republic. The committee discussed the agenda and made the following recommendations:

That member States should exchange information on standard specifications, methods of standardization and technical training facilities in the Arab countries, and endeavour to standardize technical terminology;

That member States should complete the formation of their national organizations concerned with specifications and measures preparatory to joining the International Organization for Standardization in Geneva and the International Bureau of Weights and Measures in Paris;

That the first Arab conference on Specifications and measures should be held for one week to discuss the following subjects:

The role of standardization in industrial co-ordination and trade among the Arab countries;

The role of specifications and measures in the promotion of Arab exports;

Technical and administrative problems faced in the formulation and application of specifications and measures.

The committee discussed and approved in principle the proposal presented by the United Arab Republic for an agreement on the establishment of an organization for specifications and measures of the Arab League.

At its meeting of 6 December 1964, the Arab Economic Council took note of the report of the technical committee and of the proposed agreement for the establishment of an Arab organization for specifications and measures. The council also took note of another draft agreement for the establishment of the Arab organization for specifications and measures prepared by the Lebanese authorities. The Council thereupon recommended that the two draft agreements for the establishment of the organization be referred to the technical committee for specifications and measures for study and recommendations; approved the holding of the first Arab conference for specifications and measures and the proposed agenda for the conference, and approved the committee's suggestion that a sum of £E 15,000 be allocated to meet the costs of the conference and that the Arab League secretariat be asked to take the necessary steps to earmark that amount in its budget.

The Arab League secretariat took active steps to implement the Economic Council's decision concerning the study of the two draft agreements for the establishment of the Arab organization for specifications and measures. When it was realized that the technical committee would not be able to hold its third meeting during June 1965, the secretariat placed the subject on the agenda of the economic planning and industrial co-ordination committee which met in Kuwait on 15 November 1965. The committee experts on specifications and measures held a number of meetings during which they were able to study the two drafts and

prepare a final draft agreement, which the committee approved and requested the secretariat include in the committee's report for submission to the Economic Council at its eleventh session. The committee recommended also that the Arab States should authorize their delegates at the said meeting to sign the agreement on behalf of their Governments in order to expedite its ratification.

The Arab Economic Council approved the agreement during meetings held in Cairo on 7 December 1965, and referred it to the Arab member States for ratification. The agreement will become effective as soon as the instruments of ratification of five members have been deposited with the secretariat in accordance with the provisions of article 17 of the agreement.

7. Co-ordination of the sugar and paper industries in the Arab countries*

The sugar industry in the Arab countries

In 1963, sugar consumption in the Arab countries amounted to 1,851,183 tons, while production amounted to only 425,800 tons. Thus Arab countries had to import 1,425,383 tons of sugar. On the basis of the average price over the past ten years of LE 38.4 per ton, this represents sugar imports during 1963 valued at LE 54,734,707.

The United Arab Republic and Morocco produce most of their requirements, the United Arab Republic utilizing domestic raw materials and Morocco relying on imported raw sugar. In Algeria, there is a sugar-beet factory with an annual productive capacity of 3,500 tons. This factory, which was established in 1953, ceased working during 1961-1962. Tunisia has a sugar-beet factory which was established in 1962. In Sudan, which produces high quality sugar-cane, two factories were built at al-Junid and Kushm-al-Karia. When working at full capacity, these two factories satisfy 80 per cent of domestic sugar requirements. The three plants existing in Lebanon, comprising two sugar refineries and a sugar-beet factory, can satisfy the domestic need for sugar. In Syria, the sugar refinery and the sugar-beet factory can meet only half the local demand for sugar. Iraq has one sugar-beet factory with an annual capacity of 1,000 tons.

In order to increase sugar production in the Arab countries and ensure industrial integration, it is necessary to reconsider the programmes of those countries with a view to establishing economical sugar plants that can supply raw sugar at low cost. The formation of a union among the Arab countries to supervise planning and organization and to train technicians would be desirable. Moreover, there is a need for setting up a permanent board to deal with the marketing and distribution of the raw sugar needed by the factories in order to eliminate uneconomical and fragmentary purchases of raw sugar by individual factories.

It is also desirable to review land productivity with respect to various crops so as to adopt the crop rotation that would maximize the income of farmers as well as the national income. In this way it would be possible not only to improve agricultural integration but also to contribute to the over-all industrial integration of the Arab countries.

A comparative study of the economics of sugar-cane cultivation in the United Arab Republic reveals the following:

(LE per acre)

	Sugar cane	Other crops	Increase
Value of production	108.8	82.9	25.9
Value added	67.0	62.1	13.9
Net income to farmers	61.2	48.6	12.6
Exports	203.0	104.4	98.6
Effect on balance of payments	183.4	97.4	86.0

Another comparative study of the economics of sugar extraction from sugar beets in Syria shows that the value of sugar exports from one acre amounts to £E 103.5, compared to £E 203 in the United Arab Republic, which uses sugar cane.

The foregoing indicates that studies would be desirable in each Arab country on the economics of sugar extraction from other agricultural crops, similar to those undertaken by the United Arab Republic. In this way, it would be possible to cultivate high yield crops thus maximizing the value added and the net income of the farmer. Furthermore, if consideration were given to the world market prices of the crops under study, it would be possible to evaluate the impact of cultivating each of these crops on the balance of payments. It should be noted that the prevailing unit price of sugar beet is relatively higher than the unit price of sugar cane because the sugar content of the former is generally lower than that of the latter. This should be taken into consideration when the proposed economic studies on sugar production are undertaken.

Industries for the extraction of sugar from sugar beet have been established in countries where the cultivation of sugar cane is uneconomical. Sweden, for example, is limiting the expansion in sugar-beet cultivation to produce only the amounts necessary to extract 50 per cent of its requirements of refined sugar, due to the high cost of cultivating and processing sugar beet. To meet local demand for sugar, Sweden supplements its domestic production by imports. The application of such a policy would undoubtedly be feasible in Arab countries aspiring to economic co-operation and integration, in view of the availability of high quality sugar cane cultivated in some of those countries, such as the United Arab Republic, Sudan and southern Iraq. It is evident that the establishment of an export-oriented sugar industry will require subsidies in all the producing countries, and especially in those cultivating sugar beet. Such subsidies may be financed by means of production and consumption taxes.

Total sugar requirements of the Arab countries are estimated at about 2 million tons per year, of which about 75 per cent is at present imported. This well justifies a policy aimed at self-sufficiency in sugar production. However, the countries cultivating sugar beet should see to it that one-half of their local demand

* Paper presented by the Council of Arab Economic Unity.

for sugar is satisfied from locally produced sugar, and the remaining half by imports of refined sugar from other Arab countries cultivating and processing high quality sugar cane.

It is estimated that total sugar consumption in the Arab countries will increase to 3,172,000 tons in 1970 and to 6,849,000 tons by the end of 1980. The need to commence planning an increase in sugar production without delay to meet the rising demand is self-evident.

The estimated value of sugar consumption in 1970 and 1980 is estimated at LE 146 and 345 million respectively. Failure of the Arab countries to expand their productive capacity to the extent commensurate with this rise in demand would mean that substantial funds would have to be spent on the import of sugar from non-Arab countries.

The paper industry in the Arab countries

Shortage of forest land is a common feature of the Arab countries. The main sources of paper pulp which may be used to satisfy consumption for a number of years to come are described below.

Wood

Most of the wood is hardwood, found in the Arab countries of North Africa, especially the Sudan. It is also possible to plant fast growing camphor and poplar trees. These resources are sufficient to meet the domestic requirements of the Arab countries and are expected to cover part of the deficit in the consumption of paper pulp in Western Europe, estimated at between 2 and 3 million tons by 1975.

Field crops

The principal field crops with similar features as regards harvesting, wrapping and distribution are described below.

Sugar cane

This is used mainly for the extraction of sugar, but it could be exploited by the paper industries with a view to achieving economies of scale and reducing the cost of raw materials in both industries. It is essential that the capacity of the sugar production unit should not fall below 1 million tons of sugar annually, and that the distance between the two plants should not exceed 50 kilometres, so that the price of the raw material might remain economical.

In the United Arab Republic, sugar cane is cultivated in large quantities for use in the extraction of sugar and constitutes a basic material for manufacturing paper. By the end of the present five-year plan, total sugar-cane production in the United Arab Republic is estimated to reach 1.25 million tons, from which about 400,000 tons of paper pulp may be produced.

From the technical point of view, sugar cane is one of the most suitable field crops for manufacturing paper pulp owing to its very low content of silicon (2 per cent), compared with other crops in which such content varies between 7 and 10 per cent. This reduces the cost of processing sugar cane, irrespective of the method used.

Bamboo

This grows naturally in some countries of the region, particularly the Sudan. It is also possible to cultivate improved varieties. Bamboo differs from other field crops in that it has long fibres, which can be used as a partial substitute for imports of soft wood. Its silicon content is relatively high, varying between 5 and 6 per cent, so that it lends itself more readily to certain processing methods than to others.

Reeds

These are a type of hardwood to be found in some countries of the area, particularly Iraq, where 1 million tons per year may be obtained from an area of 200,000 acres. Reeds constitute a basic raw material in Iraq for the manufacture of paper, since about 400,000 tons of paper pulp may be obtained from 1 million tons of reeds.

Grain husks

Large quantities of wheat, barley and rice are grown in the area. Most of the husk of the first two cereals is used as animal feed. The United Arab Republic has a plentiful supply of rice husks which, if fully exploited, could be used to produce some 400,000 tons of paper pulp annually. This, however, is not economically practicable owing to the high cost of cleaning and transporting the husks; the gathering of husks must be limited to within a radius of about 200 km from the factory. In addition, the silicon ratio is high, ranging from 8 to 10 per cent, which means that processing must be limited to certain methods.

Esparto

This grows in all the Arab countries of North Africa and is considered one of the best raw materials for the production of paper, despite its short fibres. However, the gathering of esparto is costly (LE 10 per ton) and requires a large supply of manpower. For these reasons, esparto cannot be relied upon to meet the increasing consumption of paper in the area unless a mechanical method of harvesting is devised.

The paper industry requires, in addition to raw materials, an adequate supply of water. Owing to the meagre water resources in some countries of the area, research is being conducted into the possibility of utilizing industrial "left-over" water, as well as salt water in certain phases of industry. The drainage of industrial "left-over" water poses another important problem. Such water requires chemical treatment before being drained into the rivers. Where the ratio of silicon in the raw material is low, the chemical treatment is relatively easy; but where the ratio is high, treatment becomes uneconomical. In the latter case, the paper plants would have to be established on the sea coast and discharge the waste water without resorting to chemical treatment.

The paper industry also requires certain basic minerals such as salt, limestone and sulphur. The first two are available in the Arab countries, but there is a deficiency of sulphur. Fuel presents no problem for most countries of the area.

In addition, the availability of experienced staff is of vital importance to the paper industry. The opening of vocational and training centres where such industries exist may provide the solution to the shortage of technicians.

The economics of the paper industry depends largely on the availability and ease of gathering raw materials. In order to meet the demands of local consumption and exports, consideration must be given to the size of the production unit to be established and the optimum balance between the production of pulp and paper.

If conditions warrant only the establishment of small production units to satisfy local consumption requirements, such units should be designed to manufacture a variety of paper products. Irrespective of any such considerations, however, each paper project should be studied separately with a view to improving its productivity.

The proposed integration of the paper industry in the Arab countries will serve to eliminate many of the risks involved in the establishment of small plants. Large-scale production by specialized plants is desirable when a suitable source of raw materials is available, provided an adequate market is available for the product in the countries of the area. The establishment of an integrated paper plant producing paper pulp and two or three kinds of paper, but with a predominance of pulp production to cover the need of other paper factories producing paper only, will be of great economic benefit to the area.

In 1963 paper consumption in the Arab countries amounted to 438,400 tons, while production amounted to 176,600 tons. The bulk of the raw material required for this production was imported. The net imports of paper thus totalled 273,300 tons. On the basis of an average price of the various kinds of paper of LE 100 per ton, this represents paper imports during 1963 valued at LE 26,180,000.

The two principal producers of paper in the Arab countries are Morocco and Algeria. Morocco produces approximately 18,500 tons per annum of paper pulp from local wood as a source of raw material. About 14,000 tons of this production represents exports. Algeria produces about 23,000 tons of paper pulp per annum. The paper industry in the other Arab countries is based essentially on the import of pulp, and local scrap which is used in the manufacture of cardboard and cheap wrapping paper.

Taking into consideration the rate of population growth, the level of *per capita* income and the expected expansion in education and industrialization, the annual increase in paper consumption in the Arab countries is expected to be about 7.3 per cent. Thus by 1970 the total paper consumption in those countries will reach 715,000 tons, valued on the basis of current prices at LE 71.5 million. By 1980, total consumption will amount to 1,440,000 tons, valued at LE 144 million. Failure to expand the paper industry to meet the increasing demand will result in the Arab countries having to divert substantial financial resources to the import of paper and paper products.

It is therefore most necessary to plan for the expansion of paper production in the Arab countries on the basis of local raw materials to meet domestic consumption in the area up to 1980.

8. Co-operation with foreign industrial firms in the establishment of industrial projects in Kuwait [10]

As a result of shortage of capital and lack of administrative and technical experience, developing countries are facing immense economic problems in the implementation of their development programmes. In recent years, those problems have increased owing to the deterioration in international trade, the decline in foreign exchange earnings from raw materials produced, and the high rates of population growth, which have delayed the achievement of better living standards.

Although Kuwait has ample resources of foreign exchange, it suffers more than other countries of the area from limited local markets and the absence of skilled manpower. It has endeavoured to deal with these deficiencies through co-operation with large industrial firms to obtain assistance in the development of the economy.

In the process of developing its economy, Kuwait has laid great emphasis on industrialization. A study of the industrial potentialities of the country reveal an obvious need for skilled labour, raw materials (excluding petroleum and natural gas), markets for manufactured products, and technical experience. An endeavour has been made to secure these essential requirements by co-operation with experienced industrial firms.

For this reason, legislation has been introduced encouraging participation of foreign capital in the establishment of industrial projects, provided foreign ownership is limited to 49 per cent of the total investment. Repatriation of foreign capital and profits is permitted without restrictions. Income tax is imposed only on totally foreign-owned enterprises, and is on a graduated scale ranging from 5 per cent on a net annual income of KD 5,250 to 50 per cent on a net annual income of KD 375,000. Income tax is not imposed on the income of foreign partners who participate with local enterprises in industrial projects.

Existing legislation also protects the rights of partners in industrial projects through registration of trade-marks with the Ministry of Trade for a renewable period of ten years, patents for a period of fifteen years renewable for five additional years, and industrial models and patterns for a period of five years renewable for two additional periods. Employment regulations place no obstacles in the way of the entry of foreigners to the country, or the renewal of their residence. Income earned in Kuwait is not subject to income tax or any other tax, and no restriction is placed on its transfer from the country.

The promulgation of industrial law No. 6 of 1965, which clearly defines the facilities offered by the State to industrial projects established in Kuwait, whether locally owned or of mixed ownership, encourages foreign industrial firms to participate with local enterprises in industrial activities. Article 14 of the law grants industrial projects exemption from taxes, including income tax, and from the payment of customs duty on imported machines, equipment, accessories, raw materials and semi-manufactured materials. The law also provides for the possibility of raising the customs duty on imported goods for a maximum period of ten years in order to protect growing industries from foreign competition. Industrial projects established in Kuwait, whether Kuwaiti-owned or of joint ownership with a foreign industrial institution, may obtain from the Government through the Credit and Savings Bank long-term loans at a low rate of interest, as well as land at nominal prices.

[10] Paper presented by the Ministry of Trade and Industry of Kuwait.

Co-operation between foreign and domestic industrial firms in Kuwait takes the following forms: participation in capital; participation in capital and in management, and provision of technical experience and advice.

An example of an industrial project is described below.

THE KUWAITI-DANISH DAIRY PRODUCTS COMPANY

The company's capital is KD 250,000, 51 per cent owned by Kuwaitis and the remainder by the Danish partners. The project is organized as a limited liability company. The building and construction of the plant was undertaken by a Kuwaiti company, with the Danish partners preparing the plans and maps and providing the plant with the necessary machines and equipment.

Under the agreement, the Danish company is to provide technical experience and equipment. There are at present three Danish dairy experts and chemical engineers in Kuwait. The Danish group is to undertake the operation and maintenance of the plant free of charge as long as the project remains in operation. There is at present a small laboratory in which research and experiments are carried out in co-operation with the Danish laboratories in Copenhagen, with a view to improving the quality of production. The Danish group also provides training courses for workers, the expense of which is borne by the Kuwaiti-Danish company.

Marketing in Kuwait is carried out by the Kuwaiti and Danish partners through a special sales section under the supervision of the general manager. Raw materials consisting of dried and frozen milk are purchased from the Danish company in Denmark at world prices.

The free use of the Danish company's trade-mark was agreed upon by the company.

The company is managed by a five-man board of directors, three of whom represent the Kuwaiti and two the Danish interests. The general manager, who may be either Kuwaiti or Danish, is appointed by the board.

Subsequently the Government entered into an agreement with two other companies for the implementation of the first stage of a petrochemical project for Kuwait.

Some of the important problems facing the development of local industries are lack of industrial and technical experience, scarcity of raw materials, and lack of administrative experience. This has resulted in relatively high labour costs. The need to import raw materials has also proved costly. The resulting high unit cost of the finished products has made competition in the open market difficult.

Further problems have been experienced in the technical management of projects. Although the laws in force place the general management of industrial firms in the hands of Kuwaiti nationals, it will be some time before sufficient experience has been obtained by Kuwaiti nationals in the detailed operation of the plants, including technical supervision, production control, and laboratory operations. Reliance will, consequently, have to be placed on the industrial firms concerned to train Kuwaiti nationals to assume these responsibilities in as short a time as possible.

Apart from the general problems faced by Kuwaiti industries, certain projects in which foreign industrial enterprises have participated have had to face other problems. While some of these have resulted from non-adherence to the terms of agreements necessitating the appointment of technical experts to supervise the execution of the agreements—others have resulted from the selection of industrial companies with long experience and exceptional technical skills, involving the Government and other national enterprises in heavy expenses. The comparatively high cost of technical and industrial advice has contributed to raising the cost of existing industrial projects.

The economic conditions governing co-operation between industrial enterprises in the advanced countries and the developing countries indicate that some of these enterprises still hold strongly to their privileges and are reluctant to relinquish them in order to satisfy the increasing need of developing countries, even though such co-operation is in the interest of those enterprises, since most developing countries have started implementing industrialization programmes. It is not enough that agreement be reached on the provision of an industrial model, the use of trade-marks, or the supply of technical and administrative experience; it is important that agreements should also include the provision of essential information on modern methods of production and the latest scientific discoveries and manufacturing designs, and that industrial firms should not keep so-called production secrets, industrial research centres and laboratories for themselves alone, since the availability of such information and facilities to the projects of the developing countries will expand the basis of co-operation, strengthen confidence, and hence serve the mutual interests of both parties.

B. *Problems of industrialization*

1. Industrial development and the first five-year plan in Kuwait [12]

In Kuwait's first five-year plan for economic development (1966-1971), some of the important objectives are: diversification of the economy by broadening its base, maintenance of a high rate of growth in national income, increase in the scope of gainful employment, and rapid development of human resources. Certain negative features of the economy of Kuwait, such as lack of employment opportunities in agriculture, the Government's redundant payroll, and overcrowding in the commercial sector, afford further reasons for giving importance to industry in the country.

Industrialization in Kuwait is handicapped by a number of factors. These may be briefly stated as: absence of raw materials other than crude oil and natural gas; narrowness of the home market; inadequacy of fresh water; high labour costs; paucity of technical, organizational and entrepreneurial skills, and the absence of

[12] Paper presented by the Kuwait Planning Board.

motivation to join the industrial labour force because of the plentiful employment opportunities that the Government provides.

These handicaps to industrialization are to a certain extent counterbalanced by the advantages which accrue to Kuwait from the vast supplies of capital, abundant cheap natural gas as a source of power, access to a great variety of refined petroleum products, and a favourable geographical situation at the head of the Arabian Gulf. Added to these natural advantages are the Government's liberal policy regarding the import of workers and technicians, together with freedom in the remittance of earnings and profits.

Industrial development in Kuwait in recent years has not been governed by a carefully worked-out long-range strategy, but by a series of *ad hoc* decisions that appeared to be most profitable and expedient at the time. The Government, while showing every willingness to quicken the pace of industrial growth, has been hampered in giving effect to this desire by the absence of a coherent design of optimum industrial development within the framework of a comprehensive development plan.

At present, manufacturing industries do not play a significant role in the economy of Kuwait. The value added by industry in the gross domestic product for the year 1965-1966 has been estimated at KD 25 million out of a total KD 835 million, representing a ratio of 3 per cent only. The role of industry in the field of employment has been more significant than its contribution to the domestic product. According to the industrial census taken in 1964—which was the first of its kind in Kuwait—the total number of persons employed in industrial establishments (excluding oil production) was 21,607. This was 14 per cent of the then estimated labour force in the country. About one-third of the industrial workers were engaged in the production of "goods", while the remaining two-thirds were in strictly service activities, primarily the repair of motor vehicles.

The industries which exist at present in Kuwait either cater for the local market in construction materials, repair and maintenance work, or are based on petroleum and gas. There are a few industries which provide simple consumer requirements such as soft drinks, flour, bread-baking and tailoring. In addition, there are some miscellaneous industries such as printing and publishing and the government-owned chlorine plant at Shuwaikh. Of the old traditional industries, the only one still existing is boat-building.

The industrial policy followed by the Government so far has sought to give maximum encouragement to private enterprise; the Government has also recognized that, at the current stage of the country's development, circumstances dictate active support to industry, going in many cases as far as actual participation. Regulatory activities in the industrial field have been designed to ensure its progress on sound economic lines. As a result of government participation in industry, Kuwait has a sizable semi-public or joint sector which consists of companies financed by government loans and grants, as well as by private contributions. The companies in the joint sector enjoy a much greater degree of administrative and managerial autonomy than public agencies.

Government has so far participated in the capital of the following industrial companies:

	Extent of government participation (percentage)
Kuwait National Petroleum Company	60
National Industries Company	51
Petrochemical Industries Company	80
Kuwait Flour Mills Company	50
Kuwait Asbestos Industries Company	38.5
Kuwait Chemical Fertilizer (government share belongs to Kuwait Petrochemical Industries)	48
Kuwait Prefabricated Housing Company (government share belongs to Kuwait National Industries and Kuwait Investment Company)	48

In 1961, the Kuwait Investment Company was established with a paid-up capital of KD 7.5 million, of which the Government share was 50 per cent, for the purpose of participating in national companies with a view to encouraging industrialization.

To stimulate development in the manufacturing sector, the Government is building the infrastructure for an industrial area at Shuaiba. Under the direction of an independent government authority known as the Shuaiba Industrial Development Board, the groundwork is being laid for a big industrial complex.

In addition to creating the infrastructure of an industrial area at Shuaiba, the Government is helping the process of industrialization by providing easy and cheap financing facilities for industries. A credit bank with a wide scope of operations covering industrial, agricultural and real-estate loans was set up in October 1960 with a capital of KD 7.5 million entirely subscribed by the Government. Besides lending, this bank was permitted to establish companies and participate in their capital. It was absorbed in an expanded Credit and Savings Bank in 1965. This bank has a capital of KD 20 million, entirely subscribed by the Government. It will be managed by an independent authority under the supervision of the Ministry of Finance. The new bank exercises most of the functions of its predecessor but has greater authority in the granting of loans for social purposes to the citizens of Kuwait.

In March 1965, a new industrial law was adopted to ensure continued and increasing Kuwaiti control of industry and the establishment of new industries on sound economic lines, and to facilitate the proper coordination of industrial activity in the country. Under that law, the establishment and operation of manufacturing units will become exclusively a Kuwaiti sphere, since licences will be granted only to companies which are 51 per cent Kuwaiti-owned, have an effective Kuwaiti manager and a majority of Kuwaiti nationals on the board of directors. However, this law does not exclude foreign participation in industry in terms of either capital or technical assistance. The law also empowers the Government to provide assistance to industry in the form of exemption from import duties of capital goods and raw materials needed for industry, tariff protection, subsidized power and water rates, and preference in government purchases for locally manufactured products.

The precise size and composition of the industrial development programme in the five-year plan cannot be established at present. Important investigations into the industrial potential of the country are currently in progress. Consultants have been appointed to survey the prospects and determine the economic feasibility of a number of industries which *prima facie* show

promise; the full possibilities of gas-based industrialization in Kuwait is also under examination. The extent to which industrialization will be influenced by considerations of regional economic cooperation in the Arab world is still in the realm of speculation.

For these reasons, the plan's programme of industrialization furnishes only a broad picture of the prospects as envisaged at present. It is a flexible framework for industrial growth and is not to be taken as a rigid and immutable blueprint. The financial investment figures of the plan should be construed as representing a broad indication of the order of magnitude of outlays in the industrial sector, which may change in the light of information revealed by further studies, or by new developments which cannot be foreseen at present.

The principal criterion for determining the actual composition of the industrial programme will be the net return over costs per unit of invested funds. At the present stage of development in Kuwait, advanced programming techniques such as input-output analysis and linear programming are not suitable. The fact that the economy of Kuwait is centred on one commodity (oil), that it depends on imports for the bulk of its consumer requirements as well as capital goods, and that it has very limited inter-industry relationships, sharply limits the usefulness of input-output analysis and other advanced mathematical techniques. The paucity and unreliability of the available data is an added reason why meaningful results cannot be obtained from such techniques at the present time.

The plan provides for an investment of KD 100 million in industry, of which KD 12 million is in the public sector, KD 62 million in the semi-public sector and the balance of KD 26 million in the private sector. This is 14.3 per cent of the contemplated total plan investment of KD 700 million. A tentative analysis of this expenditure by year is given in the following table:

Expenditure on industrial development during the plan period

(KD million)

	Public sector	*Semi-public sector*	*Private sector*	*Total*
1966-1967	3.00	25.00	5.00	33.00
1967-1968	3.00	11.50	4.50	19.00
1968-1969	2.00	7.00	5.00	14.00
1969-1970	2.00	8.50	5.50	16.00
1970-1971	2.00	10.00	6.00	18.00
	12.00	62.00	26.00	100.00

Of the proposed total investment of KD 100 million in the industrial sector, KD 60 million is assigned to industries based on petroleum and gas. The semi-public or joint sector will play a dominant part in this group of industries, accounting for KD 54 million; the balance is earmarked for the private sector.

For industries outside the petroleum complex, the plan makes a total provision of KD 40 million: KD 12 million in the public sector, KD 8 million in the semi-public sector and KD 20 million in the private sector.

During the early part of the plan period—some time in 1967—the Shuaiba refinery of the Kuwait National Petroleum Company will go into operation. The total cost of this refinery is some KD 35.5 million, of which KD 7.5 million will have been incurred prior to the inauguration of the plan. The balance of KD 28 million is likely to be spent in the first two years of the plan: KD 23 million in 1966-1967 and KD 5 million in 1967-1968.

The refinery during its construction phase is providing job opportunities for 3,000 persons; in its operation stage it will give employment to 200 persons only. This refinery has a capacity of 95,000 barrels per day.

The economic justification for the Kuwait National Petroleum Company's export refinery in Shuaiba is that, in addition to being capable of charging a relatively small amount of crude, it will also convert the ordinary distillates and residual fuels into products which are readily saleable throughout the world because of their high quality or because they are in short supply. The company has already found markets for the petroleum products of this refinery in West Germany, Pakistan and India, in addition to the local market of Kuwait.

For the financing of the refinery, the Kuwait National Petroleum Company was granted a loan of KD 25 million in July 1965. There is also a proposal to raise more funds by doubling the company's present authorized capital of KD 7.5 million through the issue of 1 million shares, open both to public and private subscription.

The Arabian Oil Company is expected to complete a refinery at Ras-al-Khafji with an estimated capacity of 1.5 million metric tons per annum. The cost estimates of this refinery are not yet available. They may be in the region of KD 10 to 12 million.

No extension in the capacities of the two existing refineries is contemplated at present by the companies concerned. If the capacities of the refineries are subsequently expanded, an upward revision will be required of the present plan provisions for petrochemical industries in the private sector.

Petrochemicals have an important place in the industrial development of Kuwait. When examining the feasibility of a petrochemical industry in Kuwait, it has to be borne in mind that, while Kuwait has an abundance of capital and the great advantage of cheap energy (particularly natural gas), it suffers from the handicap of having virtually no home market for those products. The industry has also to reckon with foreign competition from large and well established chemical firms.

For a country in Kuwait's position, the central problem is to find petrochemical industries where the cost of fuel, in which the country has a decided advantage, forms a sufficiently high proportion of total costs to counteract disadvantages in other costs. This is the case with "first stage" petrochemicals such as ammonia and ethylene. Economies of scale are also most significant at that early stage. However, even such "first stage" petrochemicals have to be marketed. Kuwait's best policy in that regard would be to set up subsidiary plants in prospective markets to process the "first stage" products into marketable form.

Under active examination at the present time is a project for setting up a new ammonia plant scheduled to be in operation by 1969 with a daily capacity of between 1,100 and 2,000 tons of liquid ammonia. This

plant will produce urea and 500 tons of methanol. Like the first petrochemical complex, this plant will be set up in the Shuaiba industrial estate. It is expected that a number of subsidiary plants for the further processing of these "first stage" products will be set up in foreign countries with the participation of Kuwaiti capital. Detailed cost estimates of this project have yet to be worked out.

If the present investigations of the feasibility of a whole range of "first stage" petrochemical industries demonstrate the economic viability of such industries, there is every likelihood that the present provision for such industries in the plan will have to be revised upward quite considerably.

Ideally, in order to draw up the best possible programme for investment in non-petroleum industries, a complete technical and economic analysis would be needed of a great many alternative possibilities, showing the various costs and returns from each. Such information is only partially available in the country today for industries outside the petroleum complex. Consequently, any recommendations made at the present time must be based in large part on qualitative judgement rather than on adequate technical data. A great deal of further study and investigation will be needed as the programme is put into effect, and changes will no doubt be necessary. Looking ahead, the projects described below are the most likely areas of new investment.

Chlorine plant. The existing chlorine plant operated by the Ministry of Electricity and Water has a limited production capacity. To meet the domestic demand for chlorine during the plan period, it is proposed to set up a plant with a capacity of 30 tons/day of chlorine. In addition, this plant will have a daily capacity of 60 tons of sodium chloride and 35 tons of caustic soda. It will also produce hydrochloric acid in quantities sufficient to meet the expected domestic demand. The present estimated cost of investment in this plant is KD 1.5 million.

Asbestos cement pipes. At present, the Kuwait Asbestos Industries Company produces pipes and joints between 100 and 600 mm in diameter. During the plan period, the Asbestos Industries Company will, in addition to the present range of sizes, produce new sizes with nominal diameters of 50, 60, 75 and 80 mm. These smaller pipes will be produced in lengths of up to 4 metres. It is also likely that, in the later years of the plan, the company will produce corrugated asbestos sheets. The total new investment by the Asbestos Industries Company during the plan period is expected to be some KD 1 million.

Flour mills. The Kuwait Flour Mills Company is expected to invest KD 1.5 million during the plan period. It proposes to set up a modern bakery as well as a spaghetti and biscuits plant for the home market.

Cement. There is likelihood of a cement factory being set up by the National Industries Company during the plan period. As Kuwait is a large user of cement (the value of imports of cement of all kinds during 1963 and 1964 was KD 3,439,838 and KD 3,368,269 respectively), a good case for the establishment of a cement works exists.

Air-conditioning equipment. Kuwait has at present a sizable domestic market for air-conditioners, which is expected to register a further growth in the coming years. In addition to the sizable and growing home market, there is also the possibility of significant exports of air-conditioners from Kuwait to neighbouring countries. These considerations make a strong *prima facie* case for the setting up of an air-conditioning assembly plant in Kuwait. The feasibility of this proposal is being studied by a leading firm of international industrial consultants. If the findings of the feasibility study support the case for setting up an assembly plant for air-conditioning equipment, there is every likelihood of this being established during the plan period.

Tyres. Imports of tyres in Kuwait were valued at KD 1,452,898 in 1963 and KD 1,330,254 in 1964. The market may not be large enough to warrant the establishment of a factory locally to compete with imported tyres. It is, however, big enough to sustain a factory for rebuilt tyres. The feasibility of setting up a tyre factory is being examined by consultants.

Glass products. A sizable market exists for glass products in Kuwait. The imports of such products in 1963 and 1964 were valued at KD 589,905 and KD 592,202 respectively. The size of this market is sufficient to justify local manufacture. A feasibility study is now being made by consultants.

Pharmaceuticals. One of the distinguishing features of Kuwait as a welfare State is its free health services. This has stimulated large imports of pharmaceuticals into the country, valued at KD 1,121,927 in 1963 and KD 1,180,323 in 1964. The size of this demand is sufficient to justify the establishment of local manufacture in at least some of the standard items in wide demand. If current investigations into the viability of this industry demonstrate its economic feasibility, investment expenditure will be incurred on this industry during the plan period.

Blankets. There is a possibility of an industry being set up in Kuwait during the plan period to produce a range of blankets suitable for the domestic and export markets. The total investment required for a blanket factory with a capacity of 1,000 tons annually would be approximately KD 250,000.

Soap. There is also the likelihood of a soap factory being established during the plan period. A feasibility study is currently being made.

Cotton and rayon products. Studies are currently being made to determine the economic feasibility of setting up a textile plant in Kuwait during the plan period. The total imports of cotton and rayon products were valued at KD 4,787,885 in 1963 and KD 5,990,470 in 1964. This level of consumption is sufficient to warrant consideration of a textile mill which would weave and finish high quality cotton and rayon goods.

Steel re-rolling mill. Careful consideration is also being given to a steel re-rolling mill to produce reinforced iron from scrap rolled sections. It will use imported steel ingots or billets. These will be rolled into bars and light sections, thus supplying the home market need for such products. According to the report of the industrial and process engineering consultants, a rolling mill with an annual capacity of 30,000 tons a year, would be appropriate for Kuwait. The over-all cost would be in the neighbourhood of KD 3 million.

In addition to the industries mentioned above, other possibilities during the plan period are paint manufacture, slaughterhouse by-products, batteries, an assembly

plant for radio and electrical appliances and miscellaneous food industries.

By the end of 1966, it is expected that all the infrastructural work in the Shuaiba industrial estate will be completed. Electric generation capacity will be increased to 280 mw by the installation of a new 70 mw unit. The capacity of the water distillation plant will have been expanded to 10 million gallons per day by the end of the plan period. Also, it is expected that in this period the residential centre for which a site between eastern Ahmadi and Fahahil has been chosen will be completed. The population of the centre is estimated at 10,000 residents. Work on the oil pier for loading tankers will be another project which will be initiated and completed in the plan period.

There is no doubt that, during the plan period, the Shuaiba industrial estate will play a decisive role in locating, expanding and strengthening small, medium and large industries within the framework of a broad programme of industrialization. The expected investment expenditure on developments in Shuaiba is KD 8 million.

Fixed capital formation in the industrial field during the plan period will come from government loans, loans by the Credit and Savings Bank and other commercial banks, as well as from private and business savings. The Credit and Savings Bank is expected to play a decisive role in the financing of industrial investment. Direct government loans to industry will, as a consequence, assume diminishing importance. It is expected that the Credit and Savings Bank will have a special section for industrial financing whose main purpose would be to provide the long-term and medium-term financing necessary for industrialization; to arrange where necessary for managerial and technical assistance and to keep in close contact with the financial affairs of firms to which it makes commitments, and to endeavour to develop a market for the securities in its portfolio when they have attained financial maturity

It is also proposed to establish a stock exchange in Kuwait during the plan period, once the volume of trade in shares warrants such a development. Unfortunately at the present time the market in securities is very limited. The reasons for the delay in the growth of a security market in Kuwait are varied. Direct government participation and bank finance have so far been used as a substitute for resorting to the security market, and the small size of the security market presents difficulties of a purely technical kind with respect to the offering of new issues for public participation.

During the plan period it is also proposed to set up a Kuwait bureau of standards.

Under the new industrial law, powers have been given to the Government to promote industrialisation by exempting from duty imports of machinery, spare parts, and raw materials needed for the establishment of industries, as well as by imposing protective tariffs. It is proposed to use this power judiciously in the plan period for the stimulation of industries

It has to be recognized that the incentive of free imports of machinery, spare parts and raw materials for the establishment and operation of industries cannot provide a significant measure of assistance to nascent industries. The present level of customs duties is only 4 per cent *ad valorem* and exemption from it can have only a small influence in relation to other factors that impede industrialization in Kuwait

There is no doubt that, as in other newly industrialized countries, the Government will have to protect new and nascent industries against outside competition through tariffs. If industrialization in Kuwait is to make significant strides, a favourable response to claims for a measure of protection for industries to be established will be necessary

As regards the duration of tariff protection, it should not normally extend beyond ten years. This period should in most cases be sufficient to provide the necessary protective umbrella to new industries and enable them to reach a stage where they should become self-supporting and cease to need protection.

Programmes for improving the technical skills of the labour force and for the training of business managers have a vital role in the achievement of the goals and targets of the plan's industrial programme. These training programmes are also of crucial significance in the country's strategy of long-term growth.

It is expected that the present technical school will become a university faculty of engineering during the plan period. For the training of industrial staff of the foreman grade, a new technical institute will be opened. For the lower level staff required by industries, a trade school will be established. It is also planned to organize practical training programmes by arranging placements with industries and institutions in industrially advanced countries. In addition to training for industry, part-time courses will be arranged for the upgrading of foremen already engaged in industry.

As a result of the plan's industrial programme, it is expected that the value added by industry to the gross national product will increase from KD 25 million in 1965-1966 to KD 48 million in 1970-1971. This represents an increase of 5.3 per cent. The percentage share of industry in the gross national product will increase from 3 per cent in the base year 1965-1966 to 3.9 per cent in the final year of the plan, 1970-1971. The direct increase in employment in industries outside service activities is expected to be 1,500 during the operating stage. The employment increase will doubtless be much greater during the construction stage of those industries when as many as 4,500 additional persons may be employed. In the service industries, the increase in employment is expected to be of the order of 3,000. These employment estimates are very rough approximations and may undergo considerable revision.

2. Industrial planning in Iraq in the light of the over-all economic plan [18]

The private and mixed sectors

One of the most important steps taken by the State to encourage industrialization in Iraq was the establishment, in 1936 (law No. 33 of 1935) of the Industrial Bank as a purely government owned institution. Subsequent legislation (law No. 12 of 1945) described the object of the bank as being the development of industry in Iraq, this object to be achieved by the following means: establishment of industrial projects by the Bank; participation in the capital of existing

[18] Paper presented by the Ministry of Industry of Iraq.

industrial companies and those to be established in the future, and provision of credit required for development projects.

The Bank took steps to establish new industries and strengthen existing ones through the extension of loans and direct participation in their capital. Initially, most projects dealt with the processing of agricultural raw materials. These projects were comparatively large and were to a great extent instrumental in the development of industrial activity in Iraq. However, the bank's efforts were limited by economic conditions and the traditional social structure that prevailed in Iraq at the time.

Apart from the Industrial Bank's role in financing the private and mixed industrial sectors, it becomes clear that the growth of industry in the private sector has not taken place within the framework of a preconceived plan. Rather, it is the private investors' choice that has determined which industrial projects should be established. This process, however, has been subjected to a measure of guidance through the development of laws for the encouragement and promotion of industry.

Under the provisions of the development law, the establishment of an industrial project requires that the capital invested in machinery, tools, and equipment shall be not less than ID 3,000. The application for establishing the project is to be submitted to the general administration for the development of domestic industries of the Ministry of Industry, which studies the case with the help of other agencies such as the industrial planning department and the Industrial Bank. The most important factor taken into consideration in these studies is demand, that is, the possibility of marketing the products of the proposed project in the light of the production capacity of existing projects and those in process of establishment. A summary of these studies is then submitted to the industrial development committee composed of representatives of the Ministries of Industry, Planning, Finance, Economy, and the Federation of Industries. The committee, in turn, submits its recommendations to the Minister of Industry, with whom rests the final decision on whether to grant or withhold the license.

The large financial requirements of some projects in the private sector could be met only if the Industrial Bank subscribed to their capital. The bank did this on the basis of generally accepted principles, such as the prevention of the rise of private industrial monopoly, encouragement of industrial projects, and safeguards for the interests of the consumer by insistence on a certain standard of quality and prices. In some cases, the bank itself decided on the establishment of industrial projects.

The public sector

The public sector has passed through several stages of programming and planning. The organization of this sector began with the inflow of oil revenues.

The new oil agreement concluded in the early nineteen-fifties greatly increased the country's financial resources. In fact, this increase provided an important impetus to the growth of the industrial sector and eliminated one of the most important problems that had obstructed economic and industrial development in Iraq, namely, scarcity of capital and foreign exchange.

The Government decided at that time to entrust the implementation of the major projects to the Development Board. This agency was created (law No. 23 of 1950) to make effective utilization of the new revenues. The board studied Iraq's potentialities and natural resources with a view to formulating a programme for their economic exploitation and development in order to increase national income and raise the standard of living of the people. The programme included projects in the industrial, electrical and mining sectors.

The first decision to be adopted by the Development Board regarding industrialization was to draw on the services of foreign investment companies to prepare the necessary studies. These companies prepared specifications and designs for a number of industries and later supervised their implementation. The board also established a technical committee of industrial experts (the third technical committee) to assist in selecting advisers for each approved project; co-ordinate the work of advisers in the event of engaging more than one; serve as liaison between the advisers and the board, and make contacts with the government departments concerned with the project.

Among other measures taken by the Development Board was the preparation of preliminary studies for each proposed project, on the basis of which the Board would decide whether a more detailed study was necessary or whether the project should be rejected. In 1952, a mission from the International Bank for Reconstruction and Development (IBRD) prepared an initial survey of Iraq's industrial resources and recommended the establishment of a number of industries. Following the publication of the IBRD report[14], a number of establishments engaged in the production of certain commodities and equipment submitted preliminary reports on the projects with which they were concerned. The board was guided by those studies in laying down its first industrial programme. However, during 1953 and 1954, the board received a number of new proposals for industrialization and felt the need for a general survey, including detailed studies of industries which might be established in Iraq and preparation of data regarding the priorities to be accorded to those industries.

The board engaged the Arthur Advisory Company for that purpose and, on the basis of its report, prepared its industrial programme for the years 1956-1960.

The implementation of an industrial project by the board had to pass through a number of stages. First, the board required the preparation of a preliminary study, on the basis of which it was decided whether the project should be pursued further. In cases where the study was encouraging, the board would select an advisory firm to make a detailed study. That study usually included information on markets, raw materials, labour, transport, availability of water and electricity and an assessment of the estimated cost of production. In short, the implementation of a project depended on its satisfying a number of economic criteria influencing its prospects for success. Then followed the selection of the site and preparation of the designs and specifications. On the basis of such designs and specifications, companies from all parts of the world would be invited to submit tenders. The specifications would be studied

[14] *The Economic Development of Iraq, Report of the Mission of the International Bank for Reconstruction and Development*, Baltimore, Md., Johns Hopkins Press, 1952.

by the technical body concerned in the Ministry of Development and a report submitted to the Development Board for approval.

The next step was the selection of a company for the implementation of the project under the supervision of the advisory firm. The technical committee in the Development Board concerned with industry was to help firms undertaking the implementation of the project to overcome difficulties such as delays in customs clearance and transportation of equipment; it also assists them in resolving disputes which might arise between the companies and local authorities. During the implementation period, the technical committee, in co-operation with the advisory firms and the companies undertaking the implementation of the project, sends Iraqis abroad to acquire the necessary training for the operation of the project. Following the implementation stage, the company responsible for the establishment of the project continues to operate the project for a specific period under the supervision of the advisory firm. Finally, the company hands over the project to the ministry concerned for its operation and management.

In 1951, the board presented its six-year programme, 1951-1956. The programme, was based on the study prepared by the IBRD mission, stressing the necessity of giving priority to agricultural development. Of the total cost of the programme, 3 per cent was assigned to projects relating to water control, 8 per cent to other agricultural projects, and 20 per cent to manufacturing, mining and electricity projects. Following a substantial rise in oil revenues, the board presented its second five-year programme, 1955-1959, representing twice the outlay of the first programme. Except in magnitude, that programme was substantially the same as its predecessor. In 1956, however, owing to the continued increase in oil revenues, the completion of certain studies and Lord Salter's report, this programme was replaced by another, the 1955-1960 programme.

The new programme clearly reflected Lord Salter's recommendations, emphasizing short-term projects which would directly help in raising the standard of living. As a result, housing allocations were increased fourfold, those for increased agricultural productivity were doubled, and educational health and water supply allocations were substantially increased. The industrial programme largely reflected the recommendations embodied in the report of A. D. Little.

The Development Board laid great emphasis on the development of the agricultural sector. Indeed, the funds allocated to industrial development were, in the opinion of the majority of Iraqi economists, very small; even so, only a part of those allocations was actually spent.

The Government's conservative policy with regard to industrialization was not confined to the public sector but extended to the private sector as well. This policy for the most part reflected the viewpoint of the experts who reported on Iraq at the time. These experts stressed the importance of maintaining a stable price level and combating inflation. Hence they recommended that the door for imports should be kept wide open and that the application of a policy of protection for local industries should not be vigorously pursued. Some experts, in fact, criticized the laws which encouraged industrial projects.

Following the revolution of 14 July 1958, the Government's policy towards industrialization changed radically. The executive authority was reorganized under law No. 74 of 1959, which established eighteen ministries, among them the Ministries of Industry and Planning. That law provided that the Ministry of Planning should be responsible for establishing the detailed economic plan and the budget of major projects, as well as for providing the necessary manpower for the implementation of the programme under the guidance of the Council of Ministers and the Economic Planning Board, and with due regard to the suggestions and plans of the other ministries concerned.

The Ministry of Planning was also to follow up the implementation of the economic plan and submit progress reports to the economic planning board, consisting of the Prime Minister, as chairman, and the ministers of planning, finance, industry, agrarian reform, agriculture, communications, public works, housing and social affairs as members. The chairman was authorized to invite any other minister to join the board.

The functions of the board were to be to formulate detailed plans for the implementation of the economic policy laid down by the Council of Ministers, and to study and amend the economic plan presented by the Minister of Planning.

The Ministry of Industry, under the 1959 law, was to undertake all activities aimed at industrializing the country and to supervise industrial affairs in both the public and private sectors.

The Ministry of Industry was to be composed of a number of departments, among them the department of industrial planning, whose functions were to include the preparation of preliminary studies on industrial projects and participation in the formulation of the tentative industrial plan, and the department of industrial planning and construction, whose functions were to lay down specifications for industrial projects, implement them, or supervise their implementation when undertaken by consultant firms.

Since the abolition of the Development Board and the Ministry of Development in 1959, the Ministry of Industry has been responsible for preparing the preliminary studies for industrial projects, preparing or supervising the preparation of specifications, inviting advisers to plan industrial projects, and receiving and studying the companies' offers. The final decision on the selection of advisory companies or contractors for the implementation of projects, however, rests with the Planning Board.

As regards the industrial plan, the Ministry of Industry prepares the tentative plan and presents it with the relevant studies to the Ministry of Planning. The latter, together with the Planning Board, prepares the over-all economic plan and incorporates in it the industrial plan.

After the adoption of the policy of separating economic planning from implementation, the most important step taken by the newly established ministries was the preparation of the detailed economic plan for the five years 1961/1962-1965/1966. That plan did not in fact differ substantially from the last programme of the Development Board. Although it laid increased emphasis on the industrial sector, which received 30 per cent of the total allocations as compared with 13 per cent in the previous plan, more or less the same

criticisms as were raised in connexion with the programmes of the Development Board are applicable to it. These programmes and plans provided for investment projects which did not form an integral part of an over-all economic plan and the effect on the economy as a whole was not studied.

The first serious effort to use modern planning techniques is made in the current five-year plan (1965-1969). An attempt will be made to describe the main features of this plan on the basis of information and reports available at the Ministry of Planning.

The five-year economic plan for 1965-1969 aims at increasing national income at a minimum average rate of 8 per cent per annum and a growth rate of 12 per cent per annum for the industrial sector over the plan period. In calculating the expectations of growth in the Iraqi industrial sector and the expectations of the growth of demand for the different branches of this sector, the economic plan relied on two methods to determine the best rate of growth. The first was to study the position of the industrial sector in the base year and calculate the changes in demand for its different branches during the plan period, using the coefficient of income elasticity of demand for the different industrial products and fixing, accordingly, the rate of growth of each branch. The second was to study the development of the Iraqi industrial sector and expected growth of its different branches on the basis of the formula laid down by the United Nations and to apply the standard equation on the assumption that the industrial growth in Iraq was equal to that of a country whose *per capita* income was similar to that of Iraq. The two approaches produced similar results, showing generally how the Iraqi industrial sector was likely to grow during the years of the plan.

The share of the Government in the industrial plan covers seventeen industrial projects. Those projects were selected on the basis of their effect on such important economic parameters as the national income, balance of payments and employment, and in certain cases certain indirect effects of the project were also taken into account.

Effect on national income. In order to compare and evaluate industrial projects, the ratio of capital to value added was calculated for all major projects. The projects in which that ratio is low have a more favourable effect on national income than those characterized by a high ratio of capital to value added. That ratio is one of the criteria used to determine the priority of the different projects. Care must be taken, however, when applying this coefficient, to take into consideration the indirect value added. For example, the coefficient of capital for the artificial silk project amounted to 11.5—the highest ratio among the industrial projects. That project is linked, however, with the soft textile project. Consequently, the two projects should be looked upon as one in calculating the relevant ratio. The plan takes into account the indirect effects in the artificial silk project, the ceramics projects, as well as the paper and glass projects.

Balance of payments effect. Some projects lead to a saving of foreign exchange because they either produce exportable commodities or serve to replace imports. Against that gain in foreign exchange must be considered the loss consequent upon the establishment of such a project as a result of the following: the fixed capital cost includes imports such as equipment, machinery, and the imported materials used in building and construction works, and the annual operating costs of production also include the cost of imported raw materials and payments in foreign currencies to meet the cost of foreign experts and training scholarships.

The foreign cost component of fixed capital should be considered in relation to its life span. This means that, in order to estimate the annual cost involved, it is not enough to divide total cost by the expected life of the fixed asset. Account must be taken of the fact that a machine represents a frozen asset, or funds, which could, otherwise, yield interest (assumed at 4 per cent by the plan). On that basis, the plan calculates the net foreign currency saved in each industrial project, or the direct effect of the project on the balance of payments.

Effect on employment. For purposes of comparison, the plan calculates the ratio of required capital to the number of workers that a project is expected to employ. That ratio shows how many dinars are required to provide employment for one worker. Unlike the two previous ratios, however, it cannot be taken as a criterion for according priority to a particular project, since labour is one of the factors of production in the use of which economy must be exercised. The fact that a project employs a large number of workers is not sufficient to give it priority, except where large reserves of unemployed and unskilled manpower exist. In that case, the provision of employment opportunities may in itself be considered a gain. Consequently, the plan includes the ratio of capital to unskilled labour, which may be taken as a criterion in according priority. This consideration, however, is not applicable in the case of projects employing large numbers of technicians and engineers, which should receive a low priority.

3. Industrial manpower problems in Iraq[18]

One of the social objectives of the economic development programme in Iraq, including the present five-year plan, is the achievement of full employment for all those capable of working and willing to do so. Achievement of maximum employment is an important short-term objective in the development plan in view of the economic situation prevailing in Iraq and the concentration of the labour force in the agricultural sector, with its characteristics of seasonal and disguised unemployment, and the scarcity of capital relative to the labour supply.

While it might be assumed that a noticeable increase in employment would result from the implementation of the projects covered by the plan, this is not necessarily the case if the execution of the plan is achieved predominantly through improved production techniques of the capital-intensive type. Although there is justification on economic grounds for adopting such techniques, the creation of a sufficient number of employment opportunities may call for the adoption of labour-intensive production techniques.

No hard and fast rules can be applied in all circumstances in choosing between capital-intensive and

[18] Paper presented by the Ministry of Industry of Iraq.

labour-intensive methods. The type of project, its desired social aims, available financial resources and the current needs of the country are all factors affecting the choice of the method to be applied. The projects implemented by the Ministry of Industry require large capital investments. They use methods devised to suit the requirements of industrialized countries and it is not easy to adapt them to the requirements of developing countries, of which Iraq is one.

Nevertheless, the Ministry of Industry is at present implementing a number of industrial projects which require a comparatively large number of technicians, skilled and semi-skilled workers. As workers in that category are not available in sufficient numbers in Iraq, the Ministry has taken several steps to fill the gap. The Ministry's activities in this field are summarized below.

Training of industrial manpower

The training of the manpower required for industrial projects has received considerable attention from the responsible authorities.

Activity in the field of manpower training dates back to the time when vocational and industrial schools began to attract attention. Programmes of manpower training thus preceded economic planning. Such programmes may be divided into two groups. The first provides, *inter alia*, for the establishment of industrial and vocational schools; the second for various training courses, especially those designed to meet the requirements of a particular industrial project.

However, it was found that the existing vocational schools did not meet the growing needs of industry, as their graduates were attracted to other vocations.

Manpower training department

A manpower department was established under the Directorate of Industrial Planning to study the manpower requirements of Iraqi industry at different levels. The principal aim of the department is to train the technical staff needed for the operation of industrial projects undertaken by the Ministry of Industry within the framework of approved industrialization programmes. The department conducted a general manpower survey; assessed the shortage in technicians and estimated the need for skilled labour, and defined the sources of industrial manpower and the balance between supply and demand.

The survey revealed that the total number of workers needed for government projects was 18,369, distributed as follows:

Administration, personnel and accounts	766
Technical and managerial staff, heads of units and specialists	589
Foremen	733
Skilled workers	2,892
Semi-skilled workers	6,165
Unskilled workers	7,224
Estimated total	18,369

Studies on the acquisition of specialized skills to meet the foregoing requirements led to the conclusions described below.

Staff for administration, personnel and accounts could be drawn from colleges and institutes such as the schools of commerce, economics and political science, management and accountancy schools in Iraq, or recruited among graduates of similar foreign schools. It was evident, however, that such graduates needed further training in certain specialized areas of industry such as production management and cost accounting. The Industrial Management Development Centre established in Baghdad with the assistance of the United Nations undertook to provide the required additional training. The department concerned decided also to make use of scholarships awarded for those purposes by sister and friendly nations.

Technical and managerial staff, heads of units and specialists could be drawn from the higher engineering institutes in Iraq, and recruited among electrical and mechanical engineers, chemists, etc.

It was found that the existing vocational and technical schools in Iraq were not able to supply a sufficient number of foremen to operate the government factories. That deficiency necessitated the expansion of the capacity of those schools and the use of training opportunities abroad.

As the skilled and semi-skilled workers needed constituted more than 50 per cent of total manpower requirements, it was found necessary to establish special vocational training centres in Iraq to offer the required training courses. Contracts for the establishment of such centres have been signed and construction work is under way.

The objectives and purposes of the centres may be summarized as follows:

Prepare and train skilled and semi-skilled factory workers;

Raise the vocational standard of semi-skilled workers engaged at present in public and private factories, and occupations;

Hold special training courses for skilled workers and technicians in the public and private sectors in order to increase their experience, upgrade their skills, acquaint them with the latest technical developments in their field of specialization and train as many technicians as possible;

Continue supplying the factories and workshops with 10 to 15 per cent of their total skilled labour force to replace those that resign or are forced to leave their jobs;

Concentrate on the practical aspects of training

4. Industrial estates in Kuwait[16]

An industrial estate may be defined as a piece of land embracing a group of factories provided with all the necessary public utilities. The land is divided into small parcels, each of which is reserved for the establishment of a specific factory.

Kuwait's experience in the establishment of industrial estates dates from 1952, with the flow of wealth from the exploitation of its oil resources. The approval of the project aiming at organising the city of Kuwait

[16] Paper presented by the Kuwait Chamber of Commerce and Industry.

was the first step taken in that direction. The organization plan of the city and its suburbs included three such areas: an industrial estate within the limits of the city; an industrial estate in each suburb (those were abolished later), and an industrial estate near the seaport known as the Shuwaikh industrial estate.

The authorities then formulated plans for the organization of villages and suburbs. Each of those projects included an industrial estate to serve the respective area.

Despite the facilities offered by the Government in the form of nominal rents and long-term leases (fifty years), the demand for parcels in the Shuwaikh and Interior industrial estates was at first limited. However, with the implementation of the improvement plan (the most important aspects of which were the private and public building operations) the manpower needed for those works began to flow into the country. Imports of building materials and consumers goods increased considerably as a result of the steady increase in population occasioned by the influx of immigrants. Thus, demand for parcels in the industrial estates began to mount.

In addition, the increasing number of immigrants and the rise in the standard of living which accompanied the development of the country markedly increased the consumption of fresh foods, vegetables, fruits and dairy products which had to be imported in large quantities. That necessitated the establishment of cold storage houses in the industrial estates.

Skilled manpower in Kuwait is virtually non-existent, chiefly on account of the imbalance between the numbers and growth rate of the indigenous population and the rate of development, and because existing technical services and industries are of very recent origin, namely, 1952.

The inability of the Kuwaitis to handle the various technical operations that developed in Kuwait, and the fact that industrial estates might not be leased to non-Kuwaitis, restricted Kuwaiti investment to storage operations. Other operations directly handled by Kuwaitis remained on a small scale. On a broader scale, such activities were carried out either through actual partnership with Kuwaitis, in which case the citizen provided the capital and the immigrant undertook the work of management, or through a nominal partnership with a non-Kuwaiti, in which case the official transactions were carried out in the name of the Kuwaiti while the financing and management were undertaken by the non-Kuwaiti. Under such arrangements, the Kuwaiti in whose name the parcel was rented would receive one month's income, or a percentage of the profits. That of course constituted a violation of the leasing regulations, under which subleasing was forbidden.

On 14 May 1964, a decree was issued by the Amir of Kuwait appointing a committee to supervise the Shuaiba industrial estate project. The committee consisted of eight members under the chairmanship of the Minister of Finance and Industry or his representative. The decree defined the functions of the committee as follows: to provide incentives, land and encouragement for the desired establishment of heavy industry in Kuwait. The committee was to exercise its activities independently of the institutions of the State, but in co-operation with all government departments under the laws and regulations in force. In line with its objectives, the committee called upon the services of experts to carry out preliminary studies, lay down plans, estimate expenses and choose a suitable location. An area located on the Arab Gulf, 50 kilometres south of the city of Kuwait, near the village of Shuaiba, was selected.

The project is divided into two main parts: public utilities and industrial projects.

The committee has started work on some public utility projects, including the provision of raw materials, power, transport and shipping facilities, internal roads, drainage systems, housing accommodations, medical units, etc. The remaining projects are still at the study or planning stage or ready for tenders.

Some details regarding public utility projects appear below.

Electric-power station

This project consists of three units with a capacity of 70 MW each, or a total of 210 MW. Work on the project started in June 1963, and the first unit was commissioned on 1 April 1965. The other two units are expected to go into operation shortly. The cost of the project is estimated at KD 9 million. The source of energy for the operation of the generator is natural gas from the Burgan oil field.

Water distillation project

Work on this project started in July 1964 and was completed in August 1965 at a cost of KD 1.5 million. The project has a capacity of 3 million gallons per day. The source of energy for the operation of the project is natural gas from the Burgan oil field.

Intakes of cooling water

Work on this project started in September 1964 and was completed towards the end of 1965. The project can draw up to 20 million gallons of sea-water per hour, 12 million for the electric power and distillation plants and the remaining 8 million for use by industrial projects.

A project for a pumping station is still at the tendering stage.

Other utilities are: the Shuaiba seaport; an oil jetty; roads and drainage system; gas (used as energy for power plants and as a raw material for the manufacture of chemical fertilizers and other industrial products); street lighting (the project is still under study; estimated cost is KD 70,000); a housing project (studies are under way for a project between eastern Ahmadi and Fahahil, accommodating some 10,000 persons, at an estimated cost of KD 5 million); an industrial clinic and medical centre; to be located within the industrial estate (the project is still under study; estimated cost is KD 130,000).

Industries to which parcels have been allotted in the Shuaiba Industrial Estate are: The Kuwaiti Chemical Fertilizer Co., which has commenced work on a factory for the production of ammonia at the rate of 400 tons per day, the ammonia will be converted into urea and ammonium sulphate at the average rate of 160,000 tons of urea and 160,000 tons of ammonium sulphate per year; the area allotted to the company is 166,100 square metres, and: the Kuwait National Petroleum Company; the area allotted to the company is 333,500 square metres, but construction has not yet commenced.

Industrial estates in Kuwait have been established as a result of the economic progress which has accompanied the exploitation of oil resources. At first,

the estates were used as means of encouraging various activities, such as commercial activities and services. At that time, the industrial estate was taken to mean an area of economic activity. However, the development of the economic structure of the country and the desire to establish a prosperous industrial sector and to diversify the sources of national income, changed the intent and meaning of the industrial estate. More recently, parcels of land have been given only for the purpose of establishing industrial activities. Committees have been formed to reconsider the distribution of parcels and the activities exercised by their owners with a view to restricting industrial estates to industrial activities.

5. The Lebanese experience in industrial research and studies and provision of basic technological services for industrial development [17]

The basic characteristic of the Lebanese economy is the free enterprise system, in which the major initiative is taken by private entrepreneurs, with government assuming only a supporting role.

Government action has concentrated on the provision of basic facilities and the creation and maintenance of an atmosphere favourable to growth and expansion. The Government, in co-operation with the private sector or alone, has also established a number of institutions basic to industrial development, among which the following are related to the subject of this paper and will, therefore, be treated at some length:

A general directorate for vocational and technical education, with a main training centre at Beirut and four others in the principal towns and cities; a hotel school and some thirteen apprenticeship training centres which are in the process of being established; furthermore, an accelerated training centre has been established by the Ministry of Social Affairs and a regional civil aviation safety training centre by the Ministry of Public Works, with the help of the United Nations;

LIBNOR, the Lebanese standards institute, devoted to the formulation and promotion of the use and application of national standards of quality and codes of good practice;

The industry institute, a research, consulting and testing organization providing services to government and private enterprise alike in the fields of feasibility studies, plant design, product improvement and quality control, testing and applied research.

Vocational training

Between 40,000 and 50,000 children and youths leave school in Lebanon each year at the *certificat* (primary), *brevet* (intermediate) or *baccalaureat* (high school) levels. Some 1,000 only are absorbed into the universities, and some of these drop out later. The balance must be absorbed in the economy without any specific preparation. The need for vocational training is therefore great.

Qualitatively speaking, Lebanon has to meet the following needs:

To upgrade industrial technical skills to face increasing competition and diversification; this applies to workers presently engaged in industry and to those that will be joining the industrial labour force later on;

To train skilled workers in agriculture to increase output per man; and improve the farmer's living conditions;

To orient agricultural workers towards other skilled and semi-skilled vocations (industry, services, trade etc.) as they become redundant in agriculture;

To develop skilled manpower for the trade sector and the managerial side of industry (sales, cost accounting etc.);

To develop and improve skills on a large scale for tourism;

To upgrade the skills of "exportable" manpower.

These needs were quantified by the directorate for vocational and technical education, and a broad programme related to the national needs was formulated. The effort which the Lebanese Government is undertaking aims at increased capacity, wider geographical coverage and vertical development in the scope of training.

Existing vocational training facilities in Lebanon include the following: five technical training schools (Beirut, Dair el Kamar, Saida, Zahle, Tripoli) and seven new schools which are under construction; the hotel school in Beirut; the civil aviation school at Beirut International Airport; the teachers' training programme of the directorate for vocational and technical education and the accelerated training centre conducted by the Ministry of Social Affairs. The 1965 issue of the *Panorama de l'Enseignement technique*, published annually by the directorate for vocational and technical education, provides the following information:

	1963 1964	
	Number of students enrolled	*Number of students graduated*
Beirut Arts et Métiers	322	48
Dair el Kamar	74	13
Saida	74	14
Tripoli	131	12
Zahle	101	16
Beirut hotel school	191	31
TOTAL	893	134

In 1962, technical and professional education was reorganized by decree. It now covers the following types of schools:

Apprenticeship schools which admit candidates after four years of primary education and train skilled workers over a three-year course (these schools also expect to provide further training for adult workers in industry);

Vocational schools which admit candidates with a primary education certificate and train skilled workers as supervisors and foremen in a four-year course;

A hotel school which trains students at two levels in three-year and six-year courses, the latter graduating headwaiters, chefs and managers;

[17] Paper presented by Lebanon

Technical schools which train assistant engineers in a four-year course; candidates are admitted after obtaining a *brevet élémentaire* or a *brevet technique*.

Eventually a technical college graduating *Arts et Métiers* engineers is to be established.

A plan is now going forward under which thirteen new apprenticeship schools will be built and equipped by the end of 1966 at a total cost of about LL 25 million. These schools will have a total capacity of about 4,200 students, are expected to take in about 1,400 students a year and to graduate about 1,000 students each year. In addition, the present technical schools and hotel schools are to be expanded so as to graduate 700 students in 1967 instead of the 130 at present. Technical and vocational schools for girls are also being planned. Allocation of funds for new facilities for the next five years, 1966-1970, is of the order of LL 20 million.

It will be evident that the success of the vocational training programme described is dependent upon the availability of a sufficient number of teachers. A special teacher-training programme has been formulated and is being implemented with the assistance of the United Nations Special Fund. The capacity of the programme is 300 teachers, with 75 joining each year.

LIBNOR—the Lebanese standards institute

LIBNOR (Institut libanais de Normalisation) was established by law in 1962. Since its inception, LIBNOR has published fourteen standards covering different commodities; it has also drafted three codes of good practice on electrical distribution systems, boilers and reinforced concrete in structures and buildings, and standards on nineteen different commodities.

The present programme of LIBNOR includes the drafting of standards on cotton yarns, wool yarns, cotton cloth, bed-sheets, school uniforms, light bulbs, chicken feed, ceramic glazed tiles, liquified petroleum gas bottles and cast iron manhole covers. In due course, LIBNOR plans to launch a Lebanese stamp of quality denoting conformity with Lebanese standards.

In 1953, realizing the need for basic technological and management services for industry, the Lebanese association of industrialists, the Lebanese Government, and the United States point IV programme jointly established an industry institute as a Lebanese non-profit organization with financial and administrative independence. The institute was formally recognized as having a public utility statu. in 1955. From the start, the institute was conceived as a self-supporting organization charging for services rendered to both the Government and the private sector, and operating on a regional basis.

The aims and objectives of the institute are to furnish professional services in the field of industrial development, including techno-economic ...sibility studies, technical, economic and management co...sulting, project studies, testing, analysis and standards and applied research.

The institute is organized into a general directorate, two service departments, and one internal department as follows:

Department of economics and management services: Economic division; Management division.

Department of technological services (research, consulting and testing): Testing division; Standards division; Mechanical, electrical and structural engineering division; Chemical and process engineering division.

Department of finance and administrative affairs (internal).

From the outset, the institute stressed the regional aspect of its services. Principal accomplishments in this context include:

Participation as technical consultants in the elaboration of the industrial section of the five-year plan for economic development of Jordan;

Organization and project studies for the industrial development fund in Jordan;

Elaboration of the standards programme of Jordan;

Participation in the elaboration of plans for the Aswan industrial research centre in the United Arab Republic;

Participation in the formulation of a programme for an industrial development service in Saudi Arabia;

Provision of consultative services for the development and expansion of the Kuwait research station;

Preparation of work plans and assistance in the organization of the industrial research centre of Iraq;

Pioneering work in conducting industrial feasibility studies in the region;

Preparation of designs and specifications for industrial vocational schools (Jordan), laboratories (Iran, Saudi Arabia, Jordan), and industrial projects (Kuwait, Jordan).

Within Lebanon, the principal accomplishments of the institute have been as follows:

Formulating a national standards programme, drafting the enabling law and serving as secretariat to the Lebanese standards institute;

Formulating standards of quality and codes of good practice;

Establishing a central research laboratory for cereals, including wheat, flour and bread;

Pioneering work in the field of inspection and certification services for Lebanese industrial products;

Providing basic engineering services for public utility projects such as fifty-year projections of the water supply and sewage systems of the Beirut metropolis, and design of vocational schools and grain storage and handling facilities;

Providing the basic technical and economic elements for rationalizing the attitude of government towards certain industrial sectors or specific industrial problems;

Providing industry with quality and production control and laboratory facilities;

Providing government and the engineering profession with geotechnical foundation services, and soils and building materials testing facilities;

Generating interest in the science of management through an executive development training programme culminating in the establishment of a Lebanese management association.

The industry institute has had considerable experience in the rational use of foreign specialists and technology and has provided guidance in adaptation to local requirements. This includes individual "experts"

supplied by international development agencies and by foreign government technical co-operation programmes. It also includes selective associations with foreign consulting or research organizations of high repute in various specialized areas.

Lebanese experience confirms the necessity for institutions providing technological and research services with a maximum of administrative and financial autonomy in their operations. Only thus can these institutions attract the required talents, maintain a dynamic work atmosphere, and exercise the initiative necessary for success.

6. Standardization of specifications and measures: a necessary step for the achievement of industrial and economic co-ordination among the Arab States[18]

The history of successful industrial development has clearly shown the importance of specifications and measures in the solution of many important problems such as the attainment of mass production, the introduction of automation in industrial operations, the provision of facilities ensuring specialization and co-operation between institutions and companies, and the improvement of production in terms of quantity, quality and cost. This development has contributed to raising the standard of living in the industrially advanced countries. Industrialized countries have, consequently, laid great emphasis on specifications and measures. Interest in the subject has now spread to the wider international sphere, and there is a desire to establish co-operation on standardization of specifications and measures on a worldwide basis. A number of important international agencies exist for this purpose: the International Measurement Confederation; the International Electrotechnical Organization; the International Organization for Standardization; the International Organization for Legal Measures.

International agencies do not, however, eliminate the need for regional agencies bound by political, economic or language ties. Such regional groupings may require to adopt standardization in fields and spheres that are not of sufficient interest to international agencies.

Further, when a group of countries are members of a common economic market, it becomes necessary to establish a common system of specifications and measures. Countries join a common market in order to benefit from the technical advantages that characterize a large market, and that derive from large-scale production and specialization. This requires standardization of specifications and measures among the common market countries.

The Arab countries have resorted to industrial co-ordination and economic integration in order to strengthen industrial production in each Arab country, and to provide optimum conditions for the establishment of large industries. Industrial co-ordination and economic integration are the means that will lead to the economic development of the Arab countries, the raising of the standard of living and the transformation of their economies from exporters of raw materials into a strong economic entity.

The 1953 convention concluded among the Arab countries for the purpose of facilitating trade exchange and regulating transit trade is considered the starting point in the direction of economic co-operation and integration.

This step was followed by the establishment of the Arab financial institution for economic development, the international Arab airline organization, the Arab maritime company, the joint Arab construction company, the joint Arab company for foreign trade, and the agreement for the co-ordination of Arab oil policy. These steps culminated in the signing of the economic unity agreement and the agreement relating to the Arab common market.

Behind all efforts made to remove trade barriers and obstacles and behind every action aimed at the creation of large markets and the achievement of economic integration, stands the basic factor of standardization. The standardization of terms, definitions and units of measurement, apart from its importance for the exchange of culture and scientific knowledge, plays an important role in facilitating trade, for it is impossible to conclude commercial transactions unless the terms used are standardized.

The standardization of technical symbols facilitates the understanding of industrial blue prints and designs. The standardization of sampling, testing, and experimentation procedure further facilitates the process of delivery, receipt and arbitration in the exchange of commodities and products. The standardization of materials, ingredients and products assists in overcoming technical barriers and facilitates free movement across frontiers.

It is clear that the Arab countries should co-operate in the establishment of strong and well co-ordinated systems for the standardization of specifications and measures. This will serve as a strong foundation for their industrial development and the achievement of economic integration. The co-ordination of specifications and measures will enable the Arab countries to increase production, improve quality, lower costs and facilitate and promote the exchange of commodities and services.

In order to achieve these aims and advantages, the steps suggested below should be considered.

First, in the interests of economic development and integration in the Arab countries, positive and decisive steps should be taken immediately to establish national agencies for the standardization of specifications and measures in those countries where such agencies have not yet been established.

Secondly, the most appropriate time to start co-ordinating and unifying specifications and measures is now. Time should not be allowed to pass during which industrial companies and factories may be established with diverse procedures and specifications, thus making future co-ordination more difficult and costly.

Thirdly, the Arab organization for specifications and measures should constitute the effective tool for productive work in this field. The Arab Governments and the Arab League should give this agency every possible encouragement, and should spare no effort to provide it with all the physical and technical facilities which

[18] Paper presented by the Union of Arab Engineers.

it will need to enable it to carry out its functions in the best possible manner.

Fourthly, priority should be given to the standardization of technical terms, symbols and specifications relating to manufactured and export commodities.

Fifthly, in view of the limited resources at the disposal of the Arab countries, it is most important that all facilities be extended to promote co-operation in this field. An endeavour should be made to co-ordinate available resources and utilize them for the benefit of all the Arab countries. Similar endeavours should be made to encourage contacts and the exchange of visits between specialists and experts, as this will contribute to the finding of appropriate solutions to existing problems. Seminars and conferences should be held periodically, as they contribute greatly to the achievement of the aims of standardization.

Sixthly, in view of the importance of scientific and technical training in raising the standard of efficiency of workers in these new fields, an endeavour should be made to establish a joint Arab centre to provide training in all types of standardization work, such as the preparation, issue and application of specifications, technical inspection, quality supervision and the testing of measures and measuring instruments.

Lastly, the co-ordination of specifications and measures among the Arab countries in no way implies competing with international agencies or non-participation in their activities. On the contrary, such co-ordination will, whenever possible, be conducted on the basis of the recommendations of the international agencies. It is also important that the Arab states participate more actively in international activities of this kind to ensure that their special circumstances are taken into consideration when recommendations are formulated.

Part II. DEVELOPMENT OF KEY INDUSTRIES

1. Prospects of petrochemical development in the Arab countries[1]

This paper discusses the feasibility of interregional co-operation among the Arab countries for the establishment of a sound and integrated petrochemical industry. Such an industry would not only satisfy the basic needs of the Arab countries for nitrogen fertilizers, plastics, synthetic fibres and rubber, but would also sell some of those products in world markets at competitive prices.

Some specific characteristics of the petrochemical industry are described below.

The industry is highly capital-intensive by reason of the technical complexity of the processes and the high level of automation and chemical engineering involved.

The industry is highly dynamic. Processes and products are subject to frequent change.

Investment in the petrochemical industry is not proportional to capacity but varies according to a factor ranging between 0.5 and 0.8. For an increment of capital investment of from 20-45 per cent, output may be trebled depending upon the type of product and process used. For this reason, it is advantageous to build large capacity units.

The petrochemical industry, being based on a raw material made up of several hydrocarbons, and employing chemical reactions which are not always selective, produces several products simultaneously. To achieve economies in operation, these co-products must also be processed as intermediates for other manufacturing operations. Hence integrated petrochemical complexes are to be preferred over separate individual plants. Such complexes facilitate economies in capital and operating costs through the close proximity of several related petrochemical operations.

The potential of the Arab countries for petrochemical production may be assessed on the basis of the considerations set out below.

Raw materials

Today most petrochemicals are derived either from natural gas or from naphtha. The Arab countries possess about 60 per cent of the world's proven reserves of oil and more than two-thirds of the proven natural gas reservoirs in the world.

Refining capacity in Arab countries, however, is only 5 per cent of the world total. The abundance of natural gas in North Africa and in the Persian Gulf region provides the raw material for a chemical industry in those areas. In the Suez region, gases or naphtha derived from refinery operations may be used.

Market possibilities

The principal aim of a petrochemical industry should be to satisfy the present and future needs of the Arab countries. While the local market within an individual Arab country may not justify the establishment of a petrochemical complex within that country, the Arab common market offers very attractive opportunities for profitable petrochemical enterprises.

An integrated Arab petrochemical industry, while having access to a relatively large Arab common market, should also seek to sell its products profitably in world markets. This would increase foreign exchange earnings of the Arab countries and permit economies of scale. However, the need for a careful selection of the products destined for export must be emphasized. Products with a sufficiently low manufacturing cost to compete in world markets are required.

The export of petrochemical products may be negotiated through long-term agreements with Governments in the developing nations, or by long term commercial arrangements with organizations that consume such products. The exchange of petrochemical products between the Arab industry and other petrochemical producing nations or organizations will offer significant opportunities for Arab products in foreign markets.

Feasibility studies are required to determine which products are most attractive as a basis for a petrochemical industry. Such studies would estimate the size of the total Arab market, with forecasts for future trends; current price levels and future price trends, and the ability of petrochemical products to replace conventional materials, often imported. They would thus demonstrate how petrochemical products can reduce the dependence of Arab industries on imported raw materials.

Manpower

The Arab petrochemical industry can rely to a large extent on locally available personnel with experience in the operation and maintenance of petroleum refineries and nitrogen fertilizer plants. Consultants supplying process know-how, and contractors supplying petrochemical plants may be requested to arrange training programmes in similar plants abroad. Provision should be made for training sufficient numbers of students (with secondary education) in existing training centres, refineries and other chemical plants. Finally, the assistance of the United Nations Centre for Industrial Development can be sought to provide experts in specific fields, so that universities and technical institutions in the various Arab countries may be enabled to offer courses in petrochemical technology.

Investment costs

The scale and technical complexity of production make petrochemical plants costly to construct. However, owing to the profitable nature of the operation, petrochemical plant investments usually achieve a return of invested capital within five years.

It is believed that the Arab countries are in a position to raise the necessary funds for the establish

[1] Paper presented by the Council for the Arab Economic Unity.

ment of an integrated petrochemical industry. The foreign exchange component of the construction cost can be made available from oil revenues or from exports of other products.

It must be realized that the cost of constructing a plant in any Arab country, whether in North Africa or the Persian Gulf region, will always be higher than the cost of constructing the same plant in Europe, the United States or Japan. Although land and domestic labour are cheaper, the following factors add to the capital costs: shipping and insurance; engineering and construction, owing to the need for foreign specialized personnel and because local companies carrying out construction work lack specialized hauling and lifting equipment; longer duration of construction; installed or warehoused spare equipment; imported chemicals and catalysts; infrastructure facilities (such facilities are normally available in the highly industrialized areas of the United States and Europe); cost of recruiting skilled manpower in advance of operations and of training staff locally and abroad.

Cost of petrochemical products

The operating costs of a petrochemical plant in an Arab oil-producing country as compared with those of a similar plant in a highly industrialized country are shown below.

Capital charges, including depreciation and interest (if any) are higher in the case of the Arab plant. Imported catalysts and chemicals are more costly in an Arab country owing to shipping and insurance charges. Long-term advisory services from expatriate specialists may be necessary in an Arab country. The use of natural gas or naphtha as a raw material and fuel tends to lower the production cost in an Arab plant. Large-scale operation permits a reduction in unit costs for labour and capital, thereby placing large units constructed in an Arab country at an advantage.

However, while such reduction in production costs is significant in respect of basic intermediates such as ethylene and ammonia, it is less so in the case of subsequent petrochemical operations. Maintenance costs in the Arab plant are lower once the necessary skills have been acquired, owing to lower wage rates. However, lack of sufficient training during the early years of operation may result in slightly higher maintenance costs.

Petrochemical products that could form the foundation for an integrated industry

Nitrogen fertilizers

The arable land area in the Arab world is about 113 million hectares excluding forests (95 million) and pasture (15 million). If a conservative figure of 10 kg of nitrogen per hectare is taken as the probable average consumption for Arab countries in 1970, then a production of 1.13 million tons of nitrogen would be required. Even with existing and projected capacity, a case can be made for the construction of one or more large-size synthetic ammonia plants of 1,000 tons per day capacity. Such units would produce ammonia much more cheaply than it has ever been produced in any Arab country. The ammonia would be converted to urea, ammonium sulphate or ammonium nitrate as required for Arab common market requirements.

Ethylene

This is usually among the first petrochemicals considered for a new complex because of its versatility. Ethane, propane, or natural gas liquids as well as surplus naphtha can be used as feedstock for the production of ethylene by cracking. Detailed studies should be conducted to determine the most suitable feedstock, since the cracking plant supplies a variety of by-products in addition to ethylene and the success of the petrochemical venture depends to a large extent on finding profitable outlets for them.

Plastics. Polyethylene and polyvinyl chloride can be produced from ethylene. It is believed that the Arab common market will have a growing need for both products. Production can start with low density polyethylene. At a later stage, high density polyethylene as well as polypropylene may be produced.

Synthetic rubber. Statistics show that the value of imports of tyres and other rubber goods amounts to $55 million per year. With the implementation of economic development plans and a rise in the standard of living, consumption is expected to increase, rendering the production of synthetic rubber a profitable economic venture.

Acrylic fibres. In 1962, the Arab countries imported wool in the form of tops, yarn, knitted goods and woven fabrics valued at about $50 million. Acrylic fibres are a satisfactory substitute for wool and in abrasion resistance and resilience may be preferable to wool. They are suitable for blankets and carpets. The basic raw material is acrylonitrile, which is produced from propylene and ammonia.

Two other petrochemical products are caprolactam and carbon black.

The above examples, while not representing all the petrochemical products needed by the Arab common market, would form the basis for an integrated industry.

Secondary industries

The development of an integrated Arab petrochemical industry should be accompanied by the establishment of secondary industries to process the various petrochemical products and convert them into finished consumer goods. These secondary industries, which are not as complex or as capital-intensive as the petrochemical industry, provide opportunities for private enterprise. The public sector can also co-operate with the private sector in financing these industries. It is most desirable, however, that such plants be constructed as soon as possible on the basis of a co-ordinated plan, starting operations with imported petrochemicals. In this manner a market for the end-products could be developed which would be capable of absorbing the production of the Arab petrochemical industry as soon as it became available.

Supporting activities

In planning an integrated petrochemical industry, it would be necessary to establish on a regional scale the following agencies and institutions, perhaps in the order given:

An agency to conduct feasibility studies for the production of petrochemical intermediates and their end products and local and international market research; such an agency would seek the assistance of competent firms in the advanced industrial countries;

A technological research centre for the study of the possible applications of plastics, synthetic rubber and fibres produced by the petrochemical industry, with particular emphasis on the possibility of substituting those products for traditional ones;

A training centre for petrochemical operators and maintenance personnel;

A research institute concerned with applied research and the development of new processes and products in the petrochemical field; it is essential that Arab engineers and chemists be trained in that field and that the skills thus developed be utilized for further development;

An organization for marketing the products in international markets.

A number of conclusions arise from the foregoing discussion, which deserve serious consideration.

First, no Arab country has a level of consumption high enough to warrant the establishment of petrochemical units with capacities large enough to be competitive with the highly industrialized countries.

Secondly, there is definite scope for regional co-operation among the Arab countries in the development of an integrated petrochemical industry. The advantages of economies of scale obtained in this industry necessitate the pooling of Arab efforts in large production units. Such a scheme would also eliminate the risk of duplication.

Thirdly, the large reserves of gas and surplus naphtha available at relatively low cost provide an economic production base for the Arab common market, and for entry with certain products into the international market.

It is important to realize that the petrochemical industry generates further industrialization through the consumer products introduced. It is believed that the integration of the chemical and petrochemical industries on a regional scale represents the only solution that will satisfy the economic and social objectives of the Arab countries.

2. Development of the petrochemical industry in the organization of petroleum exporting countries (OPEC) and non-member Arab countries[2]

The flaring of tremendous quantities of natural gas, produced together with crude oil in the petroleum producing countries of the Middle East and North Africa, has always been of major concern not only to those countries but also to various international agencies, including the United Nations. Ways and means are being sought to utilize this surplus gas economically, either as a source of energy or as a raw material in the petrochemical industry. For the member countries of OPEC, as well as for non-member petroleum-producing Arab countries, this problem is a matter of urgency. Unfortunately, little progress has so far been made towards a practical solution. The difficulties are great but not insurmountable. The purpose of this paper is to contribute towards an understanding of the nature of the problem and a realistic solution.

A survey is given of the status of the petrochemical industry in the region under consideration, including proposed future developments. An appraisal is made of the present and future markets for petrochemical industry products.

Petrochemical survey of OPEC countries and non-member Arab countries

Indonesia

The P. N. Pupuk Sriwidjaja nitrogenous fertiliser plant recently completed by the Government is now in operation. It produces 50,000 tons per year of ammonia by steam cracking of natural gas. The ammonia is utilized to produce 100,000 tons/year of urea.

Another nitrogenous fertilizer plant is planned in Surabaja, East Java. Initially it will produce ammonium sulphate and urea at an annual rate of 150,000 tons and 45,000 tons respectively. The plant is to utilize heavy crude residues instead of natural gas.

A government company, Permina, is planning to build a 7,000 tons/year carbon-black plant at Rantan, Sumatra, which will utilize natural gas.

Iran

The Shiraz nitrogenous fertilizer plant is situated in the southern part of Iran and utilizes natural gas from Gach Saran oil field. Annual capacity of the plant is 40,000 metric tons of ammonium nitrate and 40,000 tons of urea, together with 130 tons per day of nitric acid. Plans for the expansion of the plant are already in progress.

In 1963, a general survey of the possibilities of establishing a petrochemical industry in Iran was carried out by the National Iranian Oil Company (NIOC) and the Institut français du Pétrole. The report recommended the establishment of a petrochemical complex of sufficient capacity to meet internal demands by 1970. In accordance with the recommendations made by the institute, the following chemicals are to be produced: 10,000 tons per year of PVC and 2,000 tons per year of polystyrene; 3,200 tons per year of alkylate detergent; 1,500 tons per year SBR and 6,500 tons per year of polybutadiene and 5,000 tons per year of caprolactam to be used in the manufacture of nylon.

The complex is to include the following units: a propane cracker producing 7,000 tons per year of ethylene and 3,500 tons per year of propylene; a salt-electrolysis unit producing 14,000 tons per year of chlorine and 15,500 tons per year of caustic soda; a butadiene unit producing 15,500 tons per year of butadiene, and a benzene extraction unit of 12,400 tons per year.

An equal partnership between the National Petrochemical Company of Iran, a subsidiary of NIOC, and the Allied Chemical Corporation was recently announced to establish a major petrochemical complex in the Bandar Mushur area at an initial cost of $100 million. Initially, the plant will recover 1,000 tons per day of sulphur from natural gas from the Masjid-i Suleiman field and will produce 1,000 tons per day of ammonia, from which urea and other nitrogenous fertilizers will be manufactured. The plant is to be expanded later to produce methanol, polyethylene, caprolactum and other chemicals.

[2] Paper presented by the Organization of the Petroleum Exporting Countries.

Iraq

At present no petrochemical plants are in operation in Iraq. However, a plant for recovering sulphur from Kirkuk natural gas is under construction. The plant is to extract 120,000 tons of sulphur annually from 100 million cubic feet day of Kirkuk gas, after which the sweet dry gas and natural gasoline, together with the liquefied petroleum gas, are to be piped separately in two pipelines to the Baghdad area. A large part of the sulphur recovered is to be transported to the southern part of the country to supply the fertilizer plant which will be constructed in the Basrah area.

A project for a large scale petrochemical plant based on natural gas has been approved by the Economic Planning Board. The firm of C. F. Braun and Co. of California, United States, has been engaged as consultants for the project. It will include units for the production of caustic soda, chlorine, ethylene, polyethylene and PVC. The plant is to utilize natural gas from the southern oil field of Rumailah.

Another petrochemical project for a gas based nitrogenous fertilizer plant at Basrah is also planned. A Japanese consulting firm is preparing the studies and the tender specifications. The plant will utilize natural gas from the Rumailah field, where a pipeline already exists and is at present feeding gas to the Basrah power station. Initial capacity of the plant is 120,000 tons of ammonium sulphate and 50,000 tons of urea per annum.

Kuwait

In 1964, the Kuwait Chemical Fertilizer Company (ownership: 60 per cent Kuwait Petrochemical Industries and 20 per cent each, British Petroleum and Gulf Oil) awarded Foster Wheeler a contract for the construction of urea, sulphuric acid, and ammonium sulphate plants in a projected fertilizer complex in Shuaiba. This is in addition to an earlier contract for a 440 tons/day ammonia production plant. The urea plant will have a capacity of 600 tons daily, while the daily capacity of the sulphuric acid plant will be 400 tons, and of the ammonium sulphate plant, 500 tons.

Libya

At present no petrochemical industry exists in Libya. However, Standard Oil Company of New Jersey, one of the main producers of petroleum in the country, has signed agreements to supply both Spain and Italy with Libyan liquefied natural gas, and a liquefaction plant will be constructed. The Government of Libya is now considering the establishment of a petrochemical complex based mainly on natural gas, and has invited a number of firms and institutes to prepare the preliminary studies. The Institut français du Pétrole has submitted such a study to the Libyan Government for consideration.

Saudi Arabia

While no petrochemical industry exists at present in Saudi Arabia, considerable progress has been made with planning and negotiations.

A contract has been signed between Saudi Arabia's State oil agency, PETROMIN, on the one hand, and the Occidental Petroleum Corporation and its subsidiary, International Ore and Fertilizers, on the other, to carry out a feasibility study for the construction of a 600 tons per day ammonia plant near Dammam. Facilities are to include a 35 tons per day sulphur plant. The company is to be responsible for marketing the production and for the operation of the plant. In return, the company will receive 10 per cent of net profits for twenty years after commencement of production. The plant will be supplied with natural gas from the Abqaiq field.

Recently, another agreement was signed between PETROMIN and the ENI subsidiary ANIC for a feasibility study for a joint gas based PVC plant at Dammam. The proposed plant will have an annual capacity of 60,000 tons of PVC. ANIC is to purchase the entire output for fifteen years.

United Arab Republic

The United Arab Republic is the largest producer of petrochemicals in the region. In 1964, its production of chemicals was as follows: sulphuric acid, 180,000 tons; calcium nitrate, 255,000 tons; ammonium sulphate, 92,000 tons; nitric acid, 342,000 tons; acetylene, 648,000 cubic metres.

Prior to the five year industrial plan, the only petrochemical industry in the country was the nitrogenous fertilizer plant in Suez utilizing Suez refinery gases, from which about 7,000 tons per year of sulphur is also recovered. The main products of that plant are calcium nitrate and ammonium sulphate. Plans for doubling the capacity to 270,000 tons per year are in progress.

The fuel oil coking plant recently completed by the Italian firm, Compania Tecnica di Industria Petroli (CTIP), produces intermediate distillates from heavy Balayim on shore crude. In addition, 6,000 tons per year of benzene are extracted, half of which is utilized for detergents manufacture; 400,000 tons per year of coke are also produced. Sulphur at the rate of 28,000 tons per year is recovered from the sour gases of the plant.

The other nitrogenous fertilizer plant at Aswan, set up by the German Uhde-BASF, produces mainly calcium nitrate. In 1961, its production amounted to 420,000 tons.

Furthermore, Snam Progetti has carried out studies for the construction of a petrochemical complex which will utilize surplus naphtha for the production of polyethylene, PVC, acrylonitrile, caprolactum, and polybutadiene.

A carbon black plant with a capacity of 5,000 tons per year is also being considered.

Syria

The Homs refinery went into operation in 1959, prior to which no petroleum industry had existed in the country. However, studies have been completed on the establishment of a nitrogenous fertilizer plant at Homs, utilizing refinery gases and Snam Progetti of Italy will construct the plant. The installed capacity will be 150,000 tons per year of ammonium nitrate. Domestic consumption at present is 100,000 tons per year.

Algeria

A petrochemical industry has not yet been established in the country. However, the Société des Monomars de Synthese organized by El Paso Natural Gas Company, S. N. Repal and the Société Nationale des Pétroles d'Aquitaine (SNPA), is planning a 50,000 tons per

year butadiene plant at Arzew, where the gas liquefaction plant is situated.

A nitrogenous fertilizer plant to produce 87,000 tons per year of ammonia, 20,000 tons per year of ammonium nitrate and 10,000 tons per year of urea is being built by the Société algérienne de l'Azote.

Tunisia

A nitrogenous fertilizer plant to produce 190 tons per day of ammonia from which 200,000 tons per year of ammonium phosphate are to be produced is to be built by the Industries chimiques maghrebines (ICM) near Gabès. This plant is to be engineered and built by CTIP of Rome.

The major obstacle to the establishment of petrochemical industries in the OPEC area as well as in non-member Arab countries of the region is the problem of securing sufficiently large markets. Domestic markets are limited and cannot absorb the production of large complexes having the advantage of economies of scale.

An appraisal of present and future markets has shown that the logical markets for a Middle East-based petrochemical complex would be the markets of Asia and the Far East, North Africa and the markets in the countries bordering the Mediterranean and eastern Atlantic.

Petrochemical projects, when aimed at the manufacture of intermediates such as synthetic ammonia, could complement industrialization programmes of the consuming countries. The manufacture of finished products, in addition to being highly capital intensive, would conflict with existing interests in the very markets on which such a venture would have to rely for most of its outlets.

Market research has shown that, by 1980 the world will require 70 million tons of fertilizer, compared with 27 million tons in 1959-1960. The needs of developing countries alone will increase from 4 to 30 million tons during the same period, thus exceeding the total world output in 1959-1960.

The share of nitrogenous fertilizers in these requirements will range between 14 and 25 million tons (nitrogen equivalent) in developing countries and the world as a whole, with sulphates and nitrates of ammonia constituting over 50 per cent of the total. Obviously, therefore, there are market prospects in the manufacture of ammonia as an intermediate product.

Feasibility studies for an ammonia plant built in the Middle East have shown that one ton of ammonia landed in India will cost $57.76, while the cost of manufacturing the same product in India from naphtha would be $64.79. Similar studies for a plant based in North Africa have shown that one ton of ammonia landed in western Europe will cost $26.26, compared with $31.70 manufactured in that area.

These figures show the economic feasibility of building ammonia plants in the Middle East and North Africa, provided the Middle East has access to the markets of Asia, and North Africa has access to European and Mediterranean markets, and provided that there is no discrimination against products from those areas.

The economic justification for establishing petrochemical industries in this region are based on the following considerations: availability of natural gas at low cost as a raw material and fuel; low labour and maintenance costs and low cost of utilities by reason of cheap and plentiful fuel. These advantages will, on a long-term basis, offset the higher capital costs of providing plant and equipment in this area.

The foregoing survey has shown that, while the petrochemical industry is as yet at an early stage of development in the area, it holds a promising future. While operation at a profit may not be achieved in the early stages, the goal of conservation of natural resources through the utilization of natural gas, which is at present wasted and unrecoverable, will have been achieved.

In order to ensure the most logical and practical future development of the petrochemical industry in the OPEC area and the Arab countries of the region, it is our opinion that a petrochemical policy should be developed as an integral part of the general policy of industrialization of the Arab region. To that end, it is proposed that the Arab League, as a matter of urgency, establish a panel of scientists and technical specialists to make broad recommendations covering the successive stages of development necessary for the establishment of a petrochemical industry on a sound basis.

This paper is submitted to the Conference as a contribution to an understanding of the nature of the difficulties and problems involved and in order to point the way to a positive and realistic approach to their solution. The recommendations set out below are presented to the Conference for its discussion and consideration.

Regional demands should be pooled in order to take advantage of the economies of scale which can be achieved in this industry. Such action may provide an economic production base for entry into the international market.

Co-ordination of petrochemical planning in the countries of the region is required to avoid duplication of small plants. It would be advantageous to establish plants that are complementary to each other in order to avoid destructive competition in the limited available markets.

Co-ordination of petrochemical planning should aim at an even distribution of the branches of the industry so that each country can specialize in a certain branch and establish a sufficiently large scale of operation.

Efforts should be concerted towards the promotion and encouragement of smaller industries based on petrochemical intermediates, in order to utilize locally the maximum amount of these intermediate products.

Substitution of petrochemical products for competing materials should be studied, this being of special importance in countries of the region having relative scarcity in alternative materials and products such as building materials, transportation or pipes for irrigation. Should the feasibility of petrochemical products be established, additional measures may be required to promote consumption, and for the development and adaptation of these products to new purposes.

Full use should be made of the United Nations technical assistance programme and the Special Fund in establishing technical institutes to carry out research in the uses of products, pre-investment and feasibility studies for the implementation of petrochemical projects and market research, as well as to train technicians.

Markets within the economically advanced countries such as those of Western Europe may be sought. However, the progress of western Europe towards economic integration constitutes an adverse factor to new entrants from outside the region. Securing a market in that

region may be envisaged through multilateral or bilateral trade agreements.

Markets outside the economically advanced countries may also be sought; for instance, nitrogenous fertilizers may be exported to the countries of Asia. In that connexion, trade agreements may be developed between potential exporters from the Middle East and a number of countries of Asia.

The international market in petrochemicals is in the hands of a small number of very large companies. For new entrants to enter the market requires considerable effort in securing and promoting markets, including international trade agreements and strong financial backing. Joint ventures between producing countries of the region and established petrochemical concerns will undoubtedly provide a solution to many problems, including the supply of experienced personnel for the transitional period, training of local labour, technical know how and research, experience in marketing techniques and, above all, possible access to the international market.

3. Petrochemicals: a practical start in the direction of Arab industrial co-operation[3]

This paper does not aim at discussing economic co-operation in general. Rather, it will concentrate on one of its aspects, namely, co-operation in the field of petrochemicals. Before entering into a discussion of the subject, however, it may be useful to give a brief summary of the main factors necessitating industrial co-operation in the Arab world.

Modern developments in science and technology have facilitated the establishment of large factories which benefit greatly from economies of scale. The division of the Arab world into a number of small markets militates against the establishment in any one country of large plants. This situation in itself calls for economic co-operation between the Arab countries. Such co-operation will undoubtedly expand the market and therefore encourage the establishment of large and profitable plants capable of producing goods whose quality and prices will enable them to compete in domestic and external markets.

The Arab countries are at present in the early stages of industrialization. It is easier for them to co-ordinate their industrial programmes at the current stage than it will be at a more advanced stage.

It is not necessarily desirable for any one country to concentrate on the development of all stages of an industry, since situations might arise where it might be advisable for more than one country to develop different stages of the same industry.

Shortage of capital in the Arab world as a whole requires that investment capital should be carefully allocated. It is therefore important that measures should be taken to prevent the duplication of industries.

Industrial co-ordination opens up new possibilities for economic co-operation. It is a well-known fact that the emergence of the European Common Market was but an extension of the European Coal and Steel Community. Similarly, for the Arab world, the establishment of the hydrocarbon industry may serve as a basis for closer economic co-operation.

Specifically, let us take petrochemicals as an example and consider Kuwait as a centre for the development of that industry. The facts set out below support the view that the establishment of a petrochemical industry in Kuwait can serve as a starting point for further Arab co-operation.

On the one hand, Kuwait is endowed with a cheap source of natural gas and with substantial financial resources. On the other hand, it suffers from a scarcity of manpower and a limited market. Considering those advantages and disadvantages, one is bound to conclude that it is possible and desirable to establish the first stage of a petrochemical industry in Kuwait. Its intermediate products will acquire an international character that will greatly facilitate their marketing in external markets. This will not be the case if Kuwait concentrates on the production of fully processed goods. Liquid ammonia and methynol are examples of commodities which Kuwait can produce at lower cost than any other country in the world.

These factors have led the Kuwaiti authorities to establish a fertilizer complex, which will start operating in the coming month. The complex consists of an ammonia factory with a capacity of 400 tons per day to be used for the manufacture of 550 tons per day of urea and 500 tons per day of ammonium sulphate.

Fertilizers, of course, have a world-wide market. Nevertheless, Kuwait can derive greater economic benefits from confining its activity in the field of petrochemicals to the production of liquid ammonia. This is desirable as a step in the direction of Arab industrial co-operation. Substantial profits can be derived from the establishment of a very large factory for the production of liquid ammonia with a capacity of 1,000 or 2,000 tons per day. The output of this plant will then be exported to complementary plants in different parts of the Arab world, to be used in the production of fertilizers.

This plan will have the advantage of providing Kuwait with an expanding Arab market for its ammonia output and at the same time supplying the Arab countries with a cheap source of liquid ammonia. Projects of this kind are now under study in Kuwait and the United Arab Republic. Kuwait is also studying the possibility of similar co-operation with non-Arab countries, such as India.

[3] Paper presented by Kuwait

4. Petrochemical projects in Iraq[4]

Basic raw materials such as oil, natural gas and sodium chloride are available in Iraq in quantities sufficient for the establishment of a petrochemical complex.

Until recently, natural gas was flared by the oil companies. The Government finally put an end to the loss of this valuable resource by providing means for its utilization. A programme was prepared for the construction of a pipeline through which gas was to flow to

[4] Paper presented by the Ministry of Industry of Iraq.

electric generating stations and other industrial projects, to be used as fuel. International firms were also requested to make studies on the utilization of natural gas in local industries. The results were encouraging and proved that the establishment of several industrial projects using natural gas as a raw material were both technically and economically feasible. Some of these projects have been included in the recent five-year plan; others will be included in future five year plans.

In the early stages, the Ministry of Industry will be responsible for the major projects which constitute the nucleus of the petrochemical industry in Iraq. A brief description of these projects follows.

Extraction of sulphur from natural gas

This project is basic to the establishment of petrochemical industries which rely on natural gas as a raw material. Natural gas in the Kirkuk oil fields is sour and contains a high ratio of hydrogen sulphide, ranging between 10 and 14 per cent.

The site for the project was selected near Kirkuk, the source of natural gas, and a pipeline will be constructed to convey gas to the site of production.

On 31 January 1965, a contract for the establishment of a plant to produce sulphur was signed with an American company at a cost of ID 8.2 million, exclusive of the cost of infrastructure projects such as water supply, electric supply, gas pipeline, railway and roads, the total cost of which is estimated at ID 9.5 million. The company has undertaken to complete the project within a maximum period of twenty-eight months. The factory is planned to process 84 million cubic feet of sour gas daily for the production of 400 tons of pure sulphur (99.5 per cent) per day; 45 million cubic feet of pure gas per day, and 23,000 gallons of liquid gas per day.

Although sulphur is considered a by-product, the quantities extracted are substantial and are estimated at some 120,000 tons per annum. This in itself represents a source which can be used to meet the domestic needs for this material, including future demands which are expected to emerge as a result of the growth of local petrochemical and other industries.

The output of pure gas and other liquid gases from the factory will be conveyed to Baghdad through a pipeline constructed by the Ministry of Petroleum before the completion of the sulphur extraction factory. The gas will be distributed to large factories in Baghdad, to be used as a raw material for petrochemical industries.

The completion of the sulphur extraction factory, which was planned on the most modern lines, will result in great economic benefit to the country, since sulphur has a promising world market. The yield of pure natural gas and liquid gases will add support to local industries. Furthermore, the project will provide employment for some 400 Iraqi labourers, technicians, and engineers for the operation of the plant.

The chemical fertilizer project at Basra

This petrochemical project depends on natural gas produced in the Rumaila oil fields. The gas is sweet and free from sulphur compounds. It can therefore be used directly as a raw material or as fuel without purification, in contrast to the gas of the Kirkuk oil fields.

The site selected for the plant is in Abi Khaseeb region, in the *liwa* of Basra, owing to its proximity to the source of supply of natural gas.

The factory will be supplied with 9 million cubic feet of gas per day, to be used as a raw material and fuel. Natural gas is used in the manufacture of ammonia by the action of hydrogen, an ingredient of natural gas, and nitrogen. The plant consists of four main production units: an ammonia unit with a productive capacity of 200 tons per day; a urea unit with a productive capacity of 150 tons per day; an ammonium sulphide unit with a productive capacity of 400 tons per day, and a sulphuric acid unit with a productive capacity of 300 tons per day.

It is expected that the major part of the ammonium sulphide produced will be consumed locally and the surplus exported. In view of the great demand for urea in world markets and its high price, most of the urea produced will be exported.

Technical and economic studies indicate considerable promise for this project, for the following reasons:

Low cost of natural gas as a raw material and as a fuel, since natural gas is close to the factory and used at a cost of 14 fils per 1,000 cubic feet; this is very low compared with prices in other countries;

Abundance of labour at low cost;

Proximity of the factory to the port, reducing transportation costs;

Availability of sulphur locally.

In addition to the economic benefits to be derived from this project, the use of fertilizers will be beneficial to agricultural production. Moreover, the plant will provide employment for 1,000 workers and technicians.

Plastics

Availability of raw materials at low cost constitutes the main requirement for the success of this industry. Natural gas, the principal raw material used in the manufacture of plastics, is abundantly available in Iraq.

As a consequence of the rising local consumption of plastics, the Ministry of Industry has placed special emphasis on the establishment of a local industry for the manufacture of plastics. A specialized consulting firm is at present preparing technical and economic studies for a project for the manufacture of plastics.

A study of local markets indicates that Iraq imports its requirements of plastics in the form of manufactured or semi-manufactured products. The latter are processed in fifteen private plastic producing factories.

Among the more commonly used types are low density polyethylene and suspension type PVC. Polyethylene is largely used for the local manufacture of hard pipes, bags, containers, domestic utensils and toys. PVC is used in the manufacture of flexible pipes, electric wires, shoes, furniture, kitchen utensils, containers, toys, etc.

Consumption of plastics is some 3,300 tons per annum. The growth in *per capita* consumption and the natural increase in population is expected to raise the annual consumption to some 6,400 tons in 1970 and 15,000 tons in 1975.

The productive capacity of manufacturing units for plastics was considered when the technical and economic studies of the project were prepared. Emphasis was laid on the following important factors:

Integration of the different productive units, since these constitute a group of economically and technically integrated plants;

Marketing of products in the domestic market, especially in the first stages of production, this requires the introduction of new uses for these products and the production of new articles that can be substituted for other materials such as wood and iron;

Growth in future demand arising from the overall economic development of the region;

Possibility of exporting plastic products to foreign markets.

The Baghdad area has been selected as a suitable location for the project because of the proximity of markets and the availability of raw materials, manpower, roads and railways.

Three hydrocarbons suitable as raw material for the production of ethylene are available in the Baghdad area, namely, natural gas, propane and naphta. The project will include the four main units listed below:

Ethylene unit. The initial capacity of this unit will be 7,500 tons per year. The raw materials to be used for the production of ethylene will be determined by such factors as price of the raw material, quantity and value of by products and transport facilities.

Polyethylene unit. The initial capacity of this unit is 5,000 tons per year, which can be increased to 10,000 tons if necessary. The high compression method will be used for the production of low density polyethylene, commonly used in Iraq.

PVC unit. The initial capacity of this unit will be 4,500 tons per year which can be increased to 8,500 tons.

Chlorine and caustic soda unit. Sodium chloride available in Mamilihat Alpha and Mamlahat es Samawa will be used to supply the PVC unit with the necessary chlorine, and at the same time provide caustic soda for other local industries.

The benefits expected from the establishment of petrochemical projects are not limited to the profits which these projects may yield. Their establishment is an important step in the utilization of local natural resources and the revival of industrial activity and will contribute to strengthening the national economy by saving the foreign exchange now required for the import of these products. It will also provide employment opportunities for a large number of citizens and create opportunities for the training of Iraqi experts in the technology of the industry.

3. Sectoral studies on selected industries in Middle Eastern countries*

These studies have been prepared at the request of the United Nations Centre for Industrial Development. They are limited to four industrial sectors: construction materials, basic chemicals and fertilizers; textiles; metal and engineering. The studies relate to Iraq, Jordan, Kuwait, Lebanon and Syria (and in certain cases to Saudi Arabia and Yemen), none of which have been covered by other regional symposia. They treat of the present status of and prospects for the selected sectors, and are largely based on factual information, aiming at assessing the relative importance of related industrial sectors in the economies of the region.

General features of industry in the region

In Syria and Lebanon, the modern industrial process was built on handicrafts, which developed in time into an organized manufacturing sector. In Iraq, industrialization followed the traditional pattern of development - gradual progress from simple processing to transformation. In Jordan, industry hardly existed prior to 1948 and even handicrafts were on a very small scale. In Kuwait and Saudi Arabia, modern industrialization is still in its infancy, while industrial activity in Yemen, even in the form of handicrafts, has been insignificant. However, the industrialization process in Lebanon, Syria and Iraq seems to be at a higher level as compared with that of their neighbours.

The contribution of the manufacturing industry to gross domestic product in the countries concerned remains relatively small. At the same time, industrial production in the region is concentrated in a few centres - a feature that has the advantage of reducing the cost of supplying public services while creating an appropriate environment for the development of general engineering services, a labour market etc. Establishments are predominantly small and medium-sized; only a small fraction (except in the case of Iraq) of the total number of establishments operating in the four industrial sectors falls within the category of large establishments (employing 100 or more persons). Another characteristic of the region is the high degree of dependence on home markets. This is not surprising, since the export market is difficult to penetrate, particularly when an industry is still in its infancy, while home markets provide a steady demand for consumer goods and can be sustained by fiscal measures such as direct subsidies and/or high tariffs against foreign goods. There is a general tendency in the region in favour of planning for industrial development.

Two main problems are common to all the countries under consideration, namely, a small domestic market and shortage of skilled labour. However, attempts have been made to provide such facilities as will accelerate the process of industrial development, including improvement of basic facilities, development in railroad and motor roads, establishment of specialized banks, measures calculated to provide protection and incentives, and administrative and fiscal policies to encourage industrialization.

Construction materials industries

Home demand represents an overwhelmingly high proportion of total demand in each country. It comes mainly from irrigation projects, roads, bridges, public works and other large construction projects. The export demand is either small or non-existent.

There is a high degree of concentration in the country industry distribution of establishments. Available data show that about 91 per cent of the total number of establishments are in Iraq, of which about 73 per

*Paper presented by the Afro-Asian Organization for Economic Co-operation.

cent are engaged in the manufacture of bricks and 22 per cent in the manufacture of ceramics.

The majority of establishments are private concerns. Only a little over 2 per cent of the total number are public undertakings. Although sole proprietorships and partnerships predominate and are usually associated with small concerns, the recent growth of joint-stock companies represents a trend towards a more advanced form of entrepreneurial organization in this industry.

The location pattern is generally satisfactory. The cement industry tends to be supply-oriented, being located near the principal raw material supplies, while the glass, ceramics and brick industries are largely market-oriented, being mainly located near the major cities.

Cement. The combined output of Iraq, Jordan, Lebanon and Syria is approximately 3 million tons, or about 0.7 per cent of total world production, although between 1958 and 1964 cement production in those countries has almost doubled. In regard to production techniques, it is noted that rotary kilns remain the principal equipment and the bulk of the cement produced in the region consists of the Portland type. As to manpower, the data available for 1963 show that the number of persons engaged was about 12 per cent of the total number of persons engaged in all the construction materials industries.

Brick-making. This is undoubtedly an important economic activity in most countries of the region. In Iraq, there are many brick making concerns that are able to withstand competition only because they rely on cheap, unskilled labour. In Kuwait prior to 1956, clay bricks were imported from Iraq; in 1957, home production began with the establishment of the sand lime brick plant with an output in 1964 of nearly 31 million bricks.

Ceramics. In Iraq, seventy-two large establishments employing 1,400 persons were engaged in the manufacture of tiles and related products in 1962. In Kuwait, thirty establishments provided employment for over 1,000 persons. In Lebanon, ceramics are manufactured by three large establishments employing some 150 workers.

Iron and steel. Although an iron and steel industry in the proper sense of the word exists only in Lebanon, a large number of establishments operate throughout the region to produce metal products for building and construction.

In Kuwait, the existing plants are deemed adequate to meet the potential demand for construction materials in the foreseeable future. However, it would be useful to establish cement plants and a glass industry. In Iraq, the five year plan 1965/1969 provides for the establishment of three large projects in ceramics, glass, and iron and steel industries at a cost of ID 34 million, or 16.7 per cent of the estimated aggregate cost of all planned manufacturing projects. In Jordan, total investments in ceramics and glass sheet projects during the seven-year plan 1964/1970 is estimated at 8.1 per cent of the aggregate sum to be allocated to all manufacturing industries.

There is little doubt that demand will continue at a high level. Since in many areas production is still carried on by primitive means, there is wide scope for modernization, which will be facilitated by organized technical co-operation for mutual assistance. As cement is the most likely product to acquire growing significance in intra-regional trade, joint inquiries should be made into problems of its production and marketing. Finally, the region is a net importer of construction materials, although intra-regional trade is still very limited and could be expanded through regional co-operation.

Basic chemicals and fertilizers

Acids, alkalis and salts. Four establishments in the region fall within this sub-group, one State-owned plant in Kuwait, engaged mainly in the production of hydrochloric acid, chlorine, caustic soda and salt; two joint-stock companies in Lebanon producing sulphuric acid, and one having a mixed ownership in Jordan producing potash salts. Production has been very limited and is largely oriented towards the domestic market.

Regarding future development plans, the Kuwait Chemical Fertilizer Company is contemplating certain projects for the production of ammonia, ammonium sulphate and sulphuric acid; in Syria, the Ministry of Industry has licensed projects costing LS 12 million during the period 1960-1964; and Iraq intends to invest ID 9.45 million in sulphur extraction during the five-year Plan 1965-1969.

Dye stuffs, colour lakes and toners. There are thirty-four such establishments in the region, of which three are in Iraq, two in Jordan, eighteen in Lebanon and eleven in Syria.

In 1963, the total output of the Iraqi companies was estimated at 307 tons of dyes and that of the eighteen Lebanese companies at 2,197 tons of paints.

Plastics and resins. Two of the thirty establishments engaged in the production of plastics in the region are State-owned (located in Syria). The four Iraqi firms are joint-stock companies. In Lebanon, five establishments are joint-stock companies and seventeen are sole proprietorships. In Jordan, there are only two establishments, one a partnership and the other a sole proprietorship.

Production is mainly intended for final consumption. The output of the Iraqi companies in 1962 was 176,596 metres of plastic pipes and 70,319 pieces of other plastic products, mainly toys. The Lebanese industry has a variety of products; three establishments produced 469,346 pairs of plastic shoes in 1963, while the other nineteen produced 21,751,579 metres of various plastic articles. The Syrian industry produces handbags, bags, house utensils, pipes, buttons, etc. In general, production does not satisfy domestic demand for plastic products.

Elastomers and rubber. Iraq has one joint-stock company, which produced in 1962 some 16,600 pieces. Two joint-stock companies and thirty-six sole proprietorships are recorded in Lebanon, producing for the home and export markets. In Jordan, the industry comprises one partnership and fifty-three sole proprietorships. The Syrian industry is carried out by one State-owned company, forty joint-stock companies, and ten sole proprietorships, producing mainly rubber shoes (about 2 million pairs) and rubber soles and heels.

Many projects are contemplated for the near future. In Iraq, the five-year plan 1965-1969 has allocated $1.3 million to be invested in projects at a cost of $5.6 million for the production of rubber tubes and tyres. Jordan plans to invest JD 500,000 during 1964-1970, while Syria has allocated about LS 3.9 million during 1960-1964.

Other basic chemicals. Attempts are being made to penetrate the field of man-made fibres. Current projects in Syria aim at producing nylons. Iraq intends to allocate $5.1 million for the production of synthetic fibres in its next five-year plan. In the same plan, $26.5 million is allocated to explosives and fireworks. In Lebanon, fireworks have long been produced. Current output is sufficient to meet domestic needs, with a sizable export surplus that goes to Middle Eastern countries, Ghana and Nigeria.

Chemical fertilizers. Jordan possesses rich phosphate mines in Ruseifa producing 400 tons daily. The output is shipped from Aqaba and Beirut to many European countries, Japan and India. Lebanon has one joint stock company producing organic and chemical fertilizers.

As regards nitrogenous fertilizers, the Kuwait Chemical Fertilizer Company has contracted for the construction of a synthetic ammonia unit, a urea unit, an ammonium sulphate unit and a sulphuric acid unit. Both Jordan and Syria have planned new projects costing JD 9.3 million and LS 9.4 million respectively.

The textile industry

The relative importance of this industry differs from country to country. It contributes about 0.5 per cent of the gross domestic product of Iraq and 6.5 per cent of the value added by all manufacturing industries, excluding petroleum refining. The number of employees in 1963 was 8,968, or about 7.7 per cent of employees in all manufacturing industries. In Jordan, the value added amounted to JD 307,000 and the number of employees to 1,216. In Lebanon, employment amounted to 5,316 persons or 8.4 per cent of total industrial employment. In Syria, although comparable figures are not available, the textile industry is considered to be one of the most important in the country.

Considerable differences exist in level of technology, capacity of equipment and, consequently, productivity of workers. In Iraq, where the industry is based mainly on large modern plants, the average number of employees per establishment is eighty-five; in Lebanon, thirty four; in Jordan, twenty-two and in Syria, five.

With regard to the value added per worker, it was ID 399 in Iraq or 16 per cent lower than the average for all manufacturing industries, whereas the average annual wage was ID 253, or about 32 per cent higher than the general average for all industries. In Jordan, the value added was JD 253, or 28 per cent lower than the general average for all manufacturing industries; at the same time, the average wage of JD 115 was only 10 per cent lower than the over-all average.

As far as raw material supplies are concerned, it is apparent that the region can be made self-sufficient in cotton. Iraq grows its requirements of raw cotton with a small margin for export. Jordan, however, has to depend mainly on imports of raw cotton and cotton yarn, while Syria and Lebanon, taken together, are net exporters of cotton. The region is a net exporter of raw wool and other animal hair, although in some cases woollen yarn is imported—a feature that calls for considering the re-allocation of investment between spinning and weaving. With regard to man-made fibres, the region remains dependent on imports.

Metal and engineering industries

The distinguishing feature of the metal and engineering industries is the preponderance of workshops, service and repair units, and individual craftsmen. An integrated analytical comparison at the sectoral level is impossible because of the variation in definition, in compatability of data from different countries even when available, and in the nature and character of services rendered.

According to available data for 1963, the number of establishments engaged in these industries in Iraq was 5,324, employing 22,192 persons, or about 19 per cent of the total labour force. Total wages and salaries paid amounted to ID 3.7 million. Establishments are concentrated in and around Baghdad. An important transformation has recently taken place from handicraft to workshop or factory production. A plant for the manufacture and assembly of water heaters is already in operation, while other projects are under study or construction.

In Jordan, the last available returns, for 1959, showed concentration mainly in the large cities and the number of establishments as 901, employing 3,331 persons. The industry consisted largely of workshops. Total value added amounted to JD 616,000, or 10 per cent of value added by all manufacturing industries. The average value added per worker was JD 185, compared to the general average of JD 191. Up to 1963, all establishments were sole proprietorships.

In Kuwait, the number of establishments is 943, employing 10,134 persons, or about one-half of the industrial labour force. The majority of the establishments are concentrated in the city of Kuwait and its suburbs. Imports of metal and engineering products amounted, according to the latest figures, to KD 38 million.

The latest official data available for Lebanon cover 1955. The number of establishments was 397 (employing 3,057 persons), of which 337 were sole proprietorships and 60 joint-stock companies. Since 1955, the industry has undergone significant changes. In some cases, production is high enough to meet local demand and leave a sizable portion for export.

In 1960, the number of establishments in Syria was 5,488, employing 13,267 persons. Sole proprietorships were predominant, employing 4,560 persons, or 67 per cent of the total number employed in that industry. Partnerships numbered 362, employing 1,848 persons; companies and government undertakings numbered eighteen, employing 325 persons. The industry is concentrated in Damascus and Aleppo, with about 90 per cent of the volume of employment.

The main problem facing the industry is scarcity of skilled labour, indicating the need for vocational training centres. In Iraq, the current five-year plan, 1965/66-1969/70, has allocated about ID 7.4 million for this industry, while in Jordan allocations during 1964-1970 amount to JD 681,000. In Syria, the Ministry of Industry licensed projects costing LS 20.2 million during 1960-1964.

General environmental problems

This section deals with some of the interrelated general problems which condition industrial development. The suggestion is made for the adoption of a policy of balanced growth to stimulate simultaneous expansion in a group of selected industrial sectors in order to set a general cycle in motion.

Deficiency in the mechanism of financing is often due to lack of institutional facilities for collecting savings

and channelling them into industrial enterprises. Serious attempts are being made to remedy this deficiency, as evidenced by the Kuwait Savings and Credit Bank, the Kuwait Fund for Arab Economic Development, and the Arab Investment Company (in formation).

Regarding the distribution of capital investment between the primary and industrial sectors, this will necessitate fundamental structural changes.

Planning has become an accepted procedure. Generally speaking, only the national plans still reflect efforts for development. Planning on a regional scale is yet to come. Public investment tends to outpace private investment. Regarding industrial development planning, two criteria seem to be employed: redressing the balance of payments and improving the revenue and/or maximizing social utility.

The question of co-ordinating the industrial sector should be carefully studied within the framework of general economic development. A system of sectoral collaboration may prove to be the prelude to more comprehensive industrial integration. This system requires close technical co-operation at the level of the industry within the region, both private and State-owned.

General conclusions and suggestions

The overwhelming need for further industrial studies has been clearly established. Yet some basic improvements are necessary in order to permit more detailed inquiries. First, there is need for substantial improvement in the collection of relevant data and information. Accurate and adequate data should be co-ordinated between the different countries of the region. It will also prove useful to solicit the advice and guidance of regional and international organizations.

There is an urgent need for a concentrated drive towards accelerated industrialization. It is still true to say that, with a few notable exceptions, industrial activity is still in its initial stage. However, considerable possibilities for rapid economic progress exist. There is a general re-awakening in the Arab world. The region enjoys considerable geographic advantages and an ample manpower supply, but lacks certain types of skill, training and experience. Human resources have, therefore, to be adjusted through training to development requirements. Also, there is the danger of over-specialization or of a too narrow approach to practical aspects of development. There is an urgent need to encourage the rise of a class of techno-economists.

The shortage of small entrepreneurs is conditioned by the relationship of the public and private sectors. An active policy of encouragement should be pursued and practical measures adopted to help the rise of new enterprises.

Industrialization will inevitably give rise to the highly complex problem of urbanization. Attempts at resolving this problem, at the national or regional level, must involve an adequate degree of planning, preferably in a regional context, in order to avoid duplication and promote greater specialization. The establishment in Kuwait of a new United Nations Institute of Planning augurs well for a successful promotion of regional planning. Some experience has already been gained in co-operation at governmental level under the auspices of the League of Arab States. A similar influence is also exercised through the General Union of the Arab Chambers of Commerce, Industry and Agriculture.

What has not been attempted yet is co-operation at the sectoral level, based on the direct promotion of the mutual interests and reciprocal benefits of those who collaborate in any co-operative undertaking. AFRASEC has acquired considerable experience in the successful launching of sectoral co-operation at the Afro-Asian level. It is hoped that this Conference may provide the occasion to examine and make appropriate recommendations concerning this very effective type of co-operation.

6. Creation of an iron and steel industry in the Arab countries*

This paper investigates the possibility of establishing an iron and steel industry in the Arab countries.

In the developed countries, the average *per capita* consumption of steel is of the order of 500 kg per year, while in the developing countries the average is of the order of 20 kg (see table 1). In order to fill the gap, the Arab countries will need to take action with a view to establishing an iron and steel industry.

With the exception of the oil producing countries, Arab countries suffer from a lack of sufficient financial resources. Moreover, exports do not provide the necessary foreign exchange which is a prerequisite for the execution of development projects.

* Paper presented by the Union of Arab Engineers.

Table 1. Aggregate and *per capita* steel consumption in some Arab countries

Country	*Total annual consumption (thousand tons)*			*Population estimates (million)*	*Per capita consumption (Kg)*				*Estimated annual consumption 1965 (thousand tons)*
	1961	*1962*	*1963*		*1961*	*1962*	*1963*	*Average*	
Algeria	402	213	207	11.7	32	21	20	26	305
Morocco	152	171	171	13.2	13	14	14	14	188
Tunisia	79	96	91	4.6	19	22	20	20	92
United Arab Republic	373	474	439	29.5	14	13	16	14	415
Iraq	265	276	169	7.2	36	40	25	34	245
Lebanon	192	161	211	1.7	113	95	120	109	185
Saudi Arabia	123	109	115	7.5	20	17	18	18	126
Syria	101	151	105	5.5	20	30	20	25	138

A number of Arab countries have established iron and steel industries on the basis of available raw materials and labour force. The industries have expanded according to the requirements of local markets. A brief summary of the position in the different Arab countries is given below

United Arab Republic

The iron and steel industry in the United Arab Republic has passed through several stages.

First, after the Second World War large quantities of scrap were accumulated in the western desert. This scrap constituted the basic raw material for the establishment of an iron and steel industry. Three plants were set up during 1948-1949 for the production of reinforced steel. The productive capacity of the three plants was 60,000 tons in 1952; by 1964 it had reached 200,000 tons.

After the revolution, a study was made of the feasibility of establishing an iron and steel plant in Aswan, where large quantities of iron ore had been discovered. A plant with a capacity of 250,000 tons per year was established. Later the plant was expanded by the addition of several units. Recently an agreement was concluded for the purpose of raising the productive capacity of the plant to 1.5 million tons per year.

Another plant will be established in Aswan for the production of 300,000 tons of reinforced steel bars per year; this plant will make use of the electricity generated from the High Dam, as well as the iron-ore reserves of Aswan.

Plans have been made for the establishment of an iron and steel plant in Alexandria with a productive capacity of 2.5 million tons of steel blocks per year. In the first stage, the plant will produce steel sheets of 2,500 mm width, which will be used in the construction of ships and boats. Provision has been made for the addition of a unit for rolling wire, which will be constructed during the third plan period.

Morocco

A study has been undertaken to assess the economic and technical feasibility of establishing an iron and steel industry in Morocco to meet the domestic market requirements for iron and steel products. A plan was drawn up calling for the establishment of such an industry within a period of three years, 1965-1967. The plan, however, has not yet been implemented.

Lebanon

There are two iron and steel plants in Lebanon, the production of which depends on scrap melting. Both plants have a productive capacity of 60,000 tons a year of reinforced steel bars. An expansion programme is being drawn up to increase the productive capacity to 120,000 tons per year in the first stage and 150,000 tons a year in the second stage. The launching of this programme, however, depends on the availability of scrap in the country and on the future policy of the State in regard to an increase in customs duty on imported reinforced steel bars.

Saudi Arabia

Saudi Arabia has recently contracted with a foreign firm for the establishment of a steel plant to produce 30,000 tons a year of round and light reinforced steel bars. Production will be based on melting scrap iron. The plant will be located in Jeddah, adjacent to the port.

Iraq

A contract has been concluded for the establishment of an iron and steel plant which will depend on melting scrap iron. The expected annual productive capacity is some 200,000 tons of light, medium and heavy reinforced steel bars.

Tunisia

An agreement was recently made to establish an integrated iron and steel plant in the Manzil Bourkiba city for the production of 150,000 tons of light and medium section reinforced steel bars per year. The construction of the plant is in progress.

Algeria

The Algerian Government owns an iron and steel plant under the name of Acieries et Laminoirs d'Oran (ACILOR), which depends on scrap melting, with a productive capacity of 28,000 tons per year.

In 1964, plans were drawn up for the establishment of an integrated iron and steel plant, to be executed in three stages:

In the first stage, a number of units to be established for the preparation of iron ore, and the production of pig iron;

In the second stage, a unit to be added for the production of steel blocks;

In the third stage, a unit to be added for the production of rolled wire.

The plant was scheduled to begin operation in 1965, upon securing the necessary water supply and electric power. Annual production is estimated to be about 2.7 million tons.

The plant will meet all the requirements of the construction sector, especially for urban dwellings. Requirements for rural dwellings, however, will not be substantial. A need will thus arise for export outlets during the coming five years, since the domestic consumption will absorb only a minor portion of the total output.

Provision has been made to expand the productive capacity to 2 million tons of steel blocks and 2 million tons of wire annually.

Libya

Libya has large deposits of iron ore with 44 per cent iron content. In 1964, a small plant was established in Tripoli for the production of reinforced steel bars.

Syria

A government project for the establishment of an iron and steel industry is under study. In the first stage, the plant will have an annual capacity of 65,000 tons of reinforced steel bars, with plans to increase capacity to 120,000 tons at the end of the second stage.

Jordan

A project has been drawn up by a local commercial company in Amman for the erection of an iron and steel plant based on scrap melting with an annual

capacity ranging between 30,000 and 40,000 tons of reinforced steel bars.

Kuwait

A project for the establishment of a steel plant is under study. This project will be executed by a private commercial company and will be based on scrap melting. Annual production is estimated at some 40,000 tons of light reinforced bars.

PROSPECTS FOR THE CREATION OF AN IRON AND STEEL INDUSTRY IN THE ARAB COUNTRIES

Table 2 below shows the sources and reserves of iron ore in the Arab countries.

Table 2. Sources and reserves of iron ore in the Arab countries

(million metric tons)

Country	Iron ore			Component of iron in the ore				
	Ready for shipment	Concentrated ore	Effective reserves	Ready for shipment	Concentrated ore	Total quantities discovered	Effective reserves	Total
	1	2	3	4	5	6	7	6+7
Algeria	140	-	-	75.8	-	75.8	-	75.8
United Arab Republic	25		250	10.0		10.0	100.0	110.0
Morocco	25	45	120	13.8	22.1	35.9	56.2	92.1
Tunisia	18	1	20	9.9	0.6	10.5	11.0	21.5
Sudan	35	—	35	21.5	—	21.5	—	21.5

Scrap iron is accumulated mostly from the disposal of the mechanical and engineering industries. Assuming that the annual *per capita* scrap disposal in the Arab countries is 4 kg, the total quantity of scrap accumulated each year will be about 400,000 tons.

Fuel is used in various forms: liquid, solid or gaseous. Table 3 shows the production and reserves of natural gas in the Arab countries.

Table 3. Production and reserves of gas in 1961 (1,000 million cubic feet at 60° Fahrenheit and 15.05 pounds per square inch pressure)

Country	Production	Reserves
Algeria	50	50,000
Iraq	250	22,500
Saudi Arabia	285	20,000
Kuwait	275	33,000
Libya	4	3,700
Qatar	50	7,500
Neutral zone	19	2,000
Abu Dhabi	-	3,000
TOTAL (Arab countries)	933	141,700
Total United States of America	13,750	577,294
TOTAL WORLD	20,913	722,750

The iron and steel industry requires technicians and managerial skills, as well as specialists in production methods. It also requires training programmes at various levels. Steps should be taken to provide the necessary training.

The establishment of an iron and steel complex requires considerable capital outlay. At the same time, the long time span required to bring the project to completion discourages private investors from supporting industrial ventures of this type.

Outlays in both domestic and foreign currencies will be necessary, the requirements for domestic currency representing 40-45 per cent of the total.

The advanced countries are, however, interested in financing ventures of this type through the extension of short- or long-term loans, though bearing a high rate of interest.

The establishment of an iron and steel industry also requires infrastructure facilities, which must be provided by the public sector in view of the heavy capital investment involved.

7. The fishing industry in the Arab countries[1]

The Arab countries bordering the oceans and seas from the Atlantic Ocean to the Gulf have little or no rainfall, and suffer from shortage of land under cultivation and pasture for cattle breeding—the main source of protein food. As a result, most of these countries, including Egypt, are compelled to import large quantities of meat. Although the coasts surrounding these countries are well stocked with fish, the production and consumption of fish is small.

In our present study, we shall confine ourselves to the problems of sea fishing. In the case of river and lake fishing, each Arab country has its own special features, and it would consequently be difficult to generalize in that area.

Some considerations which arise in connexion with the exploitation of the fishing industry in Arab countries are stated below.

The fishing grounds are located at some distance from ports. To exploit them, adequate equipment is required, namely, motor boats, modern fishing nets and facilities for the maintenance of such equipment.

Fishing ports are generally located at some distance from the marketing and distribution centres. Hence, adequate transportation and preservation facilities are required.

There is a shortage of men trained in modern fishing methods.

There is a lack of factories for the treatment of fish

[1] Paper presented by the Union of Arab Engineers.

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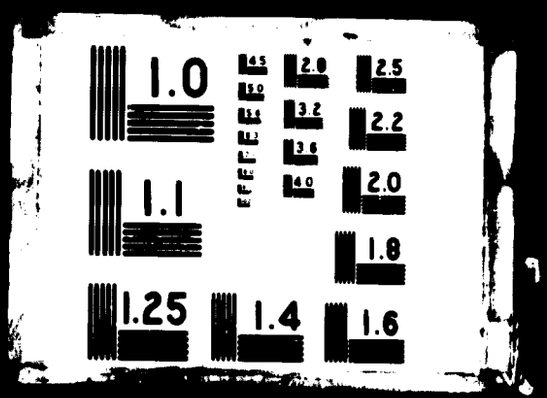

in excess of consumption, that is, for preservation by refrigeration, drying, salting, canning or smoking.

The majority of people in the Arab countries have a dislike for fish as a food source.

Scientific research on fishing wealth is required and should be developed on a modern, scientific basis.

Co-operative associations

In most parts of the world, Governments have taken steps to regulate the fishing industry and have encouraged the formation of co-operatives to protect and assist fishermen. A further purpose of co-operative associations is to provide fishermen with loans and fishing tackle at the lowest possible prices. In return for those services, fishermen undertake to market their catch through co-operative associations which arrange to sell it at the best possible price. Out of the sale proceeds, co-operative associations recover the loans extended to fishermen.

Governments of those countries grant co-operative associations loans at low rates of interest as a measure of encouragement and a stimulus to the formation of the associations.

The purpose of co-operatives may be stated as follows: assistance in the acquisition by fishermen of boats and fishing-tackle; provision of loans to applicants to permit purchase and repair of fishing boats and equipment; organization of the marketing of fish; construction of refrigerated warehouses for the preservation of fish, and ice-factories to supply fishermen with their requirement of ice; transportation and export of fishing products; development of facilities for salting or preserving fish; raising the social standards of fishermen, instituting a provident fund, insurance against sea risks, labour accidents and unemployment, provision of pensions in case of incapacitation from work, and payment of benefits to families in case of death.

Encouragement of the fishing industry

To enable Arab countries to develop fishing operations along their coasts and to encourage the exploitation of their maritime wealth, it is recommended that a department or organization be established to exploit sea wealth. The purpose of such a body would be the promotion of all activities related to the development of those resources, increasing production and initiating new industries for the treatment of fish through different methods of preservation.

The department or organization would supervise and encourage the auxiliary bodies concerned with the following activities:

Establishment of hydrobiological research institutes, and the study of all aspects of sea life and its procreation;

Issuance of laws for the preservation of sea wealth and determination of fishing seasons;

Preservation of fish by different methods, such as refrigeration, canning, salting, smoking, drying, etc.;

Construction of fishing ports and dry docks for repair work and provision of ice-factories, fuel tanks, drinking water supplies, refrigerating stores and warehouses for the preservation of fish;

Construction of fishing ships and fleets and requisite equipment;

Formation of co-operative associations for fishermen for the extension of loans for the financing of fishing boats and other similar services;

Organization of wholesale fish markets;

Establishment of schools, training centres and colleges for the training of persons engaged in fishing and various allied industries.

Although a number of Arab countries have instituted all or some of these auxiliary facilities, they are distributed among the various government administrations and ministries. This renders co-operation among departments difficult and hinders efforts towards the development of sea wealth. It would be preferable to have these departments grouped under one ministry, preferably the Ministry of Agriculture, which is the most directly concerned.

The building of large fleets for deep-sea fishing is a costly operation. However, fishing fleets operate in areas abounding with fish; consequently, the return on the investment is usually more than sufficient to cover costs provided the fleets are efficiently operated.

Nevertheless, it is recommended that the Arab countries avoid embarking on projects of deep-sea fishing before exhausting the fishing possibilities and resources along their coasts which, as previously stated, are great and remain unexploited.

To study the economic aspects of fisheries in the Arab countries, it is necessary to secure from each country the following data:

A topographical map of the sea-bottom along the coast;

Type of fish living along those coasts, and the amount fished annually;

Meat and fish consumption, and the quantity imported annually;

Average price of ice and diesel fuel;

Availability of refrigeration space throughout the country, and fish storage fees;

Availability of railroad refrigeration facilities and cold-storage trucks;

Laws relating to the fishing industry, co-operative associations, the individual labourer and the immigration of fishing boats and crews;

Laws relating to profits realized on the investment and repatriation of foreign capital;

Laws and regulations governing fish markets;

Data relative to weather prevailing on the local coasts;

System of wireless communication with ships at sea;

Pricing policy for fish, especially with a view to reducing costs and encouraging daily consumption by a large proportion of the population.

Co-operation and industrialization in respect of the fishing industry

The exploitation of fishing possibilities along the Arab coasts, the discovery of fishing grounds, research and preliminary studies, construction of fishing fleets, training of men and crew, construction of fishing ports and facilities, organization of fish markets to meet sanitary standards and the creation of a network for the haulage of fish by cold-storage trucks are operations requiring facilities and financial resources that may not be within the means of a single Arab country. This may well be the reason for the delay in the exploitation of the fishing wealth that abounds along the Arab coasts.

It is believed that co-operation among Arab countries in the field of fishing and the industrialization of this trade is a necessity in their common interest.

The principal advantages of such co-operation are:

Economies of scale in the search for fishing grounds, which can be achieved by collective action;

Economies in the establishment of schools, institutes, and training centres, which could not always be justified on economic grounds in individual countries;

Economies in the building of fishing fleets in collectively owned shipyards built in accordance with a unified design;

Organization of fish marketing operations among different Arab fish markets;

Establishment of a joint wireless network to contact fishing boats and ships at sea and to extend assistance to them in case of emergency.

Scientific research

It is suggested that the Arab League, in conjunction with the Food and Agriculture Organization of the United Nations, be entrusted with the formation of a research council dealing with sea wealth. The council should include scientists and research workers from all the Arab countries and should be responsible for undertaking the necessary scientific and practical studies along the fishing coasts of the Arab countries. However, this does not exclude the possibility of individual Arab countries gathering data locally or making appropriate studies in their local areas. The adoption of this proposal will enable the Arab countries to realize considerable economies and at the same time to take important steps towards the achievement of unity in scientific research on fishing wealth.

A fishing research council should be formed comprising the necessary committees for planning and research; it would be responsible for co-ordinating the work of the committees.

The proposed council could be divided into seven principal committees:

Research committee for sea-bottom topography and preparation of coastal maps. The duty of this committee would be to study the demands of the member States for topographical research of the sea bottom and for the drawing of the respective maps.

Biological research committee. This committee would be concerned with the study of fish assembly, movement and migration, including a study of the various routes followed during migration, and the breeding habits of the different kinds of fish, shells, sponges and jelly fish.

Committee for the improvement of fishing tackle. This committee would study fishing equipment and its improvement, as well as methods of modern fishing, including fishing with the aid of electric light, with trawl-nets in medium-depth water, deep-sea fishing, etc.

Committee for ships and motors. An engineering committee would be responsible for the elaboration of standards; its duty would be to unify the specifications of boats in accordance with standard specifications within the narrowest possible limits, and to study the possibility of building such craft and engines in Arab countries on a large scale and at a lower cost.

Committee for the study of fishing ports and fish markets. A specialized engineering committee would undertake studies and draw up plans for the construction of fishing ports along the coast of Arab countries; its duties would comprise the selection of convenient locations, measurement of sea depth, and elaboration of long-term plans for the construction of fish markets, as well as the study of protective means against fish slaughter on the coasts of the Arab countries, in the straits, lakes, salines and lagoons.

Fish technology research committee. This committee would conduct research and studies aimed at the preservation of fish by refrigeration, cold storage, drying, salting or canning, etc.

Research committee on wastes. This committee would study waste products discharged by factories, run-off from agricultural land containing a high percentage of poisonous insecticides, and discharge from factories and merchant ships. In Egypt it was found that fish previously abundant in rivers had disappeared as a result of the increased use of insecticides in recent years, particularly in areas adjacent to industrial plants erected along the sea coasts and wherever there was constant contamination by noxious waste matter.

8. The Arab potash project[8]

During the period 1835-1930, a number of European and American companies carried out studies on the possibilities of exploiting the Dead Sea minerals. In 1930, the Palestine Potash Company was established on the northern coast of the sea to produce potassium and other minerals such as bromine, magnesium and their derivatives. Production of the company reached $50,000 tons per year.

However, owing to lack of suitable land at that location for the construction of additional pans to increase the productive capacity of the project, the Palestine Potash Company built pans on the southern end of the sea, and production rose in early 1948 to 120,000 tons of potassium per year.

Later, as a result of the Arab-Israeli conflict in 1948, the company's installations on the northern end of the Dead Sea were demolished and operations at the southern end were suspended.

In 1953, the Israel authorities established the Israeli Potash Company, which rebuilt those installations and expanded the pans on the southern end, thereby raising annual production to 180,000 tons by 1963. At present, the company is building pans in the sea with the purpose of raising annual production to 600,000 in 1965 and 1 million tons by 1970.

Jordan regards the Dead Sea minerals as an important national asset and a vital factor in the development and economic prosperity of the country. With a view to exploiting that asset, the Jordan Government, in co-operation with the United States operations mission, retained the American Chemical Construction Corporation to carry out a technical and economic feasibility study for establishing a potash plant at the northern end of the Dead Sea at the site of the Palestine Potash Company's project.

In 1954, the company submitted its report, recommending the establishment of a project for the produc-

[8] Paper presented by Jordan.

tion of 70,000 tons of potash per year. It also recommended the establishment of a pilot project to review available data left by the Palestine Potash Company to determine the most appropriate method of potash extraction and processing and to collect information required for the design of the plant.

On the basis of those recommendations, the Jordan Government, together with some of the member States of the Arab League, established the Arab Potash Company in accordance with articles of association dated 21 June 1956, with an authorized capital of JD 4,501,000 divided into 900,200 shares valued at JD 5 per share. Jordan, the United Arab Republic, Iraq, Saudi Arabia, Syria, Lebanon and the Arab Bank purchased a total of 200,200 shares, valued at JD 1,100,000, as follows:

	No. of shares	*Value (JD)*
Jordan	100,000	500,000
United Arab Republic	25,000	125,000
Iraq	25,000	125,000
Saudi Arabia	25,000	125,000
Syria	12,500	62,500
Lebanon	12,500	62,500
Arab Bank Ltd., Amman	200	1,000

Jordan granted the Arab Potash Company a concession for 100 years to exploit Dead Sea salts and minerals.

The area covered by the concession, adjacent to both the southern and northern ends of the Dead Sea, covered 80 square kilometres. Jordan exempted the company from customs duties and other fees usually imposed on imported equipment, machinery, transportation facilities, building materials and other commodities which the company might need for the establishment of the project or its expansion. The company's profits were declared exempt from income and social affairs taxes for five years, beginning from the date of commercial exploitation of potash, and from 50 per cent of those taxes for two successive years, after which the company would be subject to full taxes. Consultants, engineering and construction companies, and experts working for the Arab Potash Company, were to be exempted from income and social affairs taxes, as well as from the profit tax on their income from the Arab Potash Company.

The Arab Potash Company built the pans and the pilot project in 1959-1960 in accordance with the recommendations of the American Chemical Construction Company and conducted studies and experiments on two methods of processing potash under the supervision of German and American experts, namely, the hydrocyclon and floatation methods.

It was established as a result of the experiments made on the hydrocyclon and floatation processes that the hydrocyclon process was not suitable for the separation of potash from sodium chloride owing to the similarity of the size of the crystals. The hydrocyclon process is based on the separation of crystals of different sizes.

After the completion of experimental work, the Arab Potash Company selected the Western Knapp Engineering Company of the United States, on the basis of international tenders, and signed a contract with the company on 10 September 1961. The contract covered an economic and technical feasibility study of the project, preparation of final designs and specifications for issue of tenders for the construction of the pans, and the supervision of construction and operation of the project.

In May 1962, Western Knapp Engineering submitted a report on the economic and technical feasibility of the project, in which it recommended establishment of a project in the southern part of the concession area, at Ghor Safi, with a capacity of 250,000 tons per annum, to be increased to 500,000 tons (as compared with a capacity of 70,000 tons envisaged in 1956, when the Arab Potash Company was founded) in order to enable the company to market its output at competitive prices. The total estimated cost of the project was approximately JD 10 million.

After study of the Western Knapp Engineering report on the economic and technical feasibility of the project, the Arab Potash Company instructed the firm to proceed with the second stage and prepare detailed designs and specifications for the plant and pans.

On 15 September 1962, the Arab Potash Company issued international tenders for construction of the pans. On 19 January 1963, five international companies submitted offers at prices ranging from JD 3.5 to JD 6.5 million. It became evident that this variation in bidders' prices was due to inaccuracy in the technical studies submitted by the consultants, and failure to conduct a topographical survey of the area prior to the preparation of the final designs. Consequently the Arab Potash Company cancelled the tenders and requested the consultants to revise the designs and specifications and submit revised information to bidders as a basis for the submission of new offers.

On 8 April 1963, Arthur G. McKee (now owner of Western Knapp Engineering Company) submitted a proposal indicating its readiness to construct the project and undertake management and marketing operations, as well as to secure the necessary additional capital from French sources. The Arab Potash Company accepted the proposal. However, after studying and discussing the various aspects of the offer submitted on 6 July 1963, it was found unsuitable on the basis of high cost and non-compliance with the conditions, guarantees and technical studies. A. G. McKee was then requested to revise its offer to lower its cost, and submit adequate guarantees, whereby it would assume full responsibility for all parts of the project.

On 18 October 1963, A. G. McKee submitted a modified offer including detailed designs and specifications for the plant. The proposal was found incomplete, as A. G. McKee excluded a section relating to the pans. As a result, the Arab Potash Company decided to reject the offer and to restrict the scope of work of A. G. McKee to technical consultation services, as stipulated in the contract. In addition, the Arab Potash Company instructed A. G. McKee to expedite the completion of designs and specifications for the pans.

In view of the continuous recession of the Dead Sea waters and the increase in the proportion of waste resulting from returning the excess waters from the Israeli pans into the sea, the Arab Potash Company, for a period of five years, will have to bring the water from the Lisan area to the pans. This calls for the construction of a canal at a cost of $6 million. Experts from the International Bank for Reconstruction and Development (IBRD) advised that it would be necessary to add the cost of the canal to the preliminary cost of the project and then re-examine the project's economic feasibility.

Accordingly, the consulting firm revised the designs and specifications and proposed transfer of part of the pans to the Dead Sea to offset the need for the greater part of the proposed canal. The revision of designs required further soil investigations and surveys of the new site. As a result of the floods which occurred in the winter of 1963, the consulting firm was also instructed to consider necessary measures to protect the pans against similar future floods. On 30 March 1964, the consulting engineers submitted designs, specifications and tender documents for the construction of the pans. However, it was again found that the designs and specifications did not cover all necessary technical details Furthermore, the consulting firm placed responsibility for certain works assigned to it on the contractors. The conditions and terms of the tender documents were unsatisfactory and resulted in raising the cost of the project, thereby discouraging contracting firms from participating. Consequently, the Arab Potash Company instructed the consulting firm to review the technical studies it had made and to reduce the cost of the project.

In early 1965, the Arab Potash Company signed a contract with the American consulting company, Jacobs Engineering, to review the studies and specifications prepared by Western Knapp Engineering. Jacobs Engineering submitted a report in which it recommended raising the productive capacity of the plant from 250,000 to 500,000 tons per year. It estimated the total cost of the project at $70 million—$55 million for the plant, pans, and dykes; $5 million for the town site; and $10 million for the construction of the Safi-Aqaba road. The preliminary report submitted by Jacobs Engineering proving the economic feasibility of the project was reviewed and studied by the Arab Potash Company and the Jordan Government together with representatives of IBRD and the United States Agency for International Development (USAID). It was decided to entrust Jacobs Engineering with the task of preparing detailed designs and technical specifications for the project. The project is expected to be completed by early 1966.

The articles of association of the company and its internal regulations stipulate that the 700,000 outstanding shares at a nominal value of JD 3.5 million should be issued for public subscription in Arab markets. Any unpurchased shares would be bought by the Arab organization if it is established, otherwise the Arab Governments will underwrite these shares in proportion to their contribution to the Arab League budget.

In 1962, the Arab Potash Company launched an extensive publicity campaign in the Arab countries to attract public subscription and, as a result, the value of stock held by the public reached JD 2.25 million, including the amounts of JD 125,000 and JD 50,000, subscribed by the Governments of Kuwait and Qatar respectively. This brought the value of shares sold, including founders' shares, to JD 3.25 million.

Consequent upon the increase in the cost of the project to over JD 10 million from the estimated cost of JD 4.5 million, and as the share issue was not completely taken up, the Arab Potash Company endeavoured to secure the necessary financing from Arab and foreign Governments and from national and international financial institutions. Loan applications were submitted to USAID, IBRD and the Kuwaiti Fund for Arab Economic Development. Memoranda were addressed to non-subscribing Arab League member States, urging them to participate in this economically vital project. As the response was not favourable, the Arab Potash Company was compelled to seek contracting firms to construct and finance the project on a credit basis, whereby the principal would be repaid in annual instalments, starting after the commencement of production. However, the short-term nature of commercial loans and the conditions associated with such loans rendered this approach to financing the project impracticable.

In view of the importance of the project to the Jordan economy, the Jordanian Government then approached IBRD and USAID with a request for assistance in financing the project, emphasizing that the economic feasibility of the project had been established by recent studies conducted by Jacobs Engineering. These institutions expressed their willingness, in principle, to contribute to financing the project in accordance with a financial plan to be drawn up after the completion of design and technical specifications. IBRD deemed it advisable, in the interest of the project, that an industrial consumer of potash with adequate experience in technical, managerial, and marketing aspects in this field participate in the project. Accordingly, a number of qualified firms were requested to submit offers to participate in the project. Negotiations are now in progress with the IMC company.

In the past, the potash-exporting countries of western Europe have been able to control the marketing of potash throughout the world (excluding the USSR, eastern Europe and mainland China). However, more recently, North American countries have entered the export market as a result of the establishment of a number of potash companies overseas. In the future, the Middle East countries are expected to establish a position among the potash-exporting countries, particularly in the area east of the Suez Canal.

The Arab Potash Company has come to the conclusion, as a result of extensive marketing studies, that it could sell its product in many markets. Jordan enjoys a favourable geographical location in view of its proximity to the potash-consuming centres in the Near and Middle East, the Far East, and South-East Asia. These areas constitute natural outlets for Arab potash.

While studies have not been made on commercial conditions in African countries, it is believed that a market could be developed in those countries under normal competitive conditions.

As regards the marketing of Arab potash in western Europe and the United Kingdom, which fall within the sphere of influence of the European potash cartel, the Arab Potash Company will undoubtedly encounter difficulty in marketing significant quantities in those markets unless an agreement is concluded with the cartel, as was done in the case of the potash company in the occupied part of Palestine.

The price of one ton of Arab potash 60 per cent pure K_2O fob Aqaba is estimated at $32. Cost of production and transportation to Aqaba is estimated at $17 per ton. On this basis annual profits to the Arab Potash Company on a production of 500,000 tons would be about $7.5 million, in addition to the advantages of creating employment opportunities and securing a main source of foreign exchange.

The Jordan Government considers the Arab potash project one of the most important development projects in the kingdom and therefore gives it high priority in

the seven-year development plan. The project will increase national exports considerably. Potash exports will constitute 20 per cent of Jordan's commodity exports in 1970. In addition, the project will contribute to national output and employment and will have, directly and indirectly, favourable effects on other sectors of the Jordan economy.

For these reasons, the Government is sparing no effort to secure the necessary financing to implement this vital project. It is expected that production will start by 1968/69, and reach 500,000 tons by 1970.

9. The food industry in Syria[9]

The volume of production in the principal food industries in Syria has almost doubled during the last decade, notwithstanding the fact that production decreased during the years of drought from 1957 to 1959. Reference may be made to tables 1 and 2 below.

Table 1. Index of production of food industries 1956-1964

(1956 = 100)

Year	*1956*	*1957*	*1958*	*1959*	*1960*	*1961*	*1962*	*1963*	*1964*
Index ...	100	95	115	79	138	150	157	173	190

Table 2. Production of principal industries 1959-1964

(*Volume is in metric tons, except for beer which is in hectolitres*)

Type of industry	*1959*	*1960*	*1961*	*1962*	*1963*	*1964*
Sugar	61,064	69,631	71,720	76,876	83,454	78,341
Cottonseed oil ..	14,148	15,148	15,648	16,022	20,833	26,852
Canned foods	2,682	2,982	3,000	3,308	3,703	3,746
Chocolate	777	800	820	840	925	579
Macaroni	2,139	2,139	2,139	1,868	2,373	2,462
Biscuits	821	821	821	869	1,415	913
Beer	14,510	18,290	19,630	24,500	26,240	26,640
Olive oil		10,100	18,621	20,447	15,093	25,512

The principal food industries in Syria are set forth below.

Flour. This industry has not received adequate attention in the past, even though it is one of the most important food industries in the country. Originally Syria depended on small flour mills run by hydraulic power. More recently, mechanical flour mills have been established by private individuals in various parts of the country, especially in Aleppo, Homs and Damascus. Following the issue of decree No. 29 of 25 November 1962, under which mechanized flour mills were attached to the Cereal Office, the authorities undertook a study of those mills with the help of local and foreign experts. The purpose of the study was to obtain information regarding assets, technological conditions, production process, capacity and quality of the product of these mills. The purpose of the study was to permit the necessary measures to be taken to improve and increase production in accordance with the requirements of the country.

The study showed that the total productive capacity of the mills was barely sufficient to meet local consumption. In addition, the Cereals Office made estimates of Syria's needs for flour on the assumption of a 10 per cent annual increase in the rate of consumption. As a result of the study, it was decided to retain the ten most efficient flour mills, to modernize and expand them and to discontinue the operation of the remaining fourteen mills. It was also decided to establish five new flour mills in various parts of the country, with a total daily capacity of 600 tons of flour.

Bread. With a view to improving the quality of bread the Ministry of Supply imposed specifications and health conditions relating to both the equipment and the technique of making bread. However, bread-making has not yet reached the desired standard. Consequently it was decided to establish several modern bakeries in various cities. Offers for four bakeries have been received and are being studied.

Cottonseed oil. The great expansion in the cultivation of cotton in recent years has resulted in the development of a vegetable oil industry which at present is confined to the extraction of oil from cottonseed and refining it to make it edible. This industry provides an important source of income and its expected to continue to expand with the continued expansion in cotton cultivation and the increased consumption of cottonseed oil.

Table 3 shows that the local consumption of cottonseed oil has almost doubled in the past five years, while production and exports have also increased consistently.

[9] Paper presented by Syria.

Table 3. Production, consumption and exports of cottonseed and cottonseed oil, 1960-1965

(In metric tons)

Crop year	Production of cottonseed oil	Cottonseed exported	Cottonseed processed	Oil produced	Oil exported	Local consumption
1960	156,000	34,900	121,100	15,148	3,230	11,918
1961	168,000	37,700	130,300	15,648	2,775	12,873
1962	198,000	57,200	140,800	16,022	434	15,578
1963	230,000	58,200	171,800	20,833	2,471	18,362
1964	233,000	28,070	204,930	26,852	4,086	22,766
1965	252,000	18,760	233,240	31,000	12,804	18,196

The fall in the export of oil in 1962 was due to two reasons: the rise in the export of cottonseed and the rise in the local consumption of oil. In 1965, however, a large quantity of oil was exported as a result of the increased production of olive oil, which was partly substituted for cottonseed oil.

It is expected that local production of cottonseed will increase by about 10 per cent annually. Accordingly, the value of production of cottonseed in 1970 is estimated at about LS 100 million. In view of the importance of this industry to the national economy, the Government has found it necessary to nationalize it.

At present, there are seven factories in Syria for the production of vegetable oils which concentrate on pressing cottonseed in addition to a small quantity of copra. These factories differ greatly with respect to capacity and technical efficiency. Three factories in Aleppo provide about 80 per cent of productive capacity, while the four factories in Damascus, Homs, Hama and Latakia contribute 20 per cent.

The Syrian cottonseed oil industry faces a number of problems: low productive capacity of certain factories; obsolescence of a large part of the machinery; inadequacy of some equipment and great differences between the capacities of the various productive units within a single factory.

A study of cottonseed oil plants was undertaken by a technical committee at the request of the General Organization for the Public Sector. The committee reported that considerable losses were incurred from the use of obsolete presses and the defective preparation of cottonseed.

On the basis of this study, the authorities concerned decided to implement the following measures to improve and expand the industry: discontinue production in two of the small plants, using one of them for refining only; improve and expand the three plants in Aleppo by supplying missing equipment and replacing old presses, and establish a modern plant with a daily capacity of 500 tons of cottonseed.

There are also in operation two plants for the shortening of cottonseed oil for edible use with a capacity of 8,000 tons of vegetable oil per year.

Sugar. The first plant for the extraction and refining of sugar was established in Homs in 1946, and began operation in 1949. The extractive capacity of the plant was later expanded to 22,500 tons annually. A second plant was established in Damascus and began operation in 1959. The annual capacity of both plants is 112,500 tons of refined sugar.

Refined sugar is obtained both from imported raw sugar and from local sugar beet. The importation of refined sugar has been prohibited in order to protect local industry. The rise in sugar consumption has been met mainly by refining imported raw sugar, in view of the difficulties encountered in extracting sugar from sugar beet.

At the request of the authorities concerned, a committee was formed under the chairmanship of the secretary-general of the Ministry of Agriculture to study the following matters relating to the planting and processing of sugar beet: Delivery of sugar beet to the sugar plants; protection of the sugar-beet crop; relationship in developed countries between sugar-beet producers and sugar-refining companies and adaptation of the information obtained to local conditions; extension programmes needed to improve yield and sugar content of Syrian sugar beet; status of research studies on sugar beet and desirable new research for development of sugar-beet cultivation; these research projects to be partly financed by the sugar refining companies; determination of optimum time for initiation of the process of sugar extraction from sugar beet.

One of the important reasons for the high cost of production of sugar beet has been the low yield. Consequently, the authorities concerned are offering the necessary extension services to farmers to assist them to raise yield. Farmers have also been assisted with seeds and insecticides.

The increase in the price of raw sugar in 1963 to about four times its normal price led the authorities to raise plant capacity for extracting sugar from sugar beet. In 1964, a contract was entered into with the Techno-export company of Czechoslovakia for the construction of a plant in the Ghab district for the extraction of sugar from sugar beet, with a capacity of 2,000 tons of sugar beet daily. It is expected that this plant, which is now under construction, will start operation next year.

The addition of a third plant, together with the studies and experiments undertaken to lengthen the beet season, will enable at least one-half the requirements of the country to be satisfied. (See Table 4 below). This is in addition to the other economic benefits derived from the industry such as saving on foreign exchange, improvement of crop rotation, and employment of large numbers of farmers and labourers. There are also secondary benefits derived from the by-products of sugar production.

Table 4. Sugar production in Syria, 1959-1965

(Quantity in tons)

Year	Total sugar production	Refined from raw sugar	Extracted from beet
1959	61,064		
1960	69,637	58,672	10,939
1961	71,720	62,244	9,476
1962	76,876	68,973	7,903
1963	83,454	74,093	9,361
1964	78,341	59,315	19,026
1965	94,350	74,837	19,513

Beer. Syria imported beer until 1953 when a small plant was built in the vicinity of Damascus. A second, larger plant was built in Aleppo in 1957 to meet the increased demand for beer. Local beer was thus substituted for a major portion of imported beer. (See Table 5 below.)

Table 5. Beer production, imports and consumption, 1955-1964

(Quantity in hectolitres)

Year	Total production	Total imports	Local consumption
1955	440		
1956	550	6,780	7,330
1957	8,760	2,880	10,640
1958	15,040	910	15,950
1959	14,510	1,800	16,310
1960	18,790	2,490	21,280
1961	19,760	1,370	21,130
1962	24,500		21,130
1963	26,240	736	26,976
1964	26,640	426	27,066

The total productive capacity of the two existing plants is 30,000 hectolitres, which approximates the present level of consumption. It may be necessary in the near future to increase productive capacity either by building an additional plant or by raising the productive capacity of the two existing plants.

10. The spinning and weaving industry in Syria [10]

Syria has long been known for the products of its spinning and weaving industry, particularly for fabrics of the Aghbani and Brokar types which have been in great demand in both domestic and foreign markets.

The industry maintained a steady growth until the early part of this century, when Syrian textiles began to meet strong competition from a highly developed and mechanized industry abroad. This competition adversely affected the textile industry in Syria and resulted in a large reduction of the work force in the industry. The situation became more acute during the First World War, as a result of blockades, military operations, and a shortage of raw materials, markets and manpower.

During the period between the two world wars, the industry was able to develop some of its potentials. A spinning and weaving factory (the Syrian Spinning and Weaving Company) was established in Aleppo in 1933. A second factory (the Spinners and Weavers Company) was built in 1937, but was not put into operation owing to the outbreak of the Second World War.

However, the well established traditions of the weaving industry in Syria were carried forward after the Second World War in a modernization programme for the weaving industry, consisting in the introduction of modern equipment in existing factories and the construction of additional facilities. As a result of the modernization of facilities and the large increase in production capacity, Syria was in a position to meet its domestic requirements and develop a large export market. Exports of textiles in 1963 amounted to LS 421 million, or 38 per cent of total Syrian exports of LS 721 million.

Syria hopes that its well-established spinning and weaving industry will be able to satisfy the demand of the Arab countries on an expanding scale within an Arab common market.

Industrial and commercial activity in cotton spinning in Syria is confined at present to eight large factories with a total of 154,000 spindles. Three of these factories are situated in Damascus, four in Aleppo and one in Homs.

The eight factories consumed about 20 thousand tons of ginned cotton in 1964. The total consumption of ginned cotton has increased remarkably in recent years owing to the expansion of the productive capacity of those establishments. The consumption of ginned cotton rose from 8,156 tons in 1956 to 19,563 tons in 1964, an increase of 140 per cent. The production of cotton yarn rose from 7,558 tons in 1956 to 17,631 tons in 1964.

Most of the cotton yarn produced by Syrian factories is thick. In 1964, only 3 per cent of total production consisted of thin cotton yarn, a quantity insufficient to meet local demand. Consequently, importation of thin cotton yarn is necessary.

It should be noted that a large portion of cotton yarn produced by Syrian spinning factories is used in the same factories to manufacture cotton textiles and other cotton products, the remainder being exported. During 1963 and 1964, 66 per cent of cotton yarn produced in Syria was consumed by the domestic weaving industries, with some 30 per cent exported. Local consumption and exports of cotton yarn over the 1960-1964 period were as follows:

Year	Local consumption (tons)	Exports (tons)
1960	8,521	1,101
1961	9,812	727
1962	10,547	344
1963	10,868	651
1964	11,354	484

Total Syrian exports of cotton yarn and various cotton products amounted to 3,501 tons in 1963, and to 4,345 tons in 1964. The markets absorbing those exports are world-wide, and constitute traditional outlets for Syrian textiles. They include most of the Arab countries in Asia and Africa, the Soviet Union, Romania, the Federal Republic of Germany, Italy, the Netherlands, Belgium, Switzerland and Nigeria. The principal importers of Syrian cotton textiles are Jordan, Saudi Arabia and Iraq. During the last five years, these three Arab countries purchased 73 per cent of total Syrian exports of cotton products, with the remaining 27 per cent distributed among twenty-four Arab and non-Arab markets. Jordan, Saudi Arabia and Iraq accounted for about 87 per cent of cotton fabrics and textiles exported by Syria in 1964.

The particular geographic location which has made Syria a meeting point for three continents and a transport and commercial route between the industrial and

[10] Paper presented by the Cotton Textiles Industries Promotion Fund of Syria.

trading centres of east and west is a favourable factor in introducing Syrian industrial products to the markets of the world.

However, the prestige which Syria enjoys today as a source of a large volume of good quality cotton points to the necessity of further pursuing the development of the cotton industry, particularly the processing of raw cotton with a view to improving the quantity and quality of cotton yarn.

The aim in developing the cotton yarn industry should not be confined to the satisfaction of domestic requirements; it should also be to convert the largest possible amount of raw cotton into processed or manufactured cotton products for export. This is most desirable in view of the fact that the ratio of manufactured cotton products to the quantity of raw cotton produced in Syria is low compared with similar ratios in other countries. In India, for example, the ratio is 80 per cent, whereas in Syria it is only 11 per cent.

Syria should expand the capacity of cotton spindles and assign an increasing portion of cotton yarn for export. The centralization of industrial activity aimed at in the new industrial regulations may influence maximum utilization of labour, managerial, and productive capacities in the Syrian cotton spinning industry. Another prerequisite for the promotion of the industry is the preparation of a comprehensive programme aimed at the reorganization of the industrial and operational sectors of the industry. There is a basic need for the classification of various kinds of Syrian cotton so that spinning factories may have access to the most suitable type of raw cotton. Equally important is the need to study the demand of domestic factories for long-staple cotton and determine ways and means to satisfy this demand either through increased local cultivation or through imports. It may also be useful to review the manufacturing standards and techniques of various cotton establishments and factories.

Owing to the relatively low capacity at which the Syrian cotton industry operates (59 per cent of total capacity compared with 95 per cent in the industrial countries), attention should be directed to the following points:

Study and application of production techniques used by the developed countries;

Study of various measures applied in spinning and weaving operations with a view to raising productivity levels;

Preparation of co-ordinated programmes for vocational training in the fields of spinning and weaving; recourse may also be had to bilateral and multilateral assistance offered in this connexion;

Adoption of quality control methods in all phases of production.

The realization of this programme will require close co-operation among the various elements connected with production, such as trade unions, management and official organizations responsible for economic planning. It will also require the financial contribution of international organizations and foreign technical knowledge which may become available to Syria through the conclusion of economic and technical agreements. It would also be useful to form a joint commission of Syrian and foreign experts well versed in industrial management and marketing in the spinning and weaving industry. The purpose of this commission would be to study the industry and suggest ways and means for its improvement.

The woollen textile industry is concentrated in nine factories containing about 17,000 spindles producing pure or mixed woollen yarn, and 170 looms, of which 95 are new. The import of wool and woollen products remains at a constant level, in contrast to cotton products which have been diminishing gradually. This indicates the need for an expansion of the woollen industry in Syria. Over the period 1957-1964, the annual average level of Syrian imports of raw wool and woollen products amounted to 2,012 tons.

The average annual capacity of woollen yarn production in Syria is 4,216 tons at the present time. The average annual capacity of the looms producing woollen textiles (on the basis of 300 working days per annum and 24 working hours per day) is 1,345 tons. It should be noted that looms previously engaged in the manufacture of silk or cotton textiles, and which are now producing woollen textiles, have not been included in this computation owing to lack of accurate information.

The actual production of woollen textile looms in Syria varied between 52 and 167 tons annually over the period 1957-1962. However, production must have risen after 1962 (no statistics are yet available), since the largest woollen textile establishment (the Modern Industries Corporation) started production after 1962. Imports of woollen yarn and products will continue, although the productive capacity of existing factories can meet local requirements and even permit export of a part of the locally produced woollen textiles, for the following reasons:

More than 50 per cent of the spindles are employed in the production of fibres, although they were originally intended for the production of woollen yarn;

The adoption of single shift operation by most factories (working hours are now limited to one eight-hour shift instead of "round-the-clock" operations);

Deficiencies in the methods of cleaning and preparing raw wool;

Insufficient protection for the woollen textile industry, in contrast to the protection afforded the cotton and fibre industries; this has led some factories to divert a large portion of productive capacity from the production of woollen products to the manufacture of artificial fabrics and fibres.

The woollen textile industry in Syria suffers from a lack of sufficient study and research to supplement the measures so far undertaken for the promotion of the industry. An assessment is required of the desirable capacity of the industry to meet future demand.

It should also be noted that conversion of part of the capacity of the woollen industry to the production of synthetic products (whether mixed with wool or not) has greatly reduced interest in pure woollen products. At present, imported synthetic fibres account for about one-third of the value of Syrian imports of textiles; they have thus become the single most important item in Syrian textile imports.

Consequently it is most necessary to reorganize the existing woollen textile and synthetic fibre industries in Syria in the light of those trends. Such reorganization should be based upon a comprehensive programme similar to that used for the promotion of the cotton textile industry and should include a study of raw materials, management, productivity, industrial legislation, execution of work programmes and the various phases and activities involved in the woollen industry.

11. Small-scale industries in Iraq[11]

Small-scale industries include groups of industrial projects varying in size and degree of development such as traditional handicrafts, industries in which some mechanization has been introduced, and power-operated projects using advanced productive methods. Small-scale industries play an important role in the economies of many countries, especially in the developing countries, where technology has not reached the level attained by the advanced countries.

Most definitions of a "small-scale industry" include domestic enterprises such as workshops and small- or medium-sized factories. This classification takes into consideration, among other things, the number of workers in each enterprise, the amount of capital invested, the value of output, the use of electric power and the nature of existing management.

Research authorities in this field have concluded that industrial projects may be classified as small-scale industries if they satisfy part or all of the following requirements:

Total or partial absence of an industrial management in the sense that authority and responsibility is delegated among officers specialized in production or marketing techniques; the manager of the project (often the owner) is responsible for all matters of production, purchase, marketing, financing, management, etc.;

Existence of close contact between manager and workers, customers, suppliers and creditors;

Reliance on sources other than the capital market for finance; small-scale industry often experiences difficulty in obtaining loans, especially of a short-term nature;

Existence of a comparatively strong connexion with the local community because of ownership, local purchase of materials, and local marketing of products.

It has not been possible so far to produce a clear-cut, comprehensive definition of small-scale industry. Classifications differ according to the environment and conditions of each country.

In 1952, when Iraq developed an interest in small-scale industry in the rural areas, the following definitions were established:

Handicraft industries: domestic or small industries whose products have an artistic component and require skilled workmanship.

Domestic or cottage industries: industries which are carried out, totally or in large part, by the co-operation of family members as a permanent or temporary trade; some of these industries may require technical skill.

Small-scale industries: those which are mainly carried out by hired workers not exceeding a certain number; the more general the use of electric power (and consequently the more mechanized the plant), the lower would be the limit in the number of persons engaged in what would be described as small-scale industry.

Small-scale industry in Iraq is housed in small workshops or in conventional factory buildings in towns and villages.

In 1959, United Nations experts classified industrial groups in Iraq into two groups, namely, handicrafts and small-scale industries.

[11] Paper presented by the Ministry of Industry of Iraq.

Primitive industries are a feature of human progress and the evolution of every society has been accompanied by the development in such industries. Each industry is a reflection of the environment in which it is established and the raw materials it uses.

The pattern of industrial development in Iraq has emerged through the same process as in other developing countries. Groups of handicrafts and trades sprang up where population concentration occurred and raw materials were available. At the time of the founding of the State, Iraqi industry took the form of individual trades and handicrafts practised in small shops or houses. In the course of time, modern industrial methods replaced primitive forms of industry, although mechanization was not generally applicable to the traditional industries based on the skill of the human hand.

In Iraq, when an industrial project (regardless of its size) starts using energy in a principal machine and converting raw or semi-manufactured materials into fully manufactured products, it becomes qualified to enjoy government assistance. However, the following discussion is concerned only with non-mechanized and consequently non-State-aided industrial units in urban and rural areas.

The Government did not play a direct role in the development of small-scale industries until 1950-1955, when discussions took place with UNESCO and the International Labour Organisation (ILO) on the possibility of developing small-scale industry. In 1952, the Government invited an ILO expert to make a study and recommend solutions. The study was confined to the department for the development and utilization of Amiri (State-owned) land, the department responsible for a group of rural agricultural communities at that time. The aim was to create industrial opportunities in those communities in order to eliminate unemployment, especially seasonal unemployment, and to train rural children in industries which would enable them to increase their income. At the same time, such a programme would serve as a nucleus for the development of an agricultural-industrial co-operative movement.

The following funds were allocated by the Development Board for these purposes, especially for the establishment of industrial training units with related services in Dujaileh, the el-Kout district, the Luteifiyeh project and in the Baghdad district:

Year	*Amount allocated (ID)*	*Purpose*
1952	25,000	Establishment of training centres and industrial units for weaving.
1955	19,000	Continuation of the above projects and establishment of simple carpentry and blacksmith units.
1956	39,000	Continuation of the above projects and establishment of simple carpentry and blacksmith units.
1957	103,000	Establishment of wool and cotton weaving centres in the Suleimaniyeh district, and continuation of the above projects.

These statistics relate only to one aspect of small-scale industry, namely, assistance offered by one government department within a specific period (1952-1958).

In the mid fifties, some 10 per cent of Iraqi industry was small-scale in nature. Some of the problems experienced are described below.

Financing. Although the financial needs of small-scale industries are not substantial and do not involve great risk, great difficulty is experienced in obtaining the cash or credit necessary for the purchase of raw materials and supplies and the payment of wages. This is a basic problem in small-scale Iraqi industry, and as long as borrowing facilities are restricted or available only on unreasonable terms, industrial proprietors will resort to usurers and middlemen who charge excessively high interest. Even with access to government banking institutions making loans at the comparatively low interest of 4 per cent—the rate charged by the Industrial Bank of Iraq—owners face the difficulty of having to provide guarantees and securities. The problem of financing is basic to the successful development of Iraqi small-scale industry. Without financial resources, the entrepreneur cannot obtain the land, buildings, equipment, raw materials and labour which he requires.

Raw material supply. Raw material requirements for each type of industry differ. Some industries need scarce or costly raw materials, which can lead to inflated suppliers' prices, especially if purchases are on an instalment basis.

Marketing of output. The quality of products and the size of demand in local markets is relevant in this context. Large markets are a favourable factor. However, producers are often subject to middlemen, since lack of capital for re-location or even for the introduction of a depot prevents them from establishing direct relations with their consumers in places situated far from the factory. Communication and transport costs are also obstacles in the way of small-scale industries.

Production and management methods. The employment of primitive methods and the resistance of craftsmen to change are common characteristics. However, progress will take place as consumers become more fastidious as a result of increasing incomes and with the need to develop, improve and diversify the quality and methods of production.

An advantage to small-scale industry in Iraq in rural areas is that local labour is available at low wages, an advantage not always shared by the medium-sized and large mechanized industries in urban areas. A disadvantage of small-scale industry is its inability to provide those services and conditions for workers which the larger industries in urban centres can provide. This may be an obstacle in obtaining skilled labour. Another disadvantage is that personnel in small-scale industry tend to lack administrative experience and commercial skill. At the same time, the encouragement of small-scale industry is of assistance in resolving unemployment problems.

Role of the co-operative association. The solution of the principal problems of small-scale industries depends on the effective use of available facilities and institutions. One method is to offer direct advice and technical guidance on such questions as production and finance. Although this method is acceptable and useful to small-scale industry in urban areas, it may not be as useful to small-scale industry in rural areas.

The co-operative method has succeeded in alleviating the difficulties of small industries and trades in many countries and may be an effective instrument in Iraq. In principle, the success of this method depends on the extent to which owners of small industrial projects, rural craftsmen and artisans understand their respective obligations and benefits, and on the sincerity of the efforts made by the parties concerned.

Co-operative methods were introduced in Iraq more than ten years ago in certain areas without any tangible results being achieved. The failure of these efforts cannot of course be attributed to the co-operative method itself, but rather to the circumstances surrounding its application. One of the essential conditions for the success of co-operative methods is the co-operation of the people concerned with the relevant government authority; another condition is that the Government take steps to provide the necessary qualified personnel.

Co-operatives can be organized to assist small-scale industries in rural areas for the following purposes: supply of raw materials; production; marketing and distribution of output; extension of credit.

It is not necessary to establish co-operatives for each of these purposes in every village or community. The experience of other countries has shown that one industrial co-operative suffices for the various activities. It is possible to seek the assistance and learn from the experience of other countries in the application of this method.

The Industrial Bank of Iraq is the main source of financing available to local industries, whether for long-term, medium-term or short-term loans. Eligible industrial projects are those which transform raw materials into fully manufactured products, assembly industries and industrial services institutions. To be eligible for assistance under the industrial development law, one of the principal conditions to be satisfied is that the capital invested in machinery should be not less than ID 3,000 over and above the value of the power-generating plants whose installation is a basic prerequisite.

The provision of guarantors and security is a condition for obtaining a loan in order to minimize the bank's risks. Small-scale industries cannot expect to receive such assistance unless they can produce the necessary security, and this frequently presents difficulties. The risks could perhaps be mitigated if loans were secured against the industry's output, especially if this is of an artistic or traditional type for which there is a constant demand. Loans could also be granted against raw materials. As sums advanced for these purposes are comparatively small, it should be possible to dispense with guarantors and accept securities; however, the implementation of this proposal would require the amendment of laws and regulations at present in force.

The introduction of hire-purchase, which is used in a number of countries as an encouragement to industrialization, would be of assistance.

When it becomes possible to apply the co-operative method and form co-operative societies for the development of small industries in Iraq, measures should be introduced to enable the Industrial Bank, the Co-operative Bank, and other institutions to provide some of the facilities needed to help those industries. An alternative approach would be to reach agreement on the establishment of a special fund to finance industrial co-operatives, which in turn would give loans to their

members in accordance with established procedures. Until financing arrangements can be improved, the development of small-scale industry in Iraq will be at a disadvantage.

12. Small-scale industries in Kuwait and their impact on the national economy [12]

In recent years the developing countries have devoted considerable effort to the encouragement of the industrial sector of the national economy. A weakness of the economies of the developing countries in the past has been the inadequate contribution from this sector. A desirable objective is to increase the contribution of the industrial sector to the extent necessary to ensure a proper balance between all sectors of the economy. The achievement of such a balance provides not only a sound national economy but at the same time, an economy more resistant to unfavourable influences, whether originating from abroad or internally as a result of political developments or fluctuations in the business cycle.

At the same time, a balanced relationship must be achieved within the framework of the industrial sector itself. To this end, industries are classified as heavy, intermediate, light and handicrafts on the basis of certain characteristics. Such classifications may be used for purposes of studying or licensing an industry, or to determine its needs for assistance or its technical, economic and social obligations.

Although this classification is not clearly defined in Kuwait, an endeavour is made to establish the framework for each group of industries in order to study small-scale industries within this framework, to analyse the conditions and problems of the industry, and to suggest possible solutions.

The present study is divided into two parts: the first contains a definition and an analysis of small-scale industries in Kuwait; the second deals with the problems of small-scale industries and their solution.

Both developed and developing countries have classified industries into heavy, intermediate, and small-scale industries with a view to determining the impact of each on the national economy, and for the purpose of strengthening their contribution to economic and social development in an integrated and co-ordinated manner. The need to achieve this aim has necessitated a carefully planned programme for developing these groups of industries, especially the small-scale industries, in order to remove factors hindering the co-ordinated growth and prosperity of the industrial sector.

Although the aims of developing and developed countries with respect to the industrial sector are the same, the criteria by which industries are classified vary with the economic structure of a country and the size of the industrial sector. The most important criteria are number of workers, capital invested, volume of sales, and consumption capacity.

In Kuwait, the industrial sector is of relatively recent origin. It grew with the expansion of investment in oil, with the influx of workers from abroad, and with the increase in purchasing power resulting from higher oil revenues. In consequence, various industries were established both to meet the demand created by economic and social evolution, and to satisfy the need for diversification.

[12] Paper presented by the Ministry of Commerce and Industry of Kuwait.

Because of the recent origin of industries in Kuwait, the Department of Statistics has not established a system for the classification of industries. However, taking into consideration the definitions which have been adopted by certain developing countries, the economic structure of Kuwait, the size of its industrial sector, its population, the size of its internal market and existing industrial legislation, it is possible to define small-scale industries as those using machinery and employing fewer than 100 workers. In the light of this definition, most industries in Kuwait may be classified as small-scale industries. Medium-scale industries may be defined as those employing fewer than 200 workers and large-scale industries as those employing more than 200 workers. Excluded from this study is the petroleum industry including exploration, extraction and refining; public utilities such as electricity and water desalination; and handicraft industries which do not utilize machinery and which employ only a small number of workers. This study of small-scale industries covers the following points:

The legal status of small-scale industries;
The place of small-scale industries in the industrial sector;
A description and analysis of small-scale industries;
The technological position of small-scale industries;
The labour situation;
Management;
Technical specifications and their application;
Industrial financing.

The legal status of small-scale industries. Since the enactment of industrial law No. 6 of 4 March 1965, industrial establishments in Kuwait have required legal personality, subject to certain rules governing their licensing, registration, protection, supervision and assistance.

Without exception, small-scale industries are subject to the provisions of industrial law No. 6. The legal status of the industrial establishment was defined in article 2 of that law. However, the distinction between large, medium, and small-scale industries, on the one hand, and handicrafts on the other, was not specified. Hence, we base our classification of industries on two criteria: the use of machines, and the number of workers. In the light of the definition of the industrial establishment as stated in article 2 of industrial law No. 6, and using the criteria mentioned above, small-scale industries are defined as establishments which employ fewer than 100 workers and whose basic operations include transformation, assembly, mixing, canning, bottling, or packaging undertaken with the help of machinery.

The place of small-scale industries in the industrial sector. Small-scale industries in Kuwait occupy an important place in the industrial sector, whether from the point of view of capital invested, number of workers employed, diversity of products, or their impact on the local market.

Description and analysis of small-scale industries. Small-scale industries in Kuwait are manufacturing

industries established to satisfy local demand. These industries produce goods which cannot be imported at a competitive price because of high transport costs or other reasons.

The technological position of small-scale industries. The majority of small-scale industries in Kuwait are equipped with modern machinery, and are operated by Arab and foreign experts. However, productivity in these industries is not sufficiently high. Detailed studies are at present in progress with a view to correcting production deficiencies.

The labour situation. Labour employed in small-scale industries is of Arab origin, although the proportion of Kuwaitis employed is very small. The majority of workers have acquired their skills on the job. Because labour is well paid in relation to the prevailing level of wages in the neighbouring Arab countries, labour turnover and mobility has been reduced to a minimum. Despite high wages, productivity per worker remains low in relation to that in Europe or the United States. This may be attributed to the absence of basic vocational and technical training.

Management and supervision. Management is a key factor in the smooth funtioning and co-ordination of industrial enterprises. Management responsibilities include studies of marketing potentialities, consumer demand, the creation of cordial labour-management relationships and the supervision of productivity levels.

Technical specifications. The application of technical specifications to products has become an economic necessity dictated by the need to market products on a competitive basis. It is generally assumed that consumers rationalize their purchases of a product on the basis of quality and conformity to modern technical specifications. The open market policy of Kuwait provides consumers with a variety of such products and acquaints them with modern technological achievements from which Kuwaiti consumers are bound to profit. If, therefore, local production is not technologically competitive, its ability to sell will be weakened even if such industries are selling in a protected market. It is noteworthy that the application and supervision of technical specifications necessitate the establishment of an experimental laboratory. While it is not economically feasible to establish a laboratory for each small-scale industry, it should be possible to establish a central laboratory to service small-scale industries as a whole.

Industrial financing. Small-scale industries frequently require short- or long-term loans for plant expansion, or to meet seasonal requirements for raw materials. To determine the amounts of loans required and the conditions of repayment, it has been the practice to study the economic and financial status of industrial enterprises. Because the absence of proper accounting procedures prevents small-scale industries from benefiting from the services of the Credit and Savings Bank, such industries have usually resorted to commercial banks for industrial loans at high interest rates, a factor which has contributed to the raising of production costs and prices of products. For these reasons, small-scale industries have not been able to benefit from the facilities of the Credit and Savings Bank and the bank has thus failed to fulfil the objectives for which it was established with respect to small-scale industries.

Small-scale industries face a number of problems which hinder their growth, and which in turn affect their co-ordinated development. Some of these problems may be resolved at the country level, while others can be resolved only at the Arab regional level or at the level of the United Nations and its specialized agencies.

The most important problems facing small-scale industries at the local level may be summarized as follows: vocational and technical training; management; technical specifications and measurements; industrial estates, and industrial financing.

Vocational training. Vocational training is essential in order to raise productivity levels and the quality of products. It has already been shown that labour is not adequately trained in these industries, a fact which has caused productivity levels to fall and costs of production to rise.

Training costs are prohibitive for small-scale industries, especially in a small market where industries tend to be small in size. The Government of Kuwait has given much attention to the subject of technical training, and is planning to establish a high level committee to study the position of technical training in the industrial sector, and to prepare the necessary legislation for establishing an agency, attached directly to the cabinet, to provide the vocational and specialized training required to meet the needs of the country's economic development plan.

Technical and vocational training is an economic process which has to be studied from the cost-benefit point of view. Vocational training may be achieved through co-operation between the training centres to be established by the Government and small-scale industries. These centres can provide training for widely practised trades such as those of mechanics, electricians and welders. Specialized trades, which are sparsely practised because of the limited number of industrial establishments requiring such skills, do not call for special centres. In such cases, it is possible to provide in-service training, especially arranged by the Department of Industrial Affairs.

Management. The heavy responsibilities assumed by management require the selection of managers with a strong background in administration, economics and technology to ensure the proper functioning of plant operations. Since it is essential for industries to maintain a cost accounting system, and since this is beyond the means of small-scale industries, it is suggested that unified accounting forms should be prepared and used by industries. It is also desirable to organize training for management in public relations. Good labour management relations are undoubtedly important for achieving the desired co-operation of all concerned.

Technical specifications and stardards. Confidence in the national product is an important factor in the promotion and progress of industry. In order to ensure consumers' confidence, efforts must be made to convince consumers of the high quality of national products. This may be done by the adoption of technical specifications and standards.

These general principles are particularly important for the success of small-scale industries in Kuwait. The Department of Industrial Affairs has provided funds to promote the wider application of technical specifications and standards, and has contracted with

the Industrial Institute in Lebanon for the necessary studies. The Government of Kuwait is now giving serious attention to this question with a view to strengthening and promoting industries.

Industrial estates. The best way to encourage small-scale industries is to provide them with services and facilities which reduce production costs. The concept of industrial estates was developed as a means of providing such assistance. An industrial estate has been defined as "an area of land, selected because of its geographic position and economic advantages, reserved by the State for the establishment of industries in accordance with an industrial programme aimed at benefiting those industries through the services and facilities erected by the State". Such services and facilities are offered for fees much lower than those which their establishment would otherwise have entailed. It is clear, therefore, that the industrial estate is of assistance in raising productivity and lowering costs. If housing is also provided for labour, including necessary health and social facilities, productivity per worker would be even greater; moreover, labour would acquire a sense of security.

Convinced of the advantages of industrial estates, the Government of Kuwait has established three such estates. The Government is also planning to create a committee to study each estate and prepare blueprints for facilities such as roads, water, electricity and butane gas, and to organize the distribution of industries in a manner conducive to the promotion of integration.

Industrial financing. The two sources of industrial finance are loans granted directly by the Government, or through the Credit and Savings Bank. The latter represent private loans of individuals, private companies and commercial banks.

For small-scale industries, the main source of finance is the commercial bank. Because small-scale industries are unable to meet the credit conditions stipulated in the laws of the Credit and Savings Bank, they have no choice but to resort to commercial banks and borrow at higher interest rates, a fact which contributes to increase of production costs.

Kuwait does not at present have a bank which caters solely to the development of industry. The provision of industrial loans is one of the many responsibilities of the Credit and Savings Bank. The creation of a bank for the promotion of industry is now under study.

There are other problems which should be treated at the regional level, the most important of which are: vocational training for certain important industries; management, and collective industrial estates.

It was pointed out earlier that certain types of vocational training could not be undertaken in Kuwait because of the limited demand for such skills. It would be possible to resolve this problem by the establishment of regional vocational training centres.

The establishment of a regional centre for advanced management would be beneficial to Kuwait and to other Arab countries. The unification of programmes, the exchange of experiences and the personal contacts that are likely to be made by managers from the region would enable participants to obtain theoretical and practical insights into their own establishments.

The establishment of collective industrial estates among neighbouring Arab countries will be of assistance to these countries. In certain cases it is impractical for a country to confine its activities to its own national area. The establishment of a collective industrial estate might, therefore, improve the chances for other surrounding areas. It would also provide an opportunity for establishing common industries, common vocational training centres and managerial training.

Certain problems confronting small-scale industry in Kuwait can be resolved only through international action. The most important of these relate to the provision of instructors, productivity and technical specifications.

Vocational training in Kuwait, whether at training centres or in-service, requires the services of competent instructors in various fields. Since it is difficult to train local instructors to undertake this work, the help of the United Nations and its specialized agencies will have a great impact on the training programme.

The study of factors affecting productivity and their treatment requires the services of experts in the fields of economics, industry and accounting. The United Nations can undertake the necessary studies and on the basis of the resulting findings make recommendations to improve the prevailing low levels of productivity in Kuwait.

Part III. THE INDUSTRIAL SITUATION IN THE ARAB COUNTRIES

1. The industrial situation in Iraq

The decision taken by the Government of Kuwait, the United Nations and the Arab League to invite the Arab countries which are not members of the Economic Commission for Asia and the Far East (ECAFE) or the Economic Commission for Africa (ECA) to participate in a regional conference to be held in the capital of Kuwait is welcomed by the Government of Iraq, which wishes the conference every success. The Government of Iraq hopes that this conference will provide an opportunity for investigating the industrial situation in the participant countries, and assist them in exchanging their points of view and in taking positive steps towards the realization of Arab aspirations. It also hopes that this conference will help the Arab countries in their efforts to guide their economies on sound scientific and technical lines.

Our present study includes a historical review of the development of Iraqi industry, with a summary of the industrial situation in the early sixties, and a detailed description of industries in the public, mixed and private sectors respectively. It also includes details of the measures taken by Iraq to encourage the development of national industry, in particular, the financing aspect, protection, direct or indirect support through exemptions, and finally the role of the Federation of Industries.

In addition, the study gives a summary of the new socialist policy and shows the importance of this policy in guiding industry, especially as far as the organization of the public sector is concerned.

The last part of the study is devoted to the problems facing Iraqi industry.

Historical background

Iraq's economic development was slowed down by a series of political régimes which isolated the country from development activities taking place in other parts of the world

Up to the end of the First World War, Iraq was a part of the Ottoman Empire, whose power extended over a period of four centuries. The Ottoman rule left the country in poverty, ignorance and disease. The post-war period brought some improvements, although these were not sufficiently significant. Then came the Second World War and another post-war period, but it is only since the 1950's that real achievements have been made.

Iraq came into contact with international economic forces during the second part of the nineteenth century as a result of the growth of its foreign trade, which might be attributed to the development of river transportation in the country. During the twenty-year period starting in 1865, the value of its exports increased sevenfold. An additional threefold increase in exports took place between 1880 and 1913. The expansion in the country's exports stimulated the development of such simple industries as wool, dates and grains. These were the first large-scale mechanized industries in Iraq.

Shortly after the occupation of Baghdad in 1917, modern Iraq emerged as an independent political entity. The British mandate continued until 1932, when Iraq joined the League of Nations. Under the Mandate, Iraq achieved partial development in certain fields. Railroads were established, electricity was introduced in several cities and oil exploration was started in some areas. Nevertheless, by the end of the period of the mandate, the industrial sector was still very small, although more active. The number of industrial establishments governed by the industrial encouragement law of 1929, had increased from eight in 1929 to ninety-six in 1945. Accordingly, it appears that Iraqi industry had actually registered some progress, although at an extremely slow pace.

In the meantime, several industries had developed, namely, textiles, cotton ginning, cigarette and construction materials manufacture. Furthermore, in 1936 the Government established the Agricultural-Industrial Bank, which contributed, during the period 1936-1940, to the development of local industries. At the same time, certain industries shifted from manual to mechanical production, and before the end of the Second World War additional expansion had taken place in certain industries, especially in the rayon and cotton textiles, soap and cigarette industries, which constituted the nucleus of the mechanized industrial sector in Iraq.

Immediately after the Second World War, the Iraqi people showed a growing interest in industry. This was partly due to the windfall profits that had been realized during the war period, and partly to the presence of encouraging factors such as the development of the Industrial Bank and the financial support extended by the Government by virtue of the industrial encouragement law. This period was also characterized by effective government participation in industry through the Industrial Bank, a factor which speeded up the process of industrialization.

The situation in the nineteen-fifties

The 1954 industrial census presents a true picture of the level of industrialization of that period. That census included establishments of all sizes and types, large as well as small, oil industry and handicrafts. It differentiated between establishments of various sizes employing fewer or more than twenty persons. The number of industrial establishments amounted in 1954 to 22,460 (excluding those engaged in oil), of which 22,166 employed fewer than twenty persons. Only 294 establishments employed over twenty persons. The average number of persons employed in all establish-

ments was 2.3, while the average for large establishments was 131.6. There were also 10,157 establishments employing one person only, 5,651 two persons and 2,805 three persons. The total number of persons employed in the industrial sector was 90,291, excluding the oil industry, which alone employed 15,249 persons. More than 20 per cent of the industrial establishments, or 4,573, were located in Baghdad and employed 33,594 persons, or approximately 37 per cent of the total number of persons employed in industry.

The capital invested in machinery and equipment was estimated at 15.5 million Iraqi dinars (ID) and the total wages paid amounted to ID 5.75 million. Sales amounted to ID 39.2 million, the value of raw materials to ID 15.0 million and the value of buildings to ID 6.02 million. The power used amounted to 195,821 hp and was valued at ID 1.05 million. The total value added and the value added per person amounted to ID 23.117 million and ID 255, respectively. Thus, taking as a criterion the relative size of the industrial sector, the number of persons engaged in it and the size of industrial establishments, the industrial sector in Iraq appeared to be of minor importance. Nevertheless, the industrial census depicted possible expansion in the cigarette, spinning and weaving, soap, chemical and construction industries.

The industrial sector was characterized by the predominance of industries using agricultural products. As indicated above, the total receipts from industrial activity amounted to ID 39.2 million in 1954, distributed as follows: construction industry, ID 8.6 million; water and electricity, ID 2.5 million; grain milling, ID 1.0 million; tanning, ID 0.8 million; others, ID 25.3 million. During the same year, imports of consumer goods amounted to ID 3.70 million, of which ID 13.7 million were spent on food and soft drinks, ID 12.8 million on textiles, ID 4 million on durable consumer goods and ID 6.4 million on other consumer goods.

Studies have indicated that, during the nineteen-fifties, industrial expansion was limited by economic and technical factors. In some cases raw materials were not readily available, while in others the level of domestic demand was not such as to permit the establishment of economically viable industries. In certain other cases, demand existed only for products of superior quality which could not be produced locally owing to lack of technical know-how.

We have already observed that the process of economic development in Iraq remained very slow until the beginning of the nineteen-fifties, a fact which limited the size of the market and therefore the growth of industries. Iraqi industry did not develop independently of other sectors, and was itself an outcome of the development of the economy as a whole, which, although limited in intensity, nevertheless created new scope for industrial development and expansion.

Early in the nineteen-fifties, following the signing of a new agreement with the oil companies, State revenues from oil increased substantially, thus securing for Iraq an important source of revenue for the development of its industry, and solving, at the same time, one of the country's most important problems, that of financial resources and foreign exchange.

Table 1. Development of State revenues from oil

Year	*Amount (in ID 000)*	*Year*	*Amount (in ID 000)*
1949	3,199	1957	48,920
1950	6,674	1958	79,876
1951	15,113	1959	86,649
1952	32,635	1960	95,092
1953	51,343	1961	94,828
1954	68,370	1962	95,124
1955	73,742	1963	110,045
1956	68,858	1964	126,074

The above table shows the extent to which revenues derived from oil were scarce prior to 1950 and the substantial increases which took place in the early nineteen-fifties.

In order to invest these new resources efficiently, law No. 23 was enacted in 1950, establishing a Development Board, whose function was to investigate the country's potentialities, its productive capacity and its natural resources. In the light of the board's studies, a general programme for developing the country's resources was to be drawn up, aimed at increasing the level of national income and raising the living standard of the population. Projects in the fields of mining and electricity were to be included in the programme.

In 1951, the board submitted its six-year programme (1951-1956), based mainly on the IBRD (International Bank for Reconstruction and Development) mission's report, which stressed the need for assigning priority to agricultural development. Accordingly, 34 per cent of the total investment under that programme was allocated to water-control projects, 8 per cent to other agricultural projects and 20 per cent to mining, industry and electricity.

Later, when the State's revenues from oil had been substantially raised, the Development Board submitted a second five-year programme, 1955-1959, under which the amounts allocated were twice as high as those under the first. Allocation for water control and communications were also twice as high, while those for public buildings were even higher. As a result, allocations for industry and agricultural projects were lower in the second programme than in the first.

In essence and form, the 1955-1959 programme was similar to its predecessor. However, again in consequence of the increasing receipts from oil, the completion of certain studies and the publication of Lord Salter's report on Iraq, the second programme was replaced in 1956 by a third programme covering the period 1955-1960.

Lord Salter's proposals were clearly reflected in the latest programme. His report stressed the necessity of giving priority to short-term projects directly and rapidly affecting the level of income. Accordingly, allocations for housing and agricultural projects were increased. The programme for industry reflected, to a large extent, the Little Co. report.

The following table, which shows the allocations contained in the three programmes of the Development Board, clearly indicates the priority given to the development of agriculture.

Table 2. Allocations under the three programmes of the Development Board

Item	First programme 1951-1956		Second programme 1955-1959		Third programme 1955-1960	
	ID million	(percentage)	ID million	(percentage)	ID million	(percentage)
1. Expenses for administration, research and organization	3.2	2.0	5.5	1.8	7.4	1.4
2. Irrigation and flood control	53.4	34.5	107.9	35.9	153.8	30.7
3. Development of animal and vegetable wealth	12.7	8.1	6.5	2.1	14.3	2.8
4. Industry, mining and energy	31.1	20.0	43.6	14.3	67.1	13.4
5. Communications	29.0	18.7	74.2	24.3	124.4	24.9
6. Housing	1.7	1.1	6.0	1.9	24.1	4.9
7. Main public buildings	19.2	12.4	22.6	7.6	39.8	8.0
8. Secondary public buildings	—	—	32.3	10.6	59.4	12.0
9. Miscellaneous	5.4	3.5	5.9	1.9	9.9	2.0
TOTAL	155.4	100.0	304.3	100.0	500.0	100.0

Iraq's industrial policy during the nineteen-fifties tended to be conservative. Furthermore, only a part of the amount allocated was actually spent.

This conservative policy was not confined to the public sector. It reflected a concern with maintaining an equilibrium in the Iraqi economy, in the sense of price stability. Accordingly, the adoption of an open-door trade policy was advocated; few went as far as to criticize the industrial encouragement law.

Following the revolution of 14 July 1958, a structural change in the Government's economic policy took place, the effects of which were felt in the years that followed.

Briefly, the economic activities of the State and the large expenditures on development projects directly affected the size of the Iraqi market and the growth of industry. While the annual growth in national income, at constant prices, in the ten-year period starting 1953, was of the order of 6.4 per cent, the annual rate of growth in the industrial sector during the same period was 11.5 per cent. In spite of this increase, the industrial sector continued to constitute only a small part of the national income, amounting to 7.6 per cent in 1953 and 9.4 per cent in 1958 (at constant prices).

Table 3. National income and income originating in the industrial sector prior to 1960

Year	National income at constant 1956 prices (in ID million)	Industrial sector (in ID million)
1953	262.8	18.7
1954	322.6	21.2
1955	298.9	24.5
1956	334.7	28.9
1957	348.4	29.8
1958	363.1	31.7
1959	368.6	38.4

THE SITUATION IN THE EARLY NINETEEN-SIXTIES

Apart from the information presented in the 1954 industrial census, no serious attempt was made to collect data on the industrial sector in Iraq prior to 1960. Consequently, it is not possible to trace the development of industry in Iraq in detail. The Central Department of Statistics took this into consideration when, in 1960, it began to collect monthly statistics on the industrial sector. The results of the 1960, 1961 and 1962 monthly industrial censuses have already been published. From the information obtained from those censuses, a more adequate picture of the industrial sector in Iraq can be formed, especially if we take into consideration the further development that took place in industry in 1963, 1964 and the early part of 1965.

The 1960 and 1961 censuses contained information pertaining only to establishments that were actually operating and that employed ten or more persons. With such statistics, it was difficult to undertake any accurate comparison between the industrial situation in the two periods, i.e. the nineteen-fifties and the nineteen-sixties. The Central Department of Statistics realized that deficiency, and in 1962 started collecting, twice a year, data on industrial establishments employing fewer than ten persons. As a result, the industrial census of 1962 now gives a more comprehensive picture of the industrial sector in Iraq.

In 1962, the number of large establishments was 1,182, while the number of small establishments was 20,191, totalling 21,373 establishments, in all.

The following table reflects the evolution of the industrial sector in Iraq during the years 1960, 1961 and 1962. The information given pertains only to large establishments employing ten or more persons (excluding oil establishments).

Table 4. Development of the industrial sector, 1960, 1961 and 1962

Item	1960	1961	1962
Number of establishments	970	1,162	1,182
Number of persons employed	67,221	73,253	77,666
Annual wages (ID)	15,360,491	17,370,741	18,991,806
Cost of materials used in production (ID)	40,393,223	47,530,185	47,598,298
Total annual receipts (ID)	85,054,996	97,354,337	104,689,688

Table 5. Large and small establishments, 1962

Details	Large establishments	Small establishments	Total
Number of establishments	1,182	20,191	21,372
Number of persons employed	77,666[a]	43,121[b]	120,787
Annual wages (ID)	18,992,802	2,973,402	21,966,204
Cost of materials used in production (ID)	47,598,298	19,448,688	67,046,786
Total annual receipts (ID)	104,689,688	32,625,036	137,314,724

[a] Including 850 unpaid persons.
[b] Including 24,963 unpaid persons.

The value added, at current prices, in the industrial sector (manufacturing, water and electricity) was ID 62,950,000 in 1962, and the number of establishments was 21,373, as compared with 22,460 in 1954. This would indicate that larger establishments with mechanized equipment had been replacing small establishments. The number of persons engaged in industry increased from 90,291 in 1954 to 120,787 in 1962. Total annual wages increased from 5,756,000 dinars in 1954 to 21,966,208 dinars in 1962 and receipts from sales jumped from ID 39 million in 1954 to more than ID 137 million in 1962. The value of materials used in production also increased from ID 15 million in 1954 to more than ID 67 million in 1962. The value added per person, which amounted to ID 255 dinars in 1954, rose to more than ID 490 dinars in 1962.

The above figures indicate unprecedented progress in Iraqi industry during the period 1954-1962. Despite its persistantly small contribution to the national income, the industrial sector has taken the lead in the development process. Whereas the average rate of growth in national income, at constant prices, amounted to 6.4 per cent during the period 1954-1963, the industrial sector's average rate of growth exceeded 11.5 per cent; this was higher than that of any other sector in the economy. The rate of industrial growth increased from 9.4 per cent in 1958 to 11.7 per cent in 1961 and 12.3 per cent in 1962.

Table 6. National income and income originating in the industrial sector in the early nineteen-sixties

Year	National income at constant 1956 prices (in ID million)	Industrial sector (in ID million)
1960	414.6	47.5
1961	468.8	51.2
1962	503.3	57.0
1963	489.4	55.3

The situation in the private, mixed and public sectors

The State began to take an active role in the development activities of the country in the early nineteen-fifties, when the financial resources needed became available. The State's contribution to the national income amounted to 15 per cent in 1960. The normal trend towards an increase in the State's contribution to the country's national income was further strengthened by the socialistic decisions of July 1964. Government investments considerably exceeded those of the private sector. Consequently, the increased investment activities of the State were bound to affect the government contribution to national income.

The following table shows the change in the relative importance of the private and public sectors and the contribution of each to the value added in the industrial sector.

Table 7. Contributions of the private and public sectors in the value added of the industrial sector

(In ID million)

Item	1953			1956			1960		
	Private	Public	Total	Private	Public	Total	Private	Public	Total
Oil refining	—	1.73	1.73	—	2.61	2.61	—	5.17	5.17
Manufacturing industries	16.32	0.43	16.75	25.56	0.76	26.32	41.02	2.59	43.61
Water and electricity	0.50	0.70	1.20	—	2.07	2.07	—	2.66	2.66
TOTAL	16.82	2.86	19.68	25.56	5.44	31.00	41.02	10.41	51.44

The proportions shown in the foregoing table will doubtless increase further as a result of nationalization measures and the larger government investments in the industrial sector.

The private sector

The amount of capital invested in 107 new projects licensed under article 4 of the development law was ID 8,813,000 in the year preceding nationalization. Two years later, or one year after nationalization, the amount of licensed investments had fallen to ID 2,800,000, but the number of projects had risen to 157, representing an increase of 33 per cent over the previous year. The following table presents a clearer picture of prospects in the private sector, as given by the Federation of Industries, classified according to their affiliation or registration with the federation. (Projects affiliated with the federation must have a minimum of ID 3,000 invested in machinery and equipment, excluding power machinery. Projects registered with the federation are those whose invested capital in machinery and equipment, excluding power machinery, is less than ID 3,000.) These figures also include projects in the public sector, which amounted to fourteen prior to nationalization and forty-two following nationalization (for more details see annexes VI and VII).

Table 8. Number of projects affiliated or registered with the Federation of Industries

Projects	1961/1962	1962/1963	1963/1964	1964/1965
Affiliated	490	766	922	974
Registered	—	196	384	765

The mixed sector

The most important projects in the mixed sector are those in whose capital the Industrial Bank has participated. Shortly after its establishment, the In-

dustrial Bank took the initiative of participating in the establishment of several industrial joint-stock companies, namely, a jute manufacturing company, a date producing company, a construction industries company, a woollen textiles company (which was later converted into a government enterprise), the Iraqi gypsum company and the national insurance company. By the latter part of 1955, the Industrial Bank was participating in fourteen companies. Following the revolution of 14 July 1958, the bank intensified its activities in the field of industry. It took part in the establishment of a light industries company, whose production included television and radio sets, heaters, stoves, etc. The bank also initiated the establishment of the Al-Iniara industries company, the national chemical industries company of Baghdad, and the Iraqi insurance company.

On 13 July 1964, the Industrial Bank was participating in seventeen joint-stock companies in the mixed sector.

The nationalization laws which followed brought under State control the first nine companies shown in the following table. The Industrial Bank continued its participation in the remaining companies, except for the Baghdad bakery company, which was attached to the General Directorate of Supplies, and the woollen textiles company, which was converted into a public enterprise. Furthermore, the bank has been studying the possibility of establishing two new projects, one for the production of compressed wood fibres, using date palms as a raw material, with a capital of ID 750,000; the other for the production of bicycles, with a capital of ID 250,000. The formalities are now in their final stages, and it is hoped to complete the establishment of these companies with the coming two years.

Table 9. Joint-stock companies in which the Industrial Bank participated in 1964

Name of company	Initial capital (in ID 000)	Paid-up capital (in ID 000)	Nominal participation of bank (in ID 000)	Percentage
1. Iraqi Cement Co.	2,625	2,625	509	19.4
2. Vegetable Oils Extraction Co.	2,000	2,000	411	20.5
3. National Leather Industries Co.	500	500	179	42.5
4. Iraqi Grain Trading and Milling Co.	250	232	66	26.4
5. Iraqi Jute Industries Co.	850	760	127	15.0
6. Iraqi Spinning and Weaving Co.	1,200	1,200	425	35.4
7. Real Estate Manufactures Co.	500	418	100	20.0
8. National Insurance Co.	1,000	330	150	15.0
9. Iraqi Re-insurance Co.	5,000	1,250	400	8.0
10. Iraqi Date Industries Co.	100	61	20	20.0
11. Light Industries Co.	1,000	413	125	12.5
12. Construction Industries Co.	100	75	46	49.0
13. National Chemical Industries Co.	150	75	34	22.9
14. Iraqi Gypsum Co.	150	150	30	20.0
15. River Dredging Co.	250	61	16	6.3
16. Iraqi Marble Co.	200	50	40	20.0
17. Baghdad Bakery Co.	130	130	32	25.0

The public sector

Because of the inconsistencies in coverage between one census and the other, the annual industrial censuses are of limited value in tracing the development of the public industrial sector; for example, the information presented in the 1960 census did not include construction, while the 1961 census describes the government sector in a general way.

The following table gives some indication of the scope of the government industrial sector

Table 10. Government manufacturing establishments in 1962

Industry	Average number of establishments	Number of persons employed	Value of sales of furnished goods (in ID 000)
Sugar	1	235	1,503
Cotton ginning	1	6	20
Pencils	1	41	6
Cigarettes	1	497	2,120
Medical cotton	1	211	108
Ice	1	4	1
Cement	2	489	501
Concrete products	1	465	—
Shoes	1	16	—
Silk textiles	1	43	17
Tobacco trimming	1	63	—
Date pressing	1	196	351
Dairy products	2	391	675
Carpentry	4	156	90
Printing and publishing	6	692	717
Woollen textiles	1	1,090	885
Cotton textiles	1	1,571	1,755
Bakeries	5	462	398
Sewing	4	417	365
Slaughter houses	6	167	96[a]
Refineries	5	2,334	13,586
TOTAL	47	9,666	23,098 + 96[a]

[a] Receipts.

The table indicates that the government industrial sector in 1962 constituted a small part of the whole industrial sector (20 per cent). Nevertheless, the government sector covered a wide variety of industrial activities.

The socialist measures of July 1958 affected the distribution of industries as between private and public sectors. But the main factor which is expected to increase the relative importance of the public sector in the field of industry will be its large investments in the coming years. At this stage, it may be worth while to investigate the industrial investment programme included in the five-year plan for 1956-1969.

The five-year plan, 1965-1969

This plan is expected to achieve two important economic objectives: a substantial increase in the volume of production and the standard of living by the acceleration of the rate of economic growth within a framework of economic stability; and a balance in the economic structure of Iraq by an increase in the production and export of agricultural and industrial products, in order to diversify the national product and diminish the country's relative dependence on oil revenues as a source of foreign exchange.

In order to realize these objectives, the plan aims at increasing national income at a minimum average compound rate of 8 per cent per annum during the

coming five years. In fixing this target, the saving and investment potentials of the Iraqi economy, as well as the size and development of available resources, were taken into consideration. Sectoral rates of growth were set up on the basis of past performance. Thus, the annual rate of growth was fixed at 12 per cent in the industrial sector and at 20 per cent in the electricity sector. As a result, the value added in industry is expected to increase from ID 70 million in 1964 to ID 120 million in 1969, and from ID 6 million to ID 65 million in the electricity sector during the same period. This will require the investment of ID 159 million in industry and ID 45 million in electricity. Total planned investments in these two fields by the central Government is fixed at ID 168 million, while the private sector's contribution is not expected to exceed ID 5 million. Other investments, amounting to ID 35 million, will be undertaken by the Economic Organization and other government agencies.

It is worth mentioning that most government-owned industrial projects employ modern labour-saving techniques and have relatively large capital funds. Up to 18,840 persons are needed per year over the plan period to undertake construction works in government-owned industrial and electricity projects. In the target year, 21,952 persons will be required to run the newly established industries. Furthermore, industrial and electricity projects require relatively larger amounts of foreign exchange than other types of projects included in the plan. Foreign exchange requirements constitute 70 per cent of total investments in industry, 80 per cent in electricity, 30 per cent in agriculture, 25 per cent in construction and housing and 40 per cent in transport and communications.

In contrast with the private sector, which is expected to develop at a relatively slow rate, the public industrial sector is expected to develop rapidly in the coming years.

Annex II shows the industrial projects envisaged by the public sector in the five-Year plan, and annex III shows the value added in the different types of industries for a number of years.

Measures to encourage industry

The main source of industrial financing in Iraq is domestic, the role of foreign capital being rather of a complementary nature. Very little use has been made in the past of foreign borrowing and equity participation. However, the expansion of domestic industries or the establishment of new ones may require the participation of foreign capital in the future. This fact has already been taken into account in the present five-year plan.

A description of the role of the Industrial Bank in financing both the mixed and the private sectors follows.

The Industrial Bank

The bank was established to promote industry and encourage the investment of capital in industrial enterprises. Its role as a source of finance was emphasized because of the reluctance of Iraqi private capital to invest in industry, preferring to invest in commercial and real estate projects which are characterized by quick returns.

In accordance with the law which established it, the bank is to achieve its aims by the following means:

(*a*) Lend money to establish, operate, expand and improve industrial enterprises; to purchase and import equipment, machinery and raw materials; to assist in exporting industrial products and to carry out any step which is deemed to promote industry in accordance with the provisions of the bank's regulations;

(*b*) Participate as founder and/or shareholder in industrial enterprises undertaken by joint-stock companies;

(*c*) Mediate in the import of machinery, equipment and raw materials for industrial purposes; and in the export of industrial products for the account of its clients in accordance with instructions to be issued by the board of directors in this respect;

(*d*) Store machinery, equipment, raw materials and products belonging to industrial enterprises in its own warehouses or in other stores to be selected by it;

(*e*) Deal in foreign exchange and issue guarantees, provided that business of such nature is confined to matters connected with industrial enterprises, in accordance with the provisions of the banking control law and the foreign exchange control law;

(*f*) Offer technical assistance, advice and information on economic, engineering, administrative and accounting matters to owners of industrial enterprises;

(*g*) Carry out studies and research necessary for the establishment and promotion of industrial enterprises or for their expansion or for changing their purpose directly or in co-operation with companies, individuals, official establishments or services, etc.;

(*h*) Provide administrative, vocational or other services to industrial enterprises by seeking the assistance of the technical staff at the Ministry of Industry, and also assist the client in laying down suitable plans for establishing the enterprises connected with the required loan; at the request of the client, the bank also carries out such studies against fees to be agreed upon.

The bank's nominal capital, as a non-interest-bearing loan from the Ministry of Finance, was originally set at ID 500,000. The sum was considered large in relation to the bank's activities at the time. In fact, total yearly loans extended by the bank did not exceed ID 100,000. With the expansion that has been taking place in the bank's financial activities, its capital has been raised on several occasions in order to handle new developments in the industrial field. It was raised to ID 1 million in 1950-1951, to ID 3 million in 1954-1955 and then to ID 8 million in 1955. The last of such increments took place in 1961-1962, when the bank's nominal capital was raised to ID 10 million. However, the paid-up capital has not, so far, exceeded ID 4.75 million. The gradual increase in the bank's activities has made it necessary to look for new sources of finance. Recently, the bank contracted a 3 per cent interest-bearing loan from the Central Bank of Iraq amounting to ID 0.5 million.

As a result of developments in the field of national industry and in the bank's capital, total loans extended by the bank increased from ID 100,000 in the first year of operation to over ID 1 million in some of the subsequent years. These loans covered all Iraq and were extended to large as well as small projects in the private and mixed sectors.

Following the nationalization measures, loans extended by the bank expanded in line with the new policy aimed at meeting the financial needs of the private sector. Accordingly, loan applications increased

markedly. However, most applications were for working capital, while those for medium-and long-term capital diminished.

Loans extended by the bank during the second half of 1964 (i.e. after nationalization) represented a 30 per cent increase above the level during the first half of that year. Similarly, loans extended during the first quarter of 1965 represented a 51 per cent increase above their level during the corresponding period of the previous year. All in all, ID 1,040,000 worth of loans were extended after nationalization, indicating an expansion in the bank's credit operations.

Annex IV shows the industries which have received loans from the bank.

At the very beginning, the bank's functions were confined to the extension of loans and equity participation. However, before 1958, the bank for a time provided industrialists with certain banking services, such as the opening of credits. Later, it was found necessary to introduce a variety of banking services as a part of the bank's functions. Accordingly, such services were provided for in the bank's regulations, and in 1962 it began to perform them, although on a very limited scale. Following the nationalization measures of 14 July 1964, the bank expanded its operations in that field. Prior to nationalization, credit opening operations totalled ID 656,208, current debtor account facilities granted totalled ID 39,100 and bills discounted ID 10,500. The corresponding amounts for the period following the nationalization measures were ID 1,597,215, ID 73,450 and ID 46,050. Furthermore, the bank pursued a flexible policy regarding the deposit of guarantees against the opening of credit.

Facilities and services rendered by the bank were not confined to the private and mixed sectors, but were also extended to projects belonging to the public sector. As soon as storage facilities in the bank's warehouses are organized, its operations are expected to expand even further.

As stated earlier, a number of industrial companies were attached to the bank following its separation from the agricultural-industrial bank. In 1948, two years after the bank started operations, the relevant departments in the bank undertook studies on a number of important industrial projects such as sugar, glass, paper, steel, jute and woollen textiles.

Table 11. Companies in which the bank remained a shareholder after nationalization

Company	Nominal capital (in ID 000)	Paid-up capital (in ID 000)	Bank's paid-up participation	Percentage of B... participation
Light Industries Co.	1,000	750	126	16.8
National Chemical Industries Co.	150	75	30	40.0
Date Industries Co.	170	75	15	20.0
Construction Industries	100	100	49	49.0

The bank's industrial programme took shape in the last part of 1964, when it prepared its investment plan within the framework of the general industrial plan. The programme included:

(*a*) Strengthening and expanding the mixed sector because of its importance in the development of industry; in line with this objective, the bank increased its participation in the companies in which it was already a shareholder, in particular the Light Industries Co., the Date Industries Co. and the National Chemical Industries Co.;

(*b*) Providing support to the existing private sector and participating whenever necessary in its projects; the bank has already participated in the Al-Hilal Industrial Co. and the Northern Wood Co., and is studying the position of other industrial enterprises;

(*c*) Establishment of the following new industrial projects:

(i) In collaboration with the private sector, a project for the production of compressed wood fibres from date palms; the bank and the authorities concerned are looking for the most appropriate location for the plant; in the meantime, studies and tests are near completion; this project will have an annual capacity of 12,000 tons and will cost about ID 750,000; a company to take charge of this project is being established;

(ii) Also in collaboration with the private sector, a project to produce 30,000 bicycles at a cost of ID 250,000; a company is also being established to this end;

(*d*) The following projects are under study: bicycle tyres and tubes; starch from millet; citric acid; sewing machines.

Tax exemptions

Tax exemptions have been among the measures taken by different Iraqi governments to encourage national industry. In general, exemptions have been instituted through customs tariffs or the promulgation of special laws such as the law for the encouragement of industrial undertakings and the industrial development law.

In 1927, the customs tariff law was amended to exempt the import of machinery and equipment. Following that, law No. 14 of 1929 for the encouragement of industrial projects introduced a major change in the field of industrial encouragement. Besides maintaining the import tax exemptions of 1927, the new law exempted industrial projects from the income tax for a period of ten years and from the excise tax on all transactions. Furthermore, the law authorized the use of unexploited government land for the establishment of industrial projects, provided that:

The final product differed from the raw materials used;

The operations within the establishment were performed by machinery;

The number of non-Iraqi workers and employees, excluding technicians, did not exceed 10 per cent of the total staff engaged;

The minimum capital of the establishment amounted to ID 2,750.

The 1931 amendment to the 1929 law reduced the minimum capital requirement to ID 1,500, enabling a larger number of establishments to enjoy the facilities granted under the law.

In 1933, a new customs tariff law was introduced aimed at providing protection for local industry. Tariff rates were differentiated in accordance with the relative importance of the industry in the national economy and its stage of development. For example, customs duties imposed on imported cigarettes were intended to create a price differential which would favour the consumption of local cigarettes.

In the year following the promulgation of the 1929 law, only eight projects were granted facilities in accordance with its provisions; the number gradually increased and reached ninety-six in 1945.

Another important development in the field of industrial encouragement was the promulgation, in 1950, of law No. 43 for the encouragement of industrial undertakings. The provisions of the new law were much the same as those of its predecessor, the 1929 law. The 1950 law, however, introduced the following main new provisions:

(*a*) Exemption of the enterprise from the income tax in respect of additional profits which do not exceed 10 per cent of the total annual profits, for a period of four years;

(*b*) Exemption from the property tax for a period of ten years;

(*c*) Exemption of raw materials and machinery from different types of fees;

(*d*) Provision, free of charge, of government land up to 25,000 m^2 for a certain period of time.

Eligibility for these exemptions and preferences was made subject to the following conditions: use of local raw materials or production of a commodity that could replace imports; value of machinery and equipment should not be less than ID 5,000; at least 55 per cent of the capital must be Iraqi; the number of non-Iraqis employed, excluding technicians, should not exceed 10 per cent of the total.

In consequence of a further amendment to the law in 1955, the following provisions came into effect: extension of the period of exemption from income tax and from tax on additional profits to five years and, when necessary, to three more years, and allocation of 25 per cent of the annual profits to a reserve fund. Furthermore, the law differentiated between residents and non-residents with respect to income tax collection.

Law on the establishment of industrial enterprises, 1957

Law No. 17 of 1957 on the establishment of industrial enterprises was enacted prior to the revolution of July 1958. However, following the revolution, the newly adopted concept of industrial planning necessitated the provision of a new industrial law. The main provisions of the new law are described below.

(*a*) The establishment of new projects was to be subject to licensing, provided the country was in need of such projects; such licenses must be issued in line with the general industrial development programme and should aim at establishing equilibrium between supply and demand.

(*b*) Principles to guide industry were adopted aiming at:

(i) Protection of local industry and the national economy in general;

(ii) Protection of industrialists from the consequences of adopting conflicting policies;

(iii) Ensuring an optional distribution of the available economic resources.

To fulfil these aims, a set of regulations dealing with the problems of monopolistic practices in industry was introduced. Under those regulations, the licensing of joint-stock industrial companies was encouraged; a limit was set to the value of machinery used in production, and the price, quality and quantity of goods produced by protected industry were to be subject to control.

(*c*) The following facilities were extended to projects meeting the conditions stipulated in the law:

(i) Exemption from income tax of annual profits not exceeding 10 per cent of the paid-up capital for a period of five years;

(ii) Exemption from income tax of annual profits not exceeding 5 per cent of the paid-up capital during the next five years;

(iii) Exemption from income tax of reserves allocated for development and expansion purposes, provided that such funds did not exceed 25 per cent of total annual profits and were re-invested during the subsequent five years;

(iv) Exemption from property tax for a period of ten years;

(v) Exemption from stamp duties;

(vi) Exemption from import duty of the following materials which could not be obtained locally: machinery and equipment; tools and spare parts; raw materials; packing materials;

(vii) Leasing of government land for the purpose of establishing industrial projects against reasonable fees for a period of ten years;

(*d*) The granting of exemptions was made subject to the following conditions:

(i) The number of non-Iraqi workers and employees must not exceed 10 per cent of the total number of workers and employees, excluding technicians performing services indispensable for the project;

(ii) At least 60 per cent of the paid-up capital must be Iraqi;

(iii) The value of machinery and equipment, excluding power generating equipment, must not be less than ID 3,000;

(*e*) A certificate providing for temporary or full exemption must be granted upon fulfilment of the above conditions.

The law contained other provisions defining the authorities' attitude in case of any violation of the law on the part of the owners of enterprises.

Under amendments adopted shortly thereafter, Kuwaiti, Palestinian and all other Arab workers, employees or technicians were to be treated on an equal footing with Iraqis. Furthermore, all Arab capital [illegible] to receive the same treatment as the Iraqi, with the condition stipulated under sub-paragraph (*d*) (ii) above being applicable to such capital.

The issuance of new rules and regulations exempting certain types of machinery, equipment and raw materials from customs duties was also authorized.

The lack of clarity in some of the provisions of the law and its amendments created many difficulties, particularly in respect to the enforcement of provisions relating to the amount of aid to be granted to industrial projects. For example, the provisions relating to exemption of profits from income tax were ambiguous; similarly, the procedures for granting full and temporary exemption certificates were complicated. It was also found necessary to extend the period required for the establishment of projects.

Industrial promotion law, 1964

Accordingly, the industrial promotion law No. 164 of 1964 was enacted. The new law follows the same principles as its precursor, the promotion law, with its amendments. To be entitled to assistance under the new law, projects must fulfil the following conditions:

(*a*) All workers and employees, excluding experts and technicians performing indispensable services must be of Iraqi or Arab nationality;

(*b*) At least 60 per cent of the capital must be Iraqi or Arab;

(*c*) The value of machinery equipment and tools, excluding power-generating equipment, must be not less than ID 5,000.

With respect to the granting of assistance, the new law maintains the same principles as the old one, at the same time adding the clarifications listed below.

(*a*) Profits not exceeding 10 per cent of the project's paid-up capital shall be exempted from income tax for a period of five years, effective from the year in which profits are first realized; in the subsequent five years, profits not exceeding 5 per cent of paid-up capital shall also be exempted. Any profits in excess of these rates shall be made subject to income tax. The years of exemption enjoyed by the project in accordance with the provisions of previous laws shall be counted if the previous exemption period had not ended at the time when industrial promotion law No. 31 for 1961 was promulgated.

(*b*) The project shall be exempted from income tax on that part of its profits allocated to reserves, provided that such amounts do not exceed 25 per cent of total annual profits. If those reserves are not utilized within five years from the date of their allocation, or if they are added to capital or distributed in any form, they shall be added to the profits of the year following the expiration of the five-year period, and made liable to the payment of income tax.

(*c*) The law retains the provisions relating to the exemption of projects from the payment of property and stamp duties. It also retains the exemptions from the payment of customs duties on all machinery, equipment and raw and packing materials, as well as the regulations concerning the leasing of State lands.

(*d*) The new law cancels the temporary exemption certificate stipulated in the previous law; instead, it entitles the licensed project to enjoy all the privileges referred to in paragraphs 3, 4, 5 and 6 of its article 10.

(*e*) The project owner may upon its completion apply for a full exemption certificate.

(*f*) The law provides also for suspending exemptions and for measures to deal with any contraventions of its provisions in order to ensure its proper enforcement and utilization.

Protection

In recent years, Iraqi industry has enjoyed an unprecedented degree of encouragement and support. The main aspect of this support has been the protection of local industry against foreign competition. The degree of protection provided has varied, depending on the ability of local production to satisfy domestic needs with respect to quantity and quality and at reasonable prices.

Protection is mainly dictated by the desire to give domestically produced goods a chance to find their way to the consumer, who is already accustomed to using imported goods, both out of price and quality considerations and, more often than not, simply because the product is a foreign one. In fact, a psychological factor prevails in all developing countries tending to make the consumer prefer an imported commodity, because he lacks confidence in its domestic counterpart.

Hence, in order to make the Iraqi consumer use domestic goods, the Iraqi Government has had to impose high customs duties and to supplement them, depending upon the circumstances, by the restriction and, at times, by the prohibition of imports.

With this objective in view, a committee for the protection of national industry was organized in 1961 within the Ministry of Economy. Prior to this step, protective measures had been issued by the High Supply Committee, which had the power to prohibit the importation of any merchandise whenever a local counterpart was available. Protective measures had also been adopted through the directives of a temporary committee composed of members of the Ministry of Economy and other departments concerned. The committee had the power to prohibit totally or partially the importation of certain goods. However, because of the increasing demand for protection on the part of national industries, it was found necessary to create a permanent technical body to look into the matter. Accordingly, a committee was organized under the supervision of the Ministry of Economy, composed of representatives of the official departments directly concerned with the protection of industry, to submit proposals for the consideration of the responsible authorities.

Protective measures in Iraq were not confined to prohibiting the importation of competing foreign goods, but were extended to the fixing of the prices of protected goods in order to keep them at the same level, or at a lower level than that of similar imported goods.

The Federation of Industries

The development of industry in Iraq has made it necessary to establish a number of agencies to promote such development.

One such agency is the Federation of Industries, which brings together the owners of industrial establishments in a congenial atmosphere to study their mutual problems and propose solutions to promote their interests. The federation enjoys an independent legal status by virtue of law No. 52 (1956). The law entered into force on 18 August 1956 and was later revised and replaced by law No. 31 (1962).

The main objective of the federation is to represent industrial interests before government authorities and other institutions, and promote the development of industry. Its policy reflects the views of industrialists either directly or through their representatives on the board of directors. Thus it does not represent the opinion of individual industrialists, but rather the point of view of Iraqi industry as a whole. The policy aims at developing industry, assisting it, promoting its products, protecting it against foreign competition and introducing its output to the Iraqi public. To ensure the attainment of these objectives, the federation studies thoroughly the problems of Iraqi industry and recommends means for its promotion. In these studies, the federation treats Iraqi industry as a unit, regardless whether it belongs to the public, private or mixed sectors.

Through its advisory functions, the federation has been instrumental in developing the industrial sector, especially the private sector, as well as in encouring investors to venture into the industrial field.

Annexes VI and VII show the number of projects affiliated with the federation, distributed by type of industry and geographical location respectively.

Nationalization

The Economic Organization came into being as a result of the socialist laws promulgated on 14 July 1958. These laws aimed at implementing the principles of Arab socialism, defining the scope of the public sector and its role in the economic development of the country and organizing the activities of the private sector within the framework of the general economic development plan. Furthermore, they outlined the main aspects of the Government's socialist policy and its aims as follows:

(*a*) To implement the social revolution, aimed at creating an economic and social régime which would result in an increase in production, and a fair distribution of income;

(*b*) To define the field of economic activities pertaining to the public sector to ensure the implementation of socialist principles in planning; in line with this objective, all banks and insurance companies fell into the hands of the State; this measure was intended to make available to the Government the main sources of finance and investments, thereby enabling it to formulate its development policy; furthermore, the cement and asbestos industries were reserved to the State because of their importance in the development of the country; in the case of other industrial activities, such as spinning, weaving, tanning, or the production of foodstuffs, soap, shoes and bricks, the door was left open to general participation;

(*c*) To define the role of the private sector and its activities, making it compatible with the previsions of the temporary constitution and the aims of Arab socialism.

Regarding the organization of certain companies, law No. 103 of 1964, and its amendments, stipulated that every limited liability company whose paid-up capital was ID 70,000 or more should, at the time of the implementation of the law, assume the character of a joint-stock company; any company to be established thereafter, with a paid-up capital of ID 70,000 or more, must assume the character of a joint-stock company; every industrial project which, at the time of the implementation of the law, did not have the character of a joint-stock or limited-liability company, and whose net assets amounted to ID 70,000 or more, must assume the character of such a company; a maximum limit to individual ownerships in joint-stock companies founded for periods exceeding five years; the value of shares with a paid-up nominal value should not exceed ID 10,000; companies, projects and institutions covered by the law must adapt their conditions to its provisions within a maximum period of one year; (however, due to the prevailing economic situation, this provision was amended and the period extended to two years).

The Economic Organization

Law No. 98 of 1964 established an agency attached to the Prime Minister known as the Economic Organization. The law gave the agency legal status and made it financially and administratively independent. The organization consisted of the following:

The General Industrial Organization, covering all nationalized industrial establishments as well as government industrial administrations; these were later attached to the Economic Organization;

The General Trade Organization, covering all nationalized commercial establishments; provisions were made for government commercial agencies to be attached to it in the future;

The General Insurance Organization, covering all nationalized as well as government insurance and reinsurance companies.

The purpose of the organization, as defined by the law, was to participate in developing the national economy through economic activity in the public sector. The law also defined the ways and means of such participation.

The main functions of the Economic Organization may be summarized as follows: determining the indemnity values for the nationalized companies and compensating shareholders; administering government industrial establishments; setting up specific industries; amalgamating some of the nationalized companies in order to achieve economies of scale.

The year following nationalization could be considered as a transitional period. However, the nationalized industries, as well as the different government administrations, achieved a higher volume of production and sales during that year than in the period preceding nationalization (see annex VIII). During the year ending July 1965, and before prices were reduced, the value of production amounted to ID 43.7 million, as against ID 39 million before nationalization (i.e., an increase of 12 per cent). With the reduction in prices, the value of production stood at ID 42 million (representing an increase of 10 per cent only). Sales amounted to ID 43.3 million, as against ID 73.8 million during the year before nationalization (i.e. an increase of 15 per cent). After the reduction in prices, the value of sales amounted to ID 41.7 million, or an 11 per cent increase over the preceding period. The construction industries registered the highest rate of growth in production and sales, amounting to 18 and 24 per cent respectively; the spinning and weaving industry registered a 17 per cent increase in production and a 22 per cent increase in the value of sales; while the leather and shoes and foodstuffs industries registered 8 and 4 per cent increases in production, and 2 and 7 per cent increases in sales respectively. The lowest increase was registered in the cigarette industry, amounting to 1 and 3 per cent in sales.

From the first week of its operation, the organization lowered the prices of several of the items produced in the companies under its management (see annex IX).

Despite the price reductions, the nationalized companies achieved higher profit margins in relation to the pre-nationalization period. The figures shown in annex X are the result of auditing the accounts of thirty nationalized establishments (industrial and commercial) for the eight and one-half months that followed nationalization, i.e., from 14 July 1964 to 31 March 1965. These figures indicate that combined profits, before payment of income tax, of all the nationalized companies amounted to ID 2.6 million, or 24 per cent higher than in the corresponding period preceding nationalization. Of the thirty companies involved, only four incurred losses for other reasons, while the other twenty-six achieved high profits as compared with the corresponding period preceding nationalization. Thus, the Bata Co. realized a profit of

ID 143,000 as compared to ID 57,000 (an increase of 148 per cent; the Iraqi Asbestos Co. realized a profit of ID 152,000 as compared to ID 66,000 (an increase of 130 per cent); the Cotton Seeds Co. realized a profit of ID 334,000 as against ID 165,000 (an increase of 102 per cent); the profits of the Iraqi Insurance Co. amounted to ID 330,000 as against ID 222,000 (an increase of 48 per cent); the profits realized by the Vegetable Oils Co. amounted to ID 330,000 as against ID 297,000, in spite of the reduction in the prices of soap and oils; the Rafidain Trading and Milling Co. realized a profit of ID 118,000 as against a loss of ID 25,000; profits realized by the Northern Milling Co. amounted to ID 94,000 as compared to ID 41,000 (an increase of 128 per cent). The National Leather Co., the Iraqi Jute Co. and the Rafidain Cement Co. realized increases in profits of 27, 18 and 30 per cent respectively. The highest increase took place in the United Match Co., whose profits amounted after nationalization to ID 55,000 as against ID 13,000 (an increase of 330 per cent).

The profits as well as the other tangible results realized by the nationalized companies changed the general attitude as to the efficiency and ability of the public sector to run industrial or commercial enterprises and make profits. The Economic Organization experiment demonstrated that what really mattered was not who administered a project, but rather the management of projects on the basis of well-defined principals and objective criteria. As soon as such objective criteria were established, the organization was able to run the nationalized companies as efficiently as, if not more efficiently than the private sector.

Net profits realized by the nationalized companies and public administrations, excluding five companies and administrations attached to the Economic Organization, amounted to ID 5.3 million as of 31 March 1965. Profits during the corresponding period before nationalization amounted to ID 4.6 million. There had thus been an increase of 16 per cent.

Profits realized by the establishments attached to the organization will be distributed as follows:

Income tax	ID 2.3 million
Share of workers in profits (of which ID 0.27 in currency (see annex XI))	ID 0.68 million
Provision of housing and social services for employees and workers	ID 0.14 million
Provision of central social services for persons employed in the Economic Organization	ID 0.27 million

Enlargement of existing plant and undertaking of new investments

To meet the increasing foreign demand for Iraqi cement, the organization decided to expand the productive capacity of the cement industry. It authorized the doubling of the capacity of the United Cement Co. from 200,000 tons to 400,000 tons per year, at a cost of ID 1.5 million. The company has already started the expansion programme. Furthermore, the organization authorized a project for removing dust from furnaces and the cement insulator project of the Iraqi Cement Co., as well as the expansion of the Al-Furat cement plant.

The organization also authorized the expansion of several other projects; for instance, expansion of the productive capacity of the Dairy Administration (expansion has already begun), and expansion and improvement of the Iraqi Spinning and Weaving Co., Fattah-Pasha Co., the Real Estate Industries Co., the Construction Materials Co. and other companies. Expansion works have already been started on the Government Sugar Administration and on the Mosul Spinning and Weaving Administration as prescribed in the economic plan. Furthermore, the organization has agreed to establish a poultry company with an annual capacity of 30 million eggs and 5 million hens; the company will also produce fodder.

The total cost of the project is estimated at ID 3.5 million. Output is expected to reach the market in mid-summer of next year, which will help to reduce the prices of eggs and meat.

The organization is not faced with any financial problems in implementing its projects. Besides its own financial resources, the organization resorts to the nationalized banks to meet the financial needs of the establishments attached to it.

Problems of Iraqi industry

The main problems and difficulties which have confronted Iraqi industry are summarized below.

Industrial relations, within the economic development process, were among the important problems faced by Iraqi industry. The principles and values determining these relations were regarded from two points of view. The first was that the experience of the industrialized countries should be taken as the principal norm for Iraq, without regard to the basic values and characteristics of the country. The second aimed at reconciling these basic values with current needs, and took into consideration both the historical evolution of the country and such principles and concepts of the West as could be adapted to the needs of Iraq.

However, despite the adoption of the second point of view, relations between employers and employees were much influenced by the conditions that had prevailed before the recognition of labour unions. The employers, being at the same time owners of establishments, believed in their right to impose the kind of relations most suited to their interests, while the labour force, realizing its importance in the production process, was demanding more rights and privileges. The legislation which was subsequently enacted to organize and guide industrial relations was influenced by these factors. On the one hand, there was the employers' fear of the attitude of the workers, so that they denied them any right to express their opinion. On the other hand, legislation in this field was influenced by the extremist position of the workers. As a result of this tension between employers and employees, many strikes took place. The State and employers had either to resort to drastic measures or to intervene through the departments concerned to restore order. Such disturbances had an adverse effect on the productivity of workers and on their attitude towards work, with unfavourable consequences in the rate of industrial growth.

To remedy this situation, official and non-official circles undertook the establishment of organizations and the enactment of laws defining and regulating industrial relations; one such organization was the Federation of Industries, which has had a positive effect in guiding these relations. Furthermore, the enactment of the labour code and its amendments, as well as the development of labour unions, have also been of great help in supporting the workers' claims. These measures had a

favourable effect on the growth of industry, which has proceeded in recent years at an average of 12 per cent per annum. It must be pointed out that the improvement in human relations in government industrial establishments has also affected the promotion of such relations in the private sector, especially after the introduction of the profit-sharing principle.

Yet with all the development that has taken place in the field of industrial relations, much still remains to be done.

The mentality of the Iraqi industrialist is influenced by a predominantly commercial and agricultural outlook. The industrial mentality differs from the commercial and/or agricultural in that it presupposes a certain degree of administrative and technical awareness and a different approach to organization.

Weakness in industrial discernment is exemplified by the industrialist who decides to establish a project merely because other similar projects exist, and without taking into consideration the absorptive capacity of the market. Such action will result in excess capacity, and in a waste of economic resources which will prevent existing plants from reaching their optimum level of production.

The Government has tried to remedy the situation by applying a policy of industrial guidance in accordance with the provisions of the fourth article of the industrial development law; these efforts, however, have not been successful.

Another example of the same phenomenon is the trial-and-error process through which the industrialist passes when he tries to establish a project. The Ministry of Industry dealt with the problem by creating, in 1961, a centre for promoting industrial management; the centre started operating in 1962. Its functions are to organize training seminars on different subjects pertaining to industrial management in the fields of production, marketing, sales, accountancy, costing and maintenance. The seminars are offered to all persons engaged in industrial management. Other seminars are offered to directors and deputy directors of industrial establishments in the public, private and mixed sectors.

The scarcity of skilled labour is a salient feature of Iraqi industry. It has acted as a deterrent to the establishment of new projects and the attainment of a larger output and better quality, especially in the private sector. In the public sector, the problem is about to be solved, especially since the creation of the manpower service by the Government. The service aims at providing the newly established government industries with skilled labour. The programme involves the training of Iraqis abroad and the organization of local seminars in the different vocational training centres.

It is worth noting that the shortage of foremen heads the list. The private and mixed sectors try to solve this problem by importing foreign technicians, by sending some of their employees for training abroad, or even by attracting, through higher salaries, the skilled labour employed in the public sector. The Government has resorted to similar measures in an attempt to remedy the situation.

The narrowness of the market is another problem confronting Iraqi industry. It has prevented the establishment of many projects, since it sets a limit to the expansion of production and therefore to the lowering of costs and prices. As a result, foreign goods continue to enjoy a relatively good position. Furthermore, the narrowness of the market has in many instances prevented the establishment of new industrial projects or branches of existing ones.

The small size of the Iraqi market might be attributed to the following factors: low purchasing power of the majority of the population which, in turn, is due to the low level of income; the tastes of consumers; preference for imported goods based on psychological and economic reasons; small size of the population.

There are many opportunities for exporting some of Iraq's industrial products to neighbouring countries. However, such export has taken place to a very limited extent owing to the existence of tariff barriers in those countries and Iraqi producers' ignorance of the methods of international trade.

The dependence of industrial projects on imported raw materials involves many risks connected with the scarcity and fluctuation in the prices of these materials; these, in turn, are reflected in the level of costs and prices.

Another problem is the high cost of transportation and storage of imported raw materials. River transport was the first means to be used in Iraq. Although slow, it is considered cheaper than other means of transportion. Its advantages, however, are limited to the regions situated along the river basin; moreover, goods have to be loaded and unloaded several times before reaching their final destination.

Railroads were considered a relatively rapid means of transportation during the first three decades following independence. Here too, however, the advantages were confined to the cities situated along the railroad network. Furthermore, the two-gauge system contributed to increase the cost of railroad transport. As for road transport, which is considered the most suitable means, the rates charged are relatively high.

The transportation problem accounts for the difficulty in ensuring a more even geographical distribution of industrial projects and for their concentration near the main roads. The high transportation costs have adversely affected the cost structure of Iraqi industry and, consequently, the prices of industrial products.

The high storage costs are mainly attributable to lack of rapid means of transportation, especially in the private sector, and inadequate warehouse facilities.

The high unit cost of electric power in Iraq as compared with similar rates charged in industrialized countries has further contributed to raising production costs and slowing down the rate of industrial growth.

Political stability is a prerequisite for economic and industrial development. A review of Iraq's history indicates that the country has been, on many occasions, the scene of political disturbances and instability. Following the mandate, vested interests played an important role in impeding the implementation of an adequate economic policy. In addition, the unstable political situation that prevailed in Iraq at that time limited the usefulness of legislation enacted to promote industrial development. Altogether, the period preceding independence did not witness any significant economic progress.

ANNEX I

Industrial establishment employing ten or more persons, 1962

Type of industry	Average number of establishments	Average number of persons employed	Total wages (ID)	Average number of persons employed per establishment	Annual average wages per person (ID)	Sales of finished goods (ID)
Slaughter houses	6	168	32,795	28	195.2	97,022
Wool washing and pressing	6	256	33,838	42.7	132.2	935,914
Cotton ginning	7	271	56,866	38.7	209.8	2,138,482
Oil extraction	1	224	86,804	225	385.8	100,119
Dairies	7	457	118,432	65.2	259.7	794,546
Date pressing	25	4,533	545,314	181.1	120.3	4,017,107
Grain mills and ice	85	1,879	457,390	22.1	243.4	11,409,526
Bakeries	13	571	127,495	43	223.3	603,334
Macaroni and spaghetti	5	72	10,961	14	152.1	66,485
Sugar	1	355	891,025	355.3	402.4	1,502,585
Biscuits and confectioneries	34	867	152,409	25.1	175.7	
Vegetable oils	4	1,425	531,697	356.5	372.9	7,707,152
Spirits, liquors and beer	6	420	167,105	70	397.4	2,010,318
Soft drinks	15	2,000	500,443	133.5	250.4	4,047,331
Other food industries	5	84	18,330	16.4	218.1	93,294
Cigarettes	4	2,489	825,231	622.1	331.1	9,047,789
Tobacco trimming	1	63	8,026	89	128.8	170,320
Cigarette paper, cutting and rolling	62	2,457	136,869	39.3	55.2	400,568
Cigarette paper for hand rolling	3	242	53,340	80.7	220.4	507,583
Cotton textiles	5	3,976	1,024,238	795	257.2	3,777,894
Woollen textiles	6	2,078	507,456	346.2	244	1,882,100
Silk textiles	38	16,010	363,042	42.5	226	1,263,157
Shoe laces, ribbons and green laces	4.3	92	16,425	21.5	178.5	88,936
Vests and stockings, knitted	10	339	59,091	33.9	174.1	437,247
Woollen clothes, knitted	5	151	31,503	30.2	208.6	269,131
Shoes	32	1,737	511,437	54.9	294.8	2,528,584
Shirts and pyjamas	27.2	629	141,848	23.1	225.5	1,262,438
Men's and women's garments	33	937	222,563	28.4	237.5	1,236,494
Metal furniture	15	473	107,215	31.8	226.3	721,971
Carpentry	59	961	233,865	16.1	243.2	707,449
Cartons and paper products	8	197	45,934	24.5	333.3	675,155
Printing and publishing	45	1,438	462,704	32	321.8	1,681,420
Tanning	9	558	167,733	62	300.3	1,224,909
Hides and skins salting	5	101	30,292	20.1	299.9	334,282
Luggage	2.3	36	6,179	16.3	173	29,507
Cosmetics	2	35	4,277	17.2	124	83,150
Matches	2.3	394	128,951	170.6	328.5	661,780
Oxygen	4	56	28,931	13.8	522.2	76,861
Soap	5.4	123	28,516	22.7	231.6	350,325
Drugs	1.7	22	3,638	13.2	165.4	17,903
Refined oil and lubricants	4	2,334	1,228,489	583	526.8	13,585,845
Tiles	72	1,481	192,154	20.4	197.7	
Bricks	134	12,842	2,021,305	95.1	157.5	3,615,415
Porcelain	7	81	19,252	11.6	237.7	35,448
Cement	6	2,212	669,866	368.7	302.8	5,330,574
Gypsum	32	501	89,434	15.2	178.3	314,563
Glass	2.3	44	7,289	18.9	167.5	13,152
Asbestos	1	153	44,921	152.4	294.7	379,871
Concrete products	11	1,404	326,627	127.1	232.9	786,275
Stone crushing	2	31	4,656	15.5	150.2	28,495
Dyes	2	30	10,949	15	365	85,574
Miscellaneous construction materials	3	74	20,259	24.7	273.8	259,860
Foundries	10	183	29,918	18.3	163.5	127,992
Plastic and children toys	4	52	8,015	13	154.1	94,787
Utensils	7	316	64,080	45.1	202.8	550,133
Smithing	45	1,338	298,458	25.3	262.3	1,260,863
Razor blades, nails and scales	5	83	22,777	16.6	274.4	139,335
Jute and ropes	2	285	52,077	142.5	182.7	377,313
Cotton waste	3	102	18,581	34	182.2	86,153
Medical cotton	1	212	48,175	221.1	228.2	108,167
Machinery repairs	24	1,237	457,558	51.5	369.9	10,313
Ship repairs and building	7	994	305,664	142	307.5	53,432
Motor cars repairs	50	2,525	653,581	50.5	258.8	315,684
Telephone repairs and installation	15	1,419	241,137	94.6	169.9	36,003
Railroad workshops	16	3,431	937,457	214.4	273.2	
Assembling of motor vehicles, radiators and car bodies	5	234	70,503	46.8	301.3	64,904

ANNEX I (*continued*)

Type of industry	*Average number of establishments*	*Average number of persons employed*	*Total wages (ID)*	*Average number of persons employed per establishment*	*Annual average wages per person (ID)*	*Sales of finished goods (ID)*
Repair of electrical instruments	3	50	17,219	16.2	354.3	8,812
Salt extraction	2	85	18,867	42.5	222	167,939
Other industries	5	171	66,467	34.2	388.7	315,528
Water and electricity	97	9,216	2,815,096	95	305.5	7,780,067

SOURCE: Central Department of Statistics, Industrial Census of 1962.

ANNEX II

Total allocations in the five-year Plan, 1965-1969, for the main industrial projects in the public sector

(*In ID 000*)

Name of project	*Executing authority*	*Total cost*	*Allocations*
Chemical industries projects			
1. Artificial silk resins	Ministry of Industry	1,500	100
2. Artificial silk plant	Ministry of Industry	13,000	11,700
3. Paper plant at Basra	Ministry of Industry	16,500	11,250
4. Sulphur extraction plant	Ministry of Industry	9,450	9,450
5. Chemical fertilizer plant	Ministry of Industry	11,000	11,000
6. Rubber tyres and tubes plant	Ministry of Industry	2,000	450
Pharmaceutical projects			
7. Drugs manufacturing project	Ministry of Industry	6,850	3,300
Food industries projects			
8. New sugar plant	Ministry of Industry	3,000	1,000
9. Expansion of existing sugar plant	Ministry of Industry	2,500	2,100
10. Bakeries projects	Directorate General of Supply	900	900
11. Dates and fodder projects	Dates Administration	1,500	1,500
Construction industries			
12. Ceramic plant	Ministry of Industry	2,500	2,400
13. Glass plant	Ministry of Industry	5,500	4,500
Electrical industries			
14. Electrical instruments and apparatus plant	Ministry of Industry	2,300	500
15. Light bulbs plant	Ministry of Industry	1,300	1,000
Mineral industries projects			
16. Iron and steel plant	Ministry of Industry	26,000	7,200
17. Agricultural machinery plant at Alexandria	Ministry of Industry	10,300	5,800
18. Geological instruments repair plant	Ministry of Industry	165	70
Spinning and weaving industries projects			
19. Cotton textiles plant at Kut	Ministry of Industry	9,850	4,500
20. Woollen textile plant at Nasserieh	Ministry of Industry	4,000	3,800
21. Silk textile plant at al-Hallah	Ministry of Industry	9,100	3,800
22. Stockings and knitting at Kut	Ministry of Industry	2,550	800
23. Expansion of Al Mosul textile plant	Ministry of Industry	3,500	3,000
Oil and gas projects			
24. Basra refinery	Ministry of Petroleum	12,000	10,000
25. Mosul refinery	Ministry of Petroleum	12,000	10,000
26. Natural gas pipes	Ministry of Petroleum	11,000	150
27. Geological surveys	Ministry of Industry	800	800
Transmission and generation of electric power			
28. Connecting northern transmission network with southern	Ministry of Industry	1,500	950
29. Enlargement of Baghdad's southern power plant	Ministry of Industry	8,200	4,000
30. Al Dora power plant and expansion	Ministry of Industry	17,000	13,000
31. Expansion of power plant at Basra	Ministry of Industry	850	850
32. Samerra dam power plant	Ministry of Industry	7,000	7,000
33. Dokan dam power plant	Ministry of Industry	8,500	75
34. Darabandi-Khan dam power plant	Ministry of Industry	5,500	75
35. Transmission of additional power to northern area	Ministry of Industry	950	900
36. Transmission of additional power in middle area	Ministry of Industry	6,350	2,700
37. Transmission and enlargement of power generating facilities in southern area	Ministry of Industry	13,000	10,000

ANNEX II (*continued*)

Name of project	*Executing authority*	*Total cost*	*Allocations*
Atomic energy projects			
38. Atomic reactor	Atomic Energy Committee	3,400	1,000
39. Cobalt unit	Atomic Energy Committee	600	350
40. Centres for atomic studies	Atomic Energy Committee	250	200
Vocational training projects			
41. Industrial training centres	Ministry of Industry	2,350	2,250
42. Industrial management centre	Industrial Management Centre	80	80
43. Vocational training centre	Ministry of Labour and Social Affairs	200	200
44. Settlement of projects accounts and complementary works	Ministry of Industry	1,000	1,000
45. Small power projects	Ministry of Rural Affairs	10,000	6,750
Industrial projects			
46. Including: FAO salterns, northern woollen textiles plant, tractors and vehicles assembling, compressed wood, starch, laboratories, standards and specifications authority, industrial surveys and other industrial projects	Ministry of Industry	14,000	4,750
47. Industrial housing projects	Ministry of Public Works and Housing	13,500	400

ANNEX III

Value added in the industrial sector at current prices

(*In ID 000*)

Industry	*1960*	*1961*	*1962*	*1963*
Foodstuffs	3,383.4	5,197.2	4,386.4	4,362.4
Grain milling	1,493.0	1,803.0	2,172.0	2,385.0
Beverages	2,564.0	2,857.4	3,779.0	3,613.5
Cigarettes	1,329.1	1,933.4	2,770.4	2,813.1
Cotton ginning	129.0	98.0	268.0	50.0
Textiles	3,256.0	3,023.0	3,536.0	328.0
Textiles sewing	269.0	225.0	379.0	490.0
Jute, ropes and other textiles made thereof	145.3	106.0	173.0	250.6
Shoes	2,302.0	2,727.9	3,313.4	2,876.5
Clothing	3,166.7	3,428.7	3,742.6	3,199.2
Paper, printing and publishing	800.6	692.4	782.5	644.1
Leather and leather products	501.2	383.2	448.8	497.3
Chemicals and rubber	571.3	620.9	615.6	491.4
Soap and oils	2,390.0	2,039.0	1,677.0	3,487.0
Petroleum products	7,623.8	9,107.8	8,281.5	8,006.9
Non-mineral products	7,424.9	8,127.3	8,221.2	7,821.6
Basic mineral industries	225.8	476.5	435.8	439.7
Mineral products	1,120.2	1,229.2	1,580.8	1,011.7
Carpentry	3,152.4	2,656.0	2,746.0	2,096.8
Repairs	3,556.0	4,191.0	4,145.0	4,456.0
Miscellaneous industries	44.9	47.5	53.9	59.3
TOTAL	45,448.6	50,971.4	53,507.9	52,332.1

ANNEX IV

A. Loans extended by the Industrial Bank during the period 1949-1950 to 1957-1958

(*In ID 000*)

Industry	*1949-1950*	*1950-1951*	*1951-1952*	*1952-1953*	*1953-1954*	*1954-1955*	*1955-1956*	*1956-1957*	*1957-1958*
Flour	28,450	27,900	19,800	70,700	157,850	276,162	190,485	127,285	133,390
Construction materials	46,140	33,000	3,000	27,724	106,650	213,300	150,169	329,722	414,908
Spinning, weaving, sewing, tailoring, ginning, etc.	10,770	5,650	176,750	247,100	293,800	560,100	70,619	26,944	557,445
Printing and paper industries	5,300	7,402	4,300	29,685	19,100	43,100	49,212	65,495	40,372
Smithing and mechanical works	900	6,390	32,500	26,566	7,200	36,000	66,393	25,209	75,970
Carpentry and furniture	500	650	100	3,100	15,150	35,150	8,295	27,250	35,480
Food industries, beverages and soft drinks	11,500	4,810	4,800	4,890	18,550	60,550	109,554	95,750	20,545
Miscellaneous industries	28,550	45,148	36,975	247,185	115,740	143,240	80,314	47,775	209,432
TOTAL	132,110	130,950	278,225	656,950	734,040	1,367,602	725,041	745,430	1,487,542

ANNEX IV (*continued*)

B. Loans extended by the Industrial Bank during the period 1958-1959 to 1 July 1965

(In ID 000)

Industry	*1958-1959*	*Last nine months of 1959*	*1960*	*1961*	*1962*	*1963*	*1964*	*14 July 1963 to 13 July 1964*	*14 July 1964 to 1 July 1965*
Flour	95,860	68,345	111,510	168,570	348,120	189,900	227,690	132,900	266,480
Construction materials	224,115	91,490	50,700	138,350	160,888	51,910	79,696	46,811	111,165
Spinning, weaving, sewing, tailoring, ginning, etc.	53,275	131,720	54,690	164,080	190,411	71,570	119,210	154,150	107,723
Printing and paper industries	28,920	71,437	53,970	86,628	68,740	104,645	21,920	88,015	37,755
Smithing and mechanical works	32,170	19,555	105,740	108,780	104,860	34,955	79,257	52,575	118,147
Carpentry and furniture	23,560	22,050	42,827	38,982	21,872	6,730	19,300	12,010	21,570
Food industries, beverages and soft drinks	19,640	44,436	76,300	84,550	101,660	43,900	52,520	31,200	170,200
Miscellaneous industries	91,905	165,170	91,466	178,125	198,179	387,430	293,310	276,740	203,177
TOTAL	569,455	614,153	578,203	968,065	1,294,730	891,040	909,903	804,401	1,036,317

ANNEX V

Industries granted protection by the Permanent Committee for the Protection of National Industry

Full protection	*Partial protection*
Medical cotton	Footballs
Medical bandages	Television sets
Pencils	Dyes
Pins	Printed cotton textiles
Scales	Canning products
Chalk	Buttons
Plastic toys	Rugs
Chocolates	Suitcases
Window frameworks	White zinc paste
Sanitary towels	Razor blades
Silk textiles	Knitted garments
Asbestos and cotton fibres	Neckties
Telephone posts	Tooth brushes
Rubber shoes	Aluminium utensils
Asphalted paper	Rubber rings
Green lace	
Liquid sodium silicate	
Cartons	
Polythene pipes	

ANNEX VI

Distribution of industrial projects affiliated with the Iraqi Federation of Industries by industrial groupings, as of 1 September 1965

1. *Mining, quarrying, etc.: 9 projects*
   - Oil refining 3
   - Oil extraction 3
   - Salt extraction and refining 2
   - Manufacture of pipes 1
2. *Bricks, concrete products, glass and sanitary equipment: 101 projects*
   - Bricks 56
   - Tiles and mosaic 27
   - Concrete products 13
   - Glass 4
   - Compressed wood 1
3. *Cement, asbestos, gypsum, chalk and insulating materials: 23 projects*
   - Cement plants 6
   - Asbestos 1
   - Gypsum 14
   - Chalk 1
   - Insulating materials 1
4. *Iron and iron products and other metal industries: 171 projects*
   - Metallic furniture and smithing 31
   - Aluminium products and utensils 14
   - Metal textiles 9
   - Razor blades 2
   - Soldering, turning and mechanical repairs 64
   - Other metal industries 40
   - Assembling of electrical apparatus 11
5. *Dairies, flour mills, bakeries, pastes and grain silos: 113 projects*
   - Dairies 11
   - Flour 92
   - Biscuits 9
   - Pastes and macaroni 8
   - Dates and animal fodder 3
6. *Vegetable oils, fats, detergents and soap: 19 projects*
   - Vegetable oils and fats 4
   - Soap 13
   - Detergents 2
7. *Sugar and confectionery: 48 projects*
   - Sugar 2
   - Confectionery 46
8. *Distillation, beer, soft drinks and non-alcoholic drinks: 82 projects*
   - Distillation 2
   - Beer 2
   - Wine 1
   - Carbonated water 19
   - Non-alcoholic drinks 6
   - Ice 42
   - Soft drinks 10
9. *Cigarettes and tobacco: 4 projects for the manufacture of cigarettes*
10. *Cotton spinning and weaving, jute and ginners: 23 projects*
    - Cotton spinning and weaving 8
    - Jute 1

ANNEX VI (*continued*)

Ginning	10
Fishing nets	4
11. *Spinning and weaving of wool and silk: 50 projects*	
Wool	5
Silk	45
12. *Tricot stockings, garments and other sewing projects: 104 projects*	
Tricot	32
Garments, including shirts	69
Miscellaneous	3
13. *Wooden furniture and carpentry: 28 projects*	
Wooden furniture	18
Carpentry	9
Wood	1
14. *Paper, paper products and printing: 81 projects*	
Printing	45
Binding	4
Paper bags and packages	30
Paper painting	2
15. *Tanning and leather products: 49 projects*	
Leather tanning and pressing	12
Shoes	37
16. *Plastic, matches and pharmaceuticals: 58 projects*	
Plastic and plastic products	26
Pencils	1
Matches	4
Pharmaceuticals	4
Chemical products	2
Chemical gas	8
Dyes	6
Cosmetics and perfumes	7
17. *Rubber and rubber products: 4 projects*	
18. *Tooth and shaving brushes: 1 project*	
19. *Artificial teeth: 1 project*	
20. *Batteries: 1 project*	

ANNEX VII

Geographical distribution of industrial projects affiliated with the Iraqi Federation of Industries, as of 1 September 1965

Name of district	*Number of projects*	*Name of district*	*Number of projects*
Baghdad	721	Diala	7
Basra	72	Diwaniya	5
Mosul	47	Kut	5
Kerbela	37	Ramadi	2
Hilla	24	Arbil	2
Amara	23	Nasiriya	7
Kirkuk	15		
Sulaimaniya	7	TOTAL	974

ANNEX VIII

Value of production and sales in establishments attached to the General Industrial Organization during the period 14 July 1964 to 1 July 1965 as compared with the period 14 July 1963 to 1 July 1964

(*ID*)

Name	*14 July 1963-1 July 1964*		*14 July 1964-1 July 1965*		*Percentage change in value of production*	*Percentage change in value of sales*
	Value of production	*Value of sales*	*Value of production*	*Value of sales*		
Iraqi Cement Company	2,490,299	1,952,190	2,577,487	2,268,457	+ 4	+ 12
Rafidain Cement Company	1,196,535	1,082,374	1,145,044	1,148,733	− 4	+ 6
Euphrates Cement Company	1,100,309	978,854	1,434,046	1,223,865	+ 30	+ 25
United Cement Company	1,022,717	734,048	1,235,603	966,120	+ 21	+ 32
Hamam-al-Alil Cement Administration	517,875	452,003	647,291	522,620	+ 25	+ 16
Sirganar Cement Administration	256,211	269,757	629,728	628,425	+146	+122
Estate Industries Company	154,989	168,788	233,046	248,306	+ 50	+ 47
Iraqi Construction Materials Company	147,477	110,520	175,716	233,105	+ 19	+111
Asbestos Industries Company	495,922	669,369	531,154	725,261	+ 7	+ 8
Iraqi Spinning and Weaving Company	1,478,578	1,142,126	1,476,863	1,465,846		+ 28
Fattah Pasha Company	715,196	803,220	937,295	1,039,726	+ 31	+ 29
Iraqi Carpets Company	26,210	27,615	79,432	45,695	+203	+ 65
Iraqi Jute Industries Company	416,733	479,759	677,331	527,862	+ 63	+ 10
Spinning and Weaving Administration	1,610,290	1,491,079	1,590,917	1,539,754	− 1	+ 3
Medical Cotton Administration	153,624	70,846	168,668	124,579	+ 8	+ 76
Sewing Administration	96,372	39,770	307,390	199,966		
Vegetable Oils Extraction Company	5,351,903	5,475,182	6,507,959	6,542,353	+ 22	+ 19
Cotton Seeds Products Company	3,315,480	3,212,934	3,443,222	3,410,949	+ 4	+ 6
Rafidain Detergent Manufacturing Company	1,283,245	1,245,741	1,134,542	1,107,687	− 12	− 11
Kafel Hussein Soap Plant		57,565		107,548		+ 87
Dairy Administration	662,301	640,411	787,428	853,674	+ 19	+ 33
Sugar Manufacturing Administration	3,203,963	2,891,110	2,752,642	2,706,576	− 14	− 6
Kerbala Canning Administration	75,074	14,164	58,302	34,460	− 22	+143
Northern Milling Company	796,136	817,828	889,019	917,711	+ 12	+ 12
Iraq Grain Milling and Trading Company	53,545	84,584	55,898	91,616		+ 8
Damurji Flour Milling Company	64,355	114,789	59,518	132,064	− 7	+ 15
Mechanical Mills Company	5,476	9,809	96,100	96,566		
Rafidain Milling and Trading Company	1,251,169	1,265,445	968,272	1,100,577	− 23	− 13
Rafidain Tobacco Company	2,483,965	2,517,955	2,674,410	2,698,918	+ 7	+ 7
Abboud Tobacco Company	2,318,032	2,325,431	2,340,994	2,335,966	+ 1	+ ½
National Tobacco Company	2,174,208	2,450,098	1,918,616	2,231,944	− 13	− 10
Cigarette Manufacturing Administration	1,472,386	1,424,026	1,587,364	1,539,390	+ 8	+ 8
United Match Company	413,411	402,984	470,251	578,855	+ 24	+ 44
United Iraqi Paper Industries Company	405,099	404,127	333,931	431,996	− 18	+ 2
National Leather Industries Company	611,820	657,342	686,547	680,640	+ 11	+ 6
Iraqi Bata Company	1,165,202	1,201,077	1,257,757	1,161,095	+ 6	− 3
Popular Shoe Manufacturing Administration	135,428	103,927	147,362	133,572	+ 6	+ 36

ANNEX IX

Value of production and sales of specialized authorities attached to the General Industrial Organisation before and after reducing their prices

(ID)

Specialized authority	14 July 1963-1 July 1964		14 July 1964-1 July 1965 Before reducing prices		14 July 1964-1 July 1965 After reducing prices		Percentage change Before reducing prices		Percentage change After reducing prices	
	Production	Sales	Production	Sales	Production	Sales	Production	Sales	Production	Sales
Construction	7,382,334	6,417,903	8,709,115	7,963,902	8,709,115	7,963,902	—	—	+18	+24
Spinning and weaving	4,470,021	4,048,415	5,261,716	4,957,108	5,237,896	4,943,428	+18	+23	+17	+22
Foodstuffs	16,062,647	15,829,562	18,170,190	18,469,747	16,709,902	17,001,165	+13	+17	+ 4	+ 7
Cigarettes	9,267,101	9,524,621	9,350,074	9,796,700	9,350,074	9,796,700	—	—	+ 1	+ 3
Shoes and leather	1,912,450	1,962,328	2,217,436	2,091,407	2,091,666	1,975,307	+16	+ 7	+ 8	+ 2
TOTAL	39,094,555	37,782,829	43,708,531	43,278,864	42,098,653	41,680,502	+12	+15	+10	+11

REMARKS

1. Prices of oils, soap and detergents were reduced by 12 per cent and the difference, amounting to 1D 1,330,000 in the case of production and 1D 1,327,308 in that of sales, was assumed by the Economic Organization.
2. Prices of flour were reduced about 7 per cent and the difference, amounting to 1D 130,000 in the case of production and 1D 141,000 in that of sales, was assumed by the Economic Organization.
3. The Economic Organization assumed the difference resulting from a reduction of 40 per cent in the prices of plain carpets, which amounted to 1D 24,000 in the case of production and about 1D 14,000 in that of sales.
4. The prices of the Bata Company were reduced by 10 per cent and the difference, amounting to 1D 12,600 in the case of production and 1D 116,000 in that of sales, was assumed by the Economic Organization.
5. The total sum assumed by the Economic Organization as a result of the reduction in prices amounted to 1D 1,601,000 in the case of production and approximately 1D 1,598,000 in the case of sales.

ANNEX X

Profits of nationalized companies and public administrations attached to the Economic Organization

(In ID 000)

Name	Paid-up capital	Profits realized during the 8½ months prior to nationalization	Profits realized during the 8½ months following nationalization	Percentage change in profits
Iraqi Insurance Co.	300	222	330	48
Baghdad Insurance Co.	159	35	63	80
Re-insurance Co.	1,250	64	66	2
Iraqi Import-Export Co.	100	— 6	6	...
F. A. Kettaneh Co.	500	—65	...	...
Iraqi Stores Co.	250	40	17	—59
Afro-Iraqi Trading Co.	250	19	33	73
General Company for Imports and Distribution of Drugs	250	—	39	...
Iraqi Trading and Milling Co.	233	19	25	34
Iraqi Cement Co.	2,845	551	470	—15
United Cement Co.	2,250	198	185	— 7
Al-Furat Cement Co.	1,770	98	72	—27
Rafidain Cement Co.	1,200	142	186	30
National Tobacco Co.	300	64	—58	...
Estate Industries Co.	453	34	35	4
United Match Co.	250	13	55	330
Vegetable Oils Co.	2,000	297	330	11
Cotton Seeds Product Co.	1,000	165	334	112
Rafidain Detergent Manufacturing Co. ..	500	231	149	—36
Asbestos Industries Co.	400	66	152	130
Iraqi Construction Materials Co.	400	—16	—13	...
Northern Mills Co.	200	41	94	128
Damurji Flour Plant	20	17	42	155
Mechanical Mills Co.	180	...	—21	...
Rafidain Trading and Milling Co.	351	—18	118	...
Iraqi Bata Co.	330	57	143	148
Federation of Paper Manufacturing Co.	106	22	67	180
Iraqi Jute Co.	762	61	72	18
Iraqi Spinning and Weaving Co.	1,200	25	—86	...
National Leather Industries Co.	500	92	118	27
TOTAL	20,239	2,575	3,201	24

ANNEX X (*continued*)

Name	*Paid-up capital*	*Profits realized during the 8½ months prior to nationalization*	*Profits realized during the 8½ months following nationalization*	*Percentage change in profits*
Government Purchasing Administration	250	1,583	1,533	—4
Dairy Administration	1,684	— 3	41	...
Medical Cotton Administration	250	—42	—451	...
Hammam al-Alil Cement Administration	3,128	...	— 17	...
Mosul Sugar Manufacturing Administration	658	4	— 83	...
Mosul Spinning and Weaving Administration	2,663	397	346	—13
	3,753	...	150	...
Serganaz Cement Administration	2,872	...	—147	...
TOTAL	15,258	1,984	2,070	...
GRAND TOTAL	35,497	4,559	5,271	16

ANNEX XI

Distribution of net profits of nationalized companies and administrations attached to the Economic Organization

(*ID*)

A. PRIOR TO NATIONALIZATION

Company or administration	*Net profits before income tax for one year*	*Income tax*	*Net profits before income tax during 8½ months*
National Insurance Co.	313,162	100,008	221,823
Rafidain Insurance Co.	8,664	2,230	6,137
Baghdad Insurance Co.	49,173	9,100	34,831
Commercial Insurance Co. (for 7 months)			
Credit Insurance Co.	1,469	—	1,040
Dijlah Insurance Co.			
Iraqi Insurance Co.	38,720	2,855	27,426
Iraqi Re-insurance Co.	90,703	18,600	64,247
Iraqi Import and Distribution Co.	—(8,439)		
F. A. Kettaneh Co.	—(91,693)		
Iraqi Stores Co.	56,159	17,500	39,779
Afro-Iraqi Trading Co.	27,234	7,720	19,290
Iraqi Grain Trading and Milling Co.	26,838		19,010
Iraqi Cement Co.	777,760	208,325	550,913
United Cement Co.	283,564	9,000	198,494
Euphrates Cement Co.	138,541	12,000	98,133
Rafidain Cement Co.	201,099	55,000	142,445
Rafidain Tobacco Co.	113,345	43,569	80,286
Abboud Tobacco Co.	29,546		20,928
Al-Ahliya Tobacco Co.	90,122	34,120	63,136
Estate Industries Co.	47,327	143	33,523
United Match Co.	18,293	4,538	12,957
Vegetable Oil Extraction Co.	419,075	120,000	296,846
Cotton Seeds Products Co.	233,115	92,000	165,123
Rafidain Detergent Co.	326,638	138,000	231,368
Asbestos Industries Co.	92,975	18,208	65,857
General Drugs Import and Distribution Co.			
Iraqi Construction Material Co.	—(22,981)		
Northern Milling Co.	57,988	15,559	41,074
Mechanical Milling Co.			
Damurji Flour Co.	23,504	6,000	16,648
Rafidain Trading and Milling Co.	25,618		
Iraq Bata Co.	81,030	45,885	57,396
Federation of Paper Manufacturing Co.	33,797	6,591	23,939
Iraqi Spinning and Weaving Co.	35,972	7,676	25,480
Fattah Pasha Spinning and Weaving Co.	62,435	35,559	44,224
Iraqi Carpet Co.	5,761		
Iraqi Jute Industries Co.	60,883		43,090
National Leather Industries Co.	130,522	42,460	92,453
TOTAL	3,901,062	1,052,646	2,738,596

ANNEX XI (*continued*)

Company or administration	*Net profits before income tax for one year*	*Income tax*	*Net profits before income tax during 8½ months*
Government Purchasing Administration	1,583,000	780,006	
Dairy Administration			
Canning Administration			
Medical Cotton Administration	—(41,715)		
Hammam-al-Alil Cement Administration			
Popular Shoe Manufacturing Administration	3,570		
Sugar Manufacturing Administration	397,184		
Mosul Spinning and Weaving Administration			
Serganaz Cement Administration			
Sewing Administration			
Cigarettes Manufacturing Administration			
TOTAL	1,983,754	780,006	
GRAND TOTAL	5,884,816	1,832,652	2,738,596

B. AFTER NATIONALIZATION

(14 July 1964 to 31 March 1965)

Company or administration	*Net profits before income tax*	*Income tax*	*Central social services (10 per cent)*	*Housing (5 per cent)*	*Workers' share up to 31 March 1965*	*Workers' share from 1 April 1965 to 13 July 1965*	*Total workers' share*	*Provision for expansion*	*Net profits of establishment*	*Share credited to establishment*
National Insurance Co.	330,249	151,432	25,696	12,848	12,289	13,407	25,696	40,966	92,174	158,837
Rafidain Insurance Co.										
Baghdad Insurance Co.	62,701	34,804	2,092	1,046	2,092	—	2,092	6,974	15,691	22,665
Commercial Insurance Co. (for 7 months)										
Credit Insurance Co.										
Dijlah Insurance Co.										
Iraqi Insurance Co.										
Iraqi Re-insurance Co.	66,092	52,300	1,009	504	1,009		1,009	3,365	7,573	11,948
Iraqi Import and Distribution Co.	5,878		440	220	440	661	1,101	1,969	3,306	5,267
F. A. Kettaneh Co.										
Iraqi Stores Co.	16,646	2,149	2,990	1,495	1,002	1,988	2,990	3,343	7,522	13,856
Afro-Iraqi Trading Co.	32,754	14,011	1,406	702	1,406	—	1,406	4,606	10,543	15,229
Iraqi Grain Trading and Milling Co.	25,504	9,420	1,206	603	1,206		1,206	4,021	9,047	14,274
Iraqi Cement Co.	469,857	222,478	24,614	12,307	18,553	6,061	24,614	61,844	139,150	264,288
United Cement Co.	185,049	50,500	9,845	4,922	9,845		9,845	32,818	73,841	116,505
Euphrates Cement Co.	71,877	29,899	5,142	2,563	3,149	1,975	2,124	10,479	23,618	39,240
Rafidain Cement Co.	185,791	87,000	11,679	5,839	7,409	4,270	11,679	24,697	55,570	91,947
Rafidain Tobacco Co.										
Abboud Tobacco Co.										
Al-Ahliya Tobacco Co.	—(57,826)									
Estate Industries Co.	35,016	13,943	2,855	1,427	1,580	1,275	2,855	5,268	11,853	19,977
United Match Co.	55,729	984	4,105	2,053	4,105		4,105	13,686	30,794	48,586
Vegetable Oil Extraction Co.	330,340	147,500	12,902	6,401	12,902	9,130	22,032	43,007	96,767	139,774
Cotton Seeds Products Co.	334,441	157,473	15,206	7,603	13,272	1,934	15,206	44,242	99,544	158,992
Rafidain Detergent Co.	149,043	75,587	5,485	2,742	5,485	215	5,700	18,286	41,143	59,429
Asbestos Industries Co.	152,035	55,321	7,253	3,627	7,253		7,253	24,178	54,401	85,833
General Drugs Import and Distribution Co.	38,730	17,565	1,587	793	1,587	—	1,587	5,291	11,905	17,197
Iraqi Construction Material Co.	—(12,877)									
Northern Milling Co.	93,836	34,543	4,447	2,223	4,447		4,447	14,823	33,352	52,622
Technical Milling Co.	21,323									
Damurji Flour Co.	42,531	20,591	1,645	822	1,645		1,645	5,495	12,341	19,472
Rafidain Trading and Milling Co.	118,687		8,901	4,450	8,901		8,901	29,671	66,761	105,335
Iraq Bata Co.	142,881	60,500	6,178	3,089	6,178	1,038	7,216	20,594	46,336	66,930
Federation of Paper Manufacturing Co.	67,112	27,650	3,819	1,910	2,999	820	3,819	12,732	18,982	35,534
Iraqi Spinning and Weaving Co.	—(85,511)									
Fattah Pasha Spinning and Weaving Co.										

ANNEX XI (*continued*)

Company or administration	*Net profits before income tax*	*Income tax*	*Central social services (10 per cent)*	*Housing (5 per cent)*	*Workers' share up to 31 March 1965*	*Workers' share from 1 April 1965 to 13 July 1965*	*Total workers' share*	*Provision for expansion*	*Net profits of establishment*	*Share credit to establishment*
Iraqi Carpet Co.										
Iraqi Jute Industries Co.	72,145	16,391	5,860	2,930	4,110	1,750	5,860	13,700	31,778	55,905
National Leather Industries Co.	118,031	51,300	5,004	2,502	5,004	3,930	8,635	16,682	37,536	54,218
TOTAL	2,611,920	1,333,341	171,366	85,671	137,868	48,454	186,323	462,307	101,528	1,673,860
Government Purchasing Administration	1,533,064	764,732	57,625	28,813	57,625		57,625	137,353	209,043	446,396
Dairy Administration	40,927	6,758	2,562	594	2,562		2,562	8,541	17,774	26,315
Canning Administration										
Medical Cotton Administration.	—(45,245)									
Hammam al-Alil Cement Administration	—(170,372)									
Popular Shoe Manufacturing Administration	—(83,967)									
Sugar Manufacturing Administration	346,623	15,520	14,350	7,174	14,350		14,350	15,944	35,874	66,169
Mosul Spinning and Weaving Administration	149,589	64,865	6,354	2,977	6,354		6,354	14,120	33,535	47,655
Serganaz Cement Administration	—(146,864)									
Sewing Administration										
Cigarettes Manufacturing Administration	375,430	166,493	15,670	7,835	15,670		15,670	52,234	82,704	134,938
TOTAL	2,445,633	1,018,368	96,561	47,392	96,561		96,561	228,192	478,930	721,473
GRAND TOTAL	5,057,553	2,351,709	267,927	133,063	234,429	48,454	282,884	690,499	1,510,458	2,395,333

2. The industrial situation in Jordan

Communication presented by Jordan

BACKGROUND

The Hashemite Kingdom of Jordan is located in the heart of the Arab world; it covers an area of some 37,000 square miles (96,500 km²), and is divided geographically by the "great rift" in which lies the Jordan River and the Dead Sea. This rift drops to 1,292 feet below sea level at the Dead Sea.

The climate is of the dry Mediterranean type. While temperatures in the highlands and eastern part of the country are more extreme, winter temperatures rarely fall more than a few degrees below freezing, and summer temperatures seldom exceed 32°C; an exception is the Jordan valley, where temperatures tend to be higher. The rainy season usually starts in late October and continues through March or April, with the heaviest rains in January, February and March. Jordan's population in 1964 was 1,935,400, Amman and Jerusalem being the largest cities, with approximately 326,000 and 120,000 inhabitants respectively.

The economic setting in which Jordan operates has been affected by the vast problems arising out of the events of 1948. Within a few months, Jordan's population increased almost threefold without a corresponding increase in resources. Furthermore, Jordan was faced with the necessity of completely re-routing its trade and lines of communication. Previously these had been directed westward to the Mediterranean coast where modern ports, airports, highways, railroads and telecommunication facilities existed. The unusual pressures which Jordan faced made it necessary to compress into a much shorter period of time infrastructural developments which in most countries have taken place over a number of generations.

The people of Jordan, through their own efforts and with assistance from friendly nations, have been able to overcome many of the apparently insurmountable problems facing the nation in 1948. The data available indicate that the gross national product had increased from an average of JD 51.1 million in the years 1954 and 1955 to an average of JD 146.7 million in the two years 1963 and 1964, or an increase of 187 per cent in nine years. It should be added that this rapid progress was achieved despite the occurrence of a number of droughts. Moreover, a number of projects have also been initiated which have not yet borne fruit, but which will, when completed, lead to further large increases in national output. Meanwhile, the price level has remained remarkably stable during a period in which other countries have experienced serious inflation.

For comparison purposes, the following table gives data on the economic progress achieved since 1954.

Table 1. Industrial origin of gross domestic product

(JD million; at current factor cost)

	1954	1958	1963	1964
Agriculture and forestry	14.2	12.9	21.7	33.0
Mining, manufacturing and electricity	4.2	7.6	11.5	13.6
Construction	1.2	2.4	5.3	4.7
Transport	4.4	9.0	12.8	13.0
Trade and banking	9.3	14.4	27.3	28.2
Ownership of dwellings	2.3	3.3	9.4	9.9
Public administration and defence	9.1	15.6	17.6	19.7
Services	3.0	3.9	9.7	10.0
Gross domestic product:	47.7	69.1	115.3	132.1

Jordan is basically an agricultural country; about one-third of the economically active population is engaged in agriculture which, on the average, contributes about one-fifth of the gross domestic product. However, agriculture is a highly unstable industry in Jordan, because a large proportion of the total agricultural output is derived from dry farming in areas subject to frequent droughts. Because of the resulting severe fluctuations in agricultural production and income, primary emphasis has in recent years been given to irrigation schemes and soil and water conservation programmes. T' is involves the utilization of surface as well as underground waters available for the purpose of promoting agricultural development.

Jordan has nevertheless achieved considerable progress in expanding its agricultural output. In the two years 1954 and 1955, the average value of agricultural production was JD 11.5 million, whereas the corresponding figure for the years 1963 and 1964 was JD 31.6 million. During the last two years, the contribution of agricultural income to gross domestic product has averaged about 22 per cent. On the other hand, more than 18,000 hectares have been planted to different trees and vines, mainly olives, grapes and citrus. The area under olive production increased from 44,000 hectares in 1952 to 57,000 hectares in 1964. A large proportion of these trees have begun to bear fruit and Jordan has already attained self-sufficiency in these crops and looks forward to exporting sizable amounts to neighbouring and distant markets.

Owing to the expansion of irrigated lands, the improvement in production methods and the higher efficiency of farmers, vegetable production increased from an average of 120,000 tons during 1952-1954 to an average of 550,000 tons during the year 1964.

Meat and livestock products have also been increasing, although at a moderate rate. Shortage in meat production of sheep and cattle is partly balanced through imports and through rapid increases in the production of poultry meat; it will be further offset, in the near future, by substantial increases in fish production.

Industrial growth

The development of the industrial sector has been quite impressive. Income originating in mining, manufacturing, and electricity increased from JD 4.2 million in 1954 to JD 13.6 million in 1964. This represents an increase of about 224 per cent in ten years. Meanwhile, gross domestic product registered an increase of about 177 per cent, from JD 47.7 million in 1954 to JD 132.1 million in 1964. Thus the share of industry in the gross domestic product rose from 8.8 per cent in 1954 to 10.3 in 1964. This structural shift, slight as it may seem, indicates that industry has become an important element in the Jordanian economy and it is planned to make it even more important.

Since 1954, a large cement factory, a petroleum refinery, a number of foundries, a tannery, marble factories and an expanded phosphate mines plant have come into operation. Other industrial activities include milling, oil processing, textiles, bottling and brewing, tobacco products, footwear, metal products, furniture, detergents, food products, batteries, glass, printing and publishing, among many others.

Table 2. Manufacturing establishments employing five persons or more

Establishment	Number of establishments		Persons employed		Value of production (JD 000)	
	1954	1962	1954	1962	1954	1962
Food manufacturing	61	884	912	3,498	2797.7	4,289.7
Beverages	30	20	353	430	332.5	477.0
Tobacco and tombac	5	4	583	1,123	1075.0	2,112.6
Textiles	26	22	388	665	171.7	310.0
Clothing and footwear	57	125	906	2,018	348.7	1,036.0
Wood, furniture and fixtures	50	74	767	1,073	290.5	521.0
Paper and paper production, printing and publishing	22	36	530	881	332.4	482.0
Leather and leather production	11	3	71	218	55.1	400.0
Rubber products	3	6	20	141	41.0	115.0
Chemicals	27	23	452	333	341.5	450.0
Petroleum refinery	—	1	—	545	—	3,071.0
Non-metallic minerals	37	51	861	1,264	942.2	1,839.0
Basic metal production	31	64	392	719	196.7	462.0
Electric and non-electric machinery	18	24	496	600	240.0	350.0
Vehicle repair and assembly	11	47	256	870	84.7	290.0
Miscellaneous	32	28	231	522	66.2	525.0
Grand total	421	1,412	8,198	14,900	7,215.0	16,730.3

As can be seen from table 2, the number of manufacturing establishments employing five persons or more had increased from 421 in 1954 to 1,412 in 1962. Persons employed in those establishments increased from 8,198 to 14,900 during the same period, while the value of production rose from JD 7.2 million to JD 16.7 million, respectively. It will be noted that the increase in the value of production was largely due to the marked expansion which took place in food manufacturing, tobacco and tombac, clothing and footwear, leather and leather products, petroleum, non-metallic minerals, and basic metal production. Average labour productivity thus rose from JD 880 in 1954 to JD 1,123 in 1962, representing an increase of 28 per cent.

The industrial survey for 1963 indicates that there were in Jordan 5,258 industrial establishments employing 29,591 persons, including proprietors and family workers. The value of production of those establishments amounted to JD 28.34 million. Average labour productivity for those establishments was JD 958 per worker. However, this average rises to JD 1,272 per worker for establishments employing ten persons or more, and to JD 2,380 per worker for large establishments with an output value of JD 50,000 and over.

Table 3. Industrial survey, 1963

	Number of establishments	*Number of workers*	*Value of production (JD 000)*	*Productivity per worker (JD)*
All establishments	5,258	29,591	28,340	958
Establishments employing ten persons or more	552	15,421	19,622	1,272
Establishments with an output value of JD 50,000 and over	43	6,342	15,095	2,380

Some general remarks may be made with regard to the structure of industry as derived from the findings of the 1963 Survey.

First, the typical industrial unit in Jordan is small; almost 90 per cent of the total number of establishments employ fewer than ten persons, and most of these are engaged in food manufacturing, the clothing industry, shoe-making, furniture manufacture and metal-working.

Secondly, the bulk of production originates in a relatively small number of establishments, which by the same token also employ more people and contribute more to value added than would be warranted by their actual numbers. Only 10 per cent of the total number of establishments are responsible for over one-half of the industrial employment and 70 per cent of the total value added in industry.

Thirdly, the importance of large establishments is brought out even more clearly by comparing rows 1 and 3 in table 3. Less than 1 per cent of the total number of establishments employ over one-fifth of the country's industrial workers, account for over one-half of the total value of production, and contribute some 45 per cent of total value added.

A brief description of some of the main industrial establishments in Jordan follows.

The Jordan Phosphate Mines Company

Large quantities of phosphate ore are available in various parts of Jordan. Proven reserves are estimated at 130 million tons. Of these, 100 million tons are located at Ruseifa, which lies 15 kilometres north of Amman, and 30 million tons in the El-Hasa area, which is about 100 kilometres to the south of Amman. An additional 140 million tons are presumed to be available but these reserves have not been proven yet. The quality of Jordanian phosphate is considered to be among the best in the world.

Prior to 1953, a small company was founded to extract phosphate from the Ruseifa area only. But in that year the Government evaluated the assets of the company and established the Jordan Phosphate Mines Company with an authorized capital of JD 1.2 million, of which it held 51 per cent. For many years, this company has extracted phosphate from its mines at Ruseifa and in the last year or so has initiated some extraction at El-Hasa.

Meanwhile, the Government retained a specialized consulting engineering firm to determine the size and quality, markets, production techniques and transportation facilities relating to phosphate production from the El-Hasa area. The technical design and specifications of this project were issued for international bidding and tenders were awarded in 1964 and 1965. To ensure effective and efficient realization of this project, the Government created an implementation committee to supervise and co-ordinate construction works and also to establish the bases for integrating the Ruseifa and El-Hasa projects under one company. This amalgamation was effected as of 1 January 1966.

The Jordan Phosphate Mines Company employs more than 1,500 workers and their wages and salaries amount to approximately JD 300,000. The company's production of rock phosphate exceeded 850,000 tons in 1965 and is expected to surpass the 1 million ton mark by 1967. Almost the entire production of Jordanian phosphate is exported to European and Asian markets, particularly to India, Yugoslavia, Czechoslovakia and Poland.

Production and exports of phosphate for the period 1955-1965 were as follows (in 000 tons):

	1955	*1956*	*1957*	*1958*	*1959*	*1960*	*1961*	*1962*	*1963*	*1964*	*1965*
Production	166	209	262	294	338	392	445	681	615	604	852
Exports	155	177	255	268	278	301	341	400	369	627	605

The Jordan Cement Factories Ltd.

The Jordan Cement Factories Ltd. was established in 1951 with an authorized capital of JD 1 million. Of this, the Government held 49.5 per cent and the remainder was issued for public participation. However, the company's capital was doubled in 1959 and again was increased to JD 2.5 million in 1962. The company's concession extends over fifty years.

Cement production commenced in 1954 with a capacity of 110,000 tons per year. However, the rapid growth in cement consumption warranted the expansion of productive capacity by adding one kiln in 1960 and another in 1962. Production in 1963 amounted to 243,278 tons, of which 233,480 tons were consumed locally and the rest exported to neighbouring Arab countries.

About 600 workers are employed by the company and their annual wages and salaries amount to about JD 116,000.

Cement production has developed since 1956 as follows (in 000 tons):

1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
79	107	114	110	165	223	235	243	290	317

The Jordan Petroleum Refinery Ltd.

Jordan's consumption of petrol and petroleum products is estimated at 314,000 tons, valued at about JD 6.2 million. The growth rate of local consumption is put at 10 per cent per year.

The Jordan Petroleum Refinery was established in 1956 with an authorized capital of JD 4 million, of which the Government held shares worth JD 250,000. In 1961, the refinery's production amounted to 181,126 tons and reached 336,862 tons in 1964, of which 313,619 tons were consumed locally and the remainder exported to Saudi Arabia and Lebanon.

The refinery employed 730 workers in 1964 as compared with 590 workers in 1963. The 1964 figure excludes temporary workers whom the refinery retained for certain short-term projects. This increase is attributable to the fact that the company began distributing and transporting its products. Total wages and salaries amounted to JD 319,590 in 1964, representing an increase of JD 39,590 over 1963. Net profits in 1964 amounted to JD 720,000, thereby yielding a rate of return of 18 per cent.

Following are the refinery's production figures by type of fuel for the period 1961-1965 (in 000 tons):

	1961	1962	1963	1964	1965
Liquid gas	0.6	1.8	3.6	6.4	7.5
Benzine	37.2	43.6	46.9	53.1	61.2
Kerosene	39.6	47.0	54.3	66.0	66.7
Solar	41.2	62.4	103.8	108.2	134.2
Fuel oil	50.6	52.9	62.1	76.3	81.6
Asphalt	11.9	20.9	34.1	26.9	30.0
TOTAL	181.1	228.6	304.8	336.9	381.2

Cigarette companies

Cigarette manufacturing in Jordan dates back to the 1930's. At present, there are three major companies producing cigarettes: the Jordan Tobacco and Cigarette Company, the National Tobacco and Cigarette Company, and the Jerusalem Cigarette Company Ltd. The total paid-in capital of these companies amounts to JD 786,000. The total value of their annual production was JD 3.5 million in 1965. They employ 1,000 workers and total salaries and wages paid out amounted to JD 227,000 in 1965. Dividends have ranged between 10 and 15 per cent during the last ten years. The value of their exports is put at JD 500,000.

Jordanian cigarettes have become well known in neighbouring Arab countries, especially in Kuwait, Lebanon, Saudi Arabia and Iraq. They have proved capable of competing with foreign cigarettes in quality and price and are considered to be among the best brands in the Middle East. This is due to the method of processing and mixing locally produced tobacco with imported tobacco.

The cigarette industry in Jordan obtains between 65 and 75 per cent of its needs from locally produced tobacco, and imports the rest from abroad, mostly from the United States, Turkey and Greece. The Government limits the area planted with tobacco to 20,000 dunums, and the produce is purchased by the cigarette companies.

Vegetable Oil Company

The original idea behind the establishment of the Vegetable Oil Company was to refine and process various vegetable oils, and particularly olive oil, which is produced domestically in sizable amounts. In good years, Jordan's production of olive oil exceeds 20,000 tons. Domestic production of olive oil is expanding yearly owing to the increase in the number of trees planted.

However, the rise in the price of virgin olive oil and the increasing demand have rendered the process of refining it economically not viable. As a result, the company decided at the end of 1959 to produce vegetable ghee and concluded an agreement with a Dutch firm whereby the latter would supervise production and marketing operations. Production of vegetable ghee started in 1960. Jordan used to import large quantities of this commodity.

The company is at present conducting the necessary studies to expand its output. It is considering also the establishment of a plant to press seed oils such as safflower and sunflower, both of which could be grown locally and in particular in the Ghor area. Meanwhile the company is studying the possibility of installing a plant to produce margarine and another for oil hydrogenation.

The plant for refining vegetable oils was constructed in 1956 near the city of Nablus, with a productive capacity of 7,000 tons per year, capable of being expanded. The capital of the company was originally JD 200,000, but was increased to JD 500,000 in 1959.

Following are vegetable ghee production in recent years (in tons):

1961-1962	1962-1963	1963-1964	1964-1965
2,578	4,057	5,424	5,503

The Jordan Tanning Company Ltd.

The Jordan Tanning Company was founded in 1957 with a capital of JD 250,000, which was then raised to JD 400,000. The Government's share amounts to JD 100,000.

The company commenced production in 1961. It employs about 250 workers. The factory is considered one of the biggest and most modern tanneries in the Middle East.

Production in recent years has been as follows:

Product	1962	1963	1964	1965
Sole (tons)	288	264	222	361
Box (1,000 sq. ft.)	1,780	1,638	1,266	1,818
Lining (1,000 sq. ft.)	292	319	222	561

United Industries Corporation

This company was established in early 1960 with a capital of JD 325,000. Production commenced in 1961. It employs 240 workers, whose annual wages and salaries amounted to JD 42,000 in 1965.

The United Industries Corporation produces various kinds of wet batteries for cars. Its productive capacity is about 300 batteries every eight hours. Sixty per cent of production is exported to neighbouring Arab countries.

The company also produces reclaimed rubber and paper. Reclaimed rubber is used in producing various types of shoes and boots as well as battery containers. The productive capacity for this type of rubber is 3 tons per day. In addition, the company produces neon tubes which are used by commercial establishments for advertising purposes. Productive capacity is 100 metres per day.

Role of Government in industrialization

Industrial activity in Jordan falls mainly within the private sector. However, the Government performs a crucial role, which is partly regulatory and partly promotional in nature. The regulatory function arises out of the need to protect the public interest and general welfare, and to minimize the misdirection of limited resources within the framework of a generally free economic system. The promotional function arises out of the need to foster rapid industrial growth in a country where industry is still a newcomer to the economic and social structure. It consists in providing the proper environment and creating adequate institutional and financial systems to stimulate industrial growth. The measures instituted by the Government to encourage and accelerate industrialization in the country are summarized below.

Legislation

The law for the encouragement of foreign capital investment, No. 28 for 1955, and the law for the encouragement and guidance of industry, No. 27 for 1955, provide a number of important facilities for the establishment of new industries, including the following:

(*a*) Foreign capital is treated on an equal footing with local capital invested in similar industries; owners of foreign capital are permitted to transfer their annual earnings from Jordan in foreign exchange;

(*b*) Foreign capital may be repatriated in the exchange in which it was brought into the country without any hindrance;

(*c*) Foreign capital may be brought into the country in the form of cash or machinery, subject to the conditions agreed upon with the Ministry of National Economy.

Moreover, law No. 27 for 1955 grants special facilities to approved industries and development projects. These facilities include exemption from customs duty and all other fees in respect of all machinery, equipment and construction materials, and full exemption from income tax for three years as from the date of commencing production, and up to 50 per cent for the following two years.

Other facilities provided by the Government include, as the case may be, protection against foreign competition through non-importation of similar manufactures, and protection from local competition through the non-establishment of an identical industry, so long as the approved industry is capable of satisfying market demand in full.

Institutions

A number of government ministries and agencies are currently concerned with industry.

Thus, the Ministry of National Economy includes an industry section whose functions are to process licence applications to set up new industries or expand existing ones, recommend the provision of import licences for machinery, implement laws governing industry, and participate in decisions on tariff protection and on the direction of government investment in industry.

The customs and excise department of the Ministry of Finance participates in making decisions on tariff protection. The Ministry of Finance also participates in investing government funds in private undertakings.

The planning department of the Jordan Development Board is responsible for over-all industrial planning and review. It is in charge of placing contracts for feasibility studies and promoting industrial projects through the publication of brochures, special studies, etc.

More recently, an industrial advisory service has been established at the Ministry of National Economy in co-operation with the International Labour Office. This service has the following functions:

(*a*) Advising businessmen on industrial matters;

(*b*) Training persons engaged in industry;

(*c*) Presenting businessmen's problems to the government agencies concerned;

(*d*) Interpreting government policies to businessmen;

(*e*) Providing technical and economic appraisals of industrial projects;

(*f*) Providing "plant" industrial advisory services;

(*g*) Training experts' counterparts.

Equity participation

As part of its policy to encourage industrial development, the Government has resorted to investing some of its funds in industry. The presence of Government as an owner in industry is greeted by the industrialist as beneficial and by private investors as a sign of confidence. Moreover, government participation is considered to have contributed considerably to the growth of private ownership of industrial shares. As of 31 October 1965, government investments amounted to JD 6.2 million.

Industrial credit

It had long been recognized that scarcity of capital funds was one of the major obstacles facing industrial growth in Jordan. To alleviate the situation, the Government created the Industrial Development Fund (IDF) in August 1957 as an appendage of the Jordan Development Board, after combining the financial resources of three of its projects which had been initiated with the co-operation of the United States Operations Mission (USOM). USOM provided technical and financial assistance totalling JD 485,303 to develop the industrial and tourism sectors. The broad objectives of the fund were to increase industrial production and employment through expanding exports and/or decreasing imports. Industrial loans were given for the purchase of machinery only, whereas in the case of hotels they were given for construction and for the purchase of furniture and equipment. Both types of loans were for periods ranging between eight and ten years. Loans paid out by IDF since its creation until the end of June, 1965, amounted to about JD 1 million.

However, it has been realized since 1963 that, owing to lack of adequate financial resources, the IDF could not meet the demands for industrial credit. It was felt

necessary to establish an expanded institution with adequate resources to take over the functions of the IDF. The Industrial Development Bank was therefore created in July 1965 as a predominantly private institution with an authorized capital of JD 3 million. Of this, the Government would hold shares worth JD 1 million, while the remainder would be issued for public participation, including commercial banks. The bank commenced commercial operations on 15 October 1965, with subscribed capital of JD 2.24 million.

The bank's objectives are the following:

Encouragement, activation, assistance, expansion, development and renewal of industrial projects;

Increasing opportunities of work in the kingdom;

Assisting the growth and development of the stock market in the kingdom;

Encouragement of small local and manual industries, particularly through the establishment of co-operative societies and their support through technical assistance and loans;

Encouragement of financing of industrial projects from internal or external financial sources, whether public, private or international.

In addition, the Government has taken the necessary measures to increase the supply of various types of skills needed for industrial purposes. The number of trade and industry schools was increased from four in 1955-1956 to seventeen in 1963-1964. The number of students in these schools increased from 445 to 2,366 respectively. Moreover, training programmes at both the professional and managerial levels were initiated as part of the technical assistance Jordan receives from friendly nations and international agencies. At the same time, the Government has paid special attention to strengthening and supporting the co-operative movement in the field of industry. In 1965, there were eleven industrial co-operatives having 321 members. Adequate legislation has also been promulgated to organize management-labour relations and establish working hours and minimum wage rates.

Seven-year development plans 1964-1970

Conscious of the need to move the economy as rapidly as possible along the path of self-sustained growth and economic independence, and considering the smallness of Jordan's domestic market, its relatively high population growth rate, and its limited natural and capital resources, the Government of Jordan recognizes the importance of long-range planning to use these scarce resources in such a way as to take fullest advantage of their contribution to the achievement of the country's over-all economic and social objectives. In 1957, the Jordan Development Board was reorganized so that it became the central agency responsible for the formulation of national development policy through the preparation of comprehensive long-term development programmes.

Planning in Jordan is carried out in close co-operation between the Jordan Development Board and the various ministries and departments and representatives of the private sector. At the ministry level, planning officers are appointed, or planning committees formed, to maintain liaison between their ministry and the board, to participate in the preparation of sectoral programmes, and to follow up on the implementation of approved development projects.

In 1961, the five-year programme for economic development, 1962-1967, was issued, setting out a series of goals for the economy and containing a large number of specific study and action proposals. A number of the projects incorporated in that programme have been implemented or begun within the past four years.

Early in 1963, however, it became evident that some change of emphasis in the above programme was desirable, particularly in the direction of accelerating the process of making the Jordanian economy self-sufficient.

The seven-year programme is an integrated, comprehensive, economic blueprint which aims at moving Jordan as rapidly as possible along the path of economic independence and self-sustained growth. It therefore gives high priority to those sectors which would increase exports and/or reduce imports through the expansion of productive capacity. These sectors are agriculture, mining, tourism and manufacturing industry. At the same time, it calls for the implementation of projects in the supporting developmental activities, both social and infrastructural, which provide the manpower resources and facilities for the foregoing sectors.

The main goals of the seven-year plan, in order of importance, are the following: a major reduction in the balance of trade deficit and a major reduction in budget support; an increase in *per capita* income at as rapid a rate as possible, consistent with the aforementioned objective, and a reduction in the level of unemployment.

In quantitative terms, the seven-year programme aims at increasing the gross national product from JD 137 million in 1963 to JD 226 million in 1970, i.e. by about 65 per cent. This involves raising output *per capita* from JD 75 in the base year to approximately JD 103 in 1970. Secondly, the trade deficit will be reduced from JD 41 million in 1963 to JD 24 million in 1970; this deficit would then represent 11 per cent of the gross national product as compared with 30 per cent in the initial period. Employment opportunities are likewise programmed to increase at an annual rate exceeding 5 per cent.

To achieve these targets, the programme calls, among other things, for the following:

The increase in aggregate private consumption to be limited to 4 per cent per annum to offset population growth and allow an annual increase of 1 per cent in *per capita* living standards; aggregate private consumption is thus programmed to increase from JD 116 million in 1963 to JD 153 million in 1970;

The increase in public consumption to be limited so that recurring periodic expenditures of the Government would rise from JD 33 million in 1963 to JD 41 million in 1970 and those of local governments from JD 1.6 million to JD 2.4 million, respectively;

JD 274 million to be invested during the plan period, of which JD 145 million to be expended by the public sector (including local governments) and JD 129 million by the private sector; of this total JD 74 million to be allocated to agriculture and water development schemes, JD 55 million to mining, manufacturing industry and electricity, JD 20 million to tourism, and the remainder to infrastructural and social projects;

Jordan's exports of goods and services to be increased from about JD 20 million in 1963 to over JD 59 million in 1970;

Imports to be increased from JD 61 million in 1963 to about JD 83 million in 1970.

It can be seen that the ratio of exports of goods and services to imports of goods and services would rise from 47 per cent in 1963 to 85 per cent in 1970. The achievement of this goal would bring the Jordanian economy a long way towards becoming self-sufficient.

A summary will now be given of the contents of the seven-year plan programmes for the mining and manufacturing industries, and the development of electricity supplies.

Mining

At present the only mineral resources being economically exploited are phosphate, marble and salt, of which the latter two are quite small in value. In order to achieve a significant improvement in the balance of trade and national output by 1970, Jordan places heavy reliance on the production and exportation of minerals. This includes a large increase in phosphate production, the production of potash from the Dead Sea brines, an increase in marble exports, and the undertaking of an extensive exploration and feasibility programme with respect to a number of other possible mineral resources.

Phosphate

Jordan has for many years been producing and exporting phosphate. Extraction has been mainly from the phosphate mines at Ruseifa, but last year some extraction was initiated at El-Hasa. Almost the entire production is exported.

In 1962, a specialized consultant firm was retained by the Government to carry out the necessary exploration and viability study to determine the size and quality, markets, production techniques and transportation facilities relating to the phosphate reserves available at El-Hasa. The findings of the consultants are listed below.

In the area of about 500 km² in the vicinity of El Hasa (principally north and east of El-Hasa), nine ore parcels have been found close to the railway and desert highway. These parcels cover an area of slightly less than 10 km², and contain about 30 million tons of phosphate, of which 23 million tons are concentrated in three ore bodies. These will be exploited first.

Much of the ore is soft and grades about 70 per cent TCP.

The ore of all nine parcels, with the partial exception of one, lies close to the surface, which will make for economic stripping. Mining costs are expected to be considerably lower than at Ruseifa, where most of Jordan's phosphate production is presently centred.

Preliminary tests indicate that the recovery is expected to be higher than at Ruseifa.

Preliminary beneficiation tests indicate that the ore can be easily upgraded by simple dry separation and/or hydraulic classification to make it competitive with the best phosphate being marketed.

Transportation costs from El-Hasa to Aqaba will be considerably less than from Ruseifa to Aqaba or to Beirut, especially if a modern transportation technique is adopted.

The objective is to produce and export 2 million or more tons of phosphate per year by 1970. This should be worth about JD 7 million. Steps to be undertaken include:

Integration and expansion of present operations and organization into one large corporation responsible for all Jordan's phosphate production activities; this step was accomplished in January 1966;

An expanded programme of sales promotion;

Production from the low cost mines at El-Hasa at the rate of 500,000 tons per year, to begin by June 1966, and to constitute a rapidly increasing proportion of total production;

Construction of railway facilities from El-Hasa to Aqaba to accommodate the increasing volume of phosphate shipments; prior to 1968, phosphate will be transported by road to Aqaba from El-Hasa and Ruseifa, and to a lesser extent to Beirut from Ruseifa; the study pertaining to the location of the railway facilities has been completed and design of construction will be ready in a few months;

Additional storage and loading facilities for expanded exports of phosphate at the port of Aqaba to be completed by 1966.

Potash

The Arab Potash Company was founded in 1956 to extract potash and other minerals from the Dead Sea brines. Specialized consultant firms were employed to carry out the necessary economic and technical studies and designs of the project. These have been completed and steps are well under way to secure the necessary financing.

The objective is to produce and export at least 500,000 tons of potash per year by 1970 worth over JD 5 million. To achieve this, the requirements listed below must be met.

Pan and dikes capacity and related plant capacity must be 500,000 tons per year.

The Safi-Aqaba road of about 185 km must be constructed to facilitate the transportation of potash to Aqaba and supplies from Aqaba to Safi. The lay-out of the road is completed, and total cost is estimated at JD 3 million. While the road will be constructed primarily for potash, it will serve the agricultural areas around Safi and the mineral developments in the Wadi Araba.

The port of Aqaba loading facilities must be expanded.

A town must be developed following an approved plan at or near Safi for the employees and service workers of the Arab Potash Company.

The expansion of the potash plant should occur about 1975 to increase production; the timing of this expansion will be determined largely by the markets which have been developed in the preceding years.

Marble

There are four working marble companies in Amman, in addition to a new company which is expected to commence production shortly. In 1961-1962, these companies employed 210 workers, produced JD 148,000 of output, and exported JD 44,000 of marble and related products.

The objective is to export not less than JD 150,000 worth of marble by 1970, and to satisfy all local demands. Although the growth of marble exports has been encouraging, a feasibility study concerning the various export markets for different kinds of products should be sponsored by the Jordan Development Board, in conjunction with the Ministry of National Economy and the Marble Companies. Moreover, a small tech-

nical section related to marble should be considered for the Amman industrial school or some other appropriate institution following the report of the feasibility study.

Copper

Some copper prospects have been located on the escarpment of the Wadi Araba and considerable ground surveying has been conducted by Jordanian geologists and the German Geological Mission.

A feasibility study has been carried out to ascertain the extent of deposits of copper and silicates in and near Wadi Abu Khusheiba in the Wadi Araba, and to evaluate the economic viability of exploiting these deposits. Further studies are needed, however, to determine the economic soundness of the scheme. It is therefore proposed to develop mines and profitable plants for the commercial production and export of copper, provided that such a programme has been found to be economically viable.

Iron

An iron deposit has been discovered in the Ajloun area; but at present its limited size makes it uneconomic for exploitation except in conjunction with the making of copper concentrates, or if enough additional deposits are discovered to justify exploitation. Further ground surveys are required.

Sulphur

Deposits of sulphur are found in areas north and south of the Dead Sea, and considerable exploration has been conducted. Further work will be required.

Petroleum

Earlier drilling in Jordan was unsuccessful in finding oil for a number of reasons: the geological information available was very limited; the companies with concessions allocated only limited funds for their operations in Jordan; the equipment used was not the most suitable for the requirements of Jordan.

In 1964, a concession was granted to an American company to undertake drilling. Drilling operations are well under way. Consequently no allocations for this activity have been made or revenue anticipated under the seven-year plan.

Manufacturing industry

Jordan continues to import a significant proportion of its total consumption of manufactured goods. On the other hand, exports of such goods constitute a limited proportion of local production. As a result, this sector accounts significantly for the adverse trade balance. In so far as imports of consumer goods are determined by personal income, the increases in the latter projected in the seven-year plan will exacerbate the payments gap unless local production is expanded to replace imports and/or to increase exports. Such an expansion in production is the objective for this sector.

Two specific obstacles handicap industrial development in Jordan—shortage of local raw materials and a small domestic market. Against these, Jordan is favoured by an easily adaptable and potentially productive labour force, a sound transport system, and established trade connexions with neighbouring countries. Above all, the fact that industry has reached its present level and that the major limitation on faster development has been lack of finance rather than lack of opportunity or entrepreneurial ability, this sector may be expected to contribute effectively to the over-all objectives of the plan.

The basis of the manufacturing industry programme has been a detailed scrutiny of the viability of individual industries with regard to consumption patterns, potential import substitution, output, and capital requirements. These industries are expected to operate in the private sector, the role of the Government to be confined to the creation of an economic climate in which industry can flourish through encouragement, technical advice and training, and the establishment of an adequate industrial credit system.

The quantitative targets for manufacturing industry consist of increasing local production by 62 per cent and exports by 72 per cent as between the years 1963 and 1970. Consumption of manufactured goods is assumed to increase by 41 per cent during the plan period.

New products envisaged under the programme are the following:

(*a*) Food and feed: animal feed, biscuits, confectioneries, glucose and starch, dairy products, fruit and vegetable juices, table salt, yeast, refined sugar;

(*b*) Beverages and tobacco: carbonated beverages;

(*c*) Textiles and clothing: woollen clothes, underwear, blankets, rugs, cotton piece-goods;

(*d*) Non-metallic minerals: concrete pipes, ceramics, superphosphates, sheet glass, glass bottles;

(*e*) Petroleum refinery: expansion of existing capacity;

(*f*) Other: cosmetics, pharmaceuticals, screws, shoe polish, rails, barbed wire, paper cartons, buttons, cleaning products, batteries, auto parts, cardboard, paint, building hardware, plywood, ropes, truck and bus assembly, plastic electrical fittings, corrugated cardboard, steel bars, and reinforced cement poles.

Total fixed capital requirements of these industries were estimated at JD 8.5 million, of which JD 6.5 for the purchase of machinery, JD 0.3 million for land, and JD 1.7 million for buildings.

In addition, the industrial programme contains the following proposals designed to bring about the economic and institutional climate in which private enterprise can be expected to achieve the foregoing goals:

Re-organization of the Government structure in so far as it impinges on industry;

Re-structuring of the Ministry of National Economy to make it a more fully effective promotional and advisory agency for industry;

Creation of a standards bureau;

Re-structuring and strengthening of the Customs and Excise Department;

Effective promotion of foreign investment in Jordan;

Reconsideration of laws governing customs duties, taxation, and encouragement of industry;

Establishment of an industrial development bank with sufficient capital resources to enable it to provide credit in adequate amounts.

Electricity supply

The public electricity supply in Jordan is less than twenty years old and in many respects still at the pioneer and formative stage, as the total load does not yet exceed 26,000 kW. Capital already invested is about JD 5 million and persons employed about 1,000. This gives an investment of some JD 5,000 per employee,

reflecting a relatively high capital content of electricity supply in comparison to other industries.

There are twenty-seven licensed undertakings, comprising twenty-three municipalities and four companies, with the latter supplying some 80 per cent of all power consumed. Undertakings vary in size from the largest, in Amman, with a maximum load of over 16,000 kW, to small villages with loads of under 20 kW.

The development of the public electricity supply in Jordan has followed the familiar pattern observable in most parts of the world, that is to say, undertakings have come into being more or less spontaneously in response to public demand. The driving force in the case of companies is the profit motive, and in the case of the municipalities a sense of public duty. Up to now there has been no official legislation in Jordan to govern questions pertaining to power supply and State control has been at a minimum. The Government has however been fully aware of the wastefulness inherent in a large number of small localized undertakings and has endeavoured, not without success, to encourage the merging of adjacent undertakings in the north of the country. No such integration is as yet justified in the south owing to the small size and scattered nature of the undertakings.

Approximately 50 per cent of the total population live in electrified areas of which more than half are already connected, so that between 25 and 30 per cent of the population is now supplied.

Only one form of tariff exists, namely, the variable or "stepped", block type, where the price and quantity related to each block is varied to suit the policy and economic circumstances of the particular undertaking. The selling price of power in the primary block rate varies between 30 and 60 fils per unit and in the lowest block rates between 15 and 30 fils. The average selling price for the whole country is about 20 fils, the lowest (Amman) being about 19 fils. All undertakings make a connexion charge, which is often in the region of JD 10.

The provision of capital has been a continuing problem for both municipal and company undertakings, particularly where expansion has been taking place rapidly, as in Amman and Jerusalem. In the case of companies, finance comes mainly from private investment aided by loans from Government and outside sources. The municipalities, for the most part, have had to rely on loans provided from the Government's municipal loan fund.

It is considered that the initial pioneering stage of public electricity supply in Jordan, as referred to earlier, is now at an end and that a carefully planned programme of development is now required. To mention one important aspect, namely, generation, it is recognized that the operation of a large number of small isolated generating sets is inefficient and that the concentration of generation in fewer and larger units should be aimed at. This is underlined by the fact that at present 96 per cent of the total number of generating sets produce only 22 per cent of the total power. Another serious problem inherent in small undertakings is their inability to pay salaries to professional employees commensurate with the level of skill and experience called for in the administrative, commercial, accountancy and, above all, engineering fields of electricity supply.

The electricity programme in the seven-year plan contains the provisions listed below.

Organization of electricity supply

Electricity supply services are to be fully integrated, so that a Jordan Electricity Authority is set up whose main function will be the generation of all electrical power required and its transmission in bulk to distribution undertakings in the northern area of the kingdom, and the northern area is divided into four distribution areas and all undertakings within such areas are merged.

The necessary legislation to provide for these changes has been drafted. It will also provide for a greater measure of control over the industry by the electricity division of the Ministry of National Economy, and institute a set of safety regulations covering persons employed in the industry as well as the general public.

Generation

In pursuance of the policy set out in the previous paragraph, a central thermal station (probably steam) will be constructed to provide base load energy with an initial capacity of about 30,000 kw. In addition, the five largest and most efficient diesel plants now existing throughout the northern area will be retained during their working life to meet the peak load. In addition, a 30,000 kW hydro-project on the Yarmouk river will be used to meet the peak load proper. This project is now under construction and is expected to be commissioned during 1968-1969.

Transmission

A 132 kilovolt transmission grid is to be constructed in the northern part of the kingdom. This will take the form of a ring and will link all the above-mentioned stations, the sections between Zerqa (where the new thermal station will be located) and Jerusalem probably being of double-circuit construction. It is estimated that the voltage of 132 kv will cater for the load to be expected in north Jordan over the next twenty-five years or so. The life of the overhead lines—which will be of steel tower construction with aluminium conductors—is estimated to be at least twenty-five years and in the favourable climate of Jordan may easily exceed thirty years.

Primary distribution within the distribution areas will be by means of 33 kv lines. Some 1,000 km of these will be built under the seven-year programme, which calls for the shutting down of all existing small stations while at the same time providing supplies to meet the needs of villages and towns with 1,000 inhabitants or more, with transformation direct to 400/230 volts. There will be no intermediate voltage, except in urban areas where 6,600 volts will be used as feeders to substations.

It is expected that the present demand for electric power will increase by about 15 per cent per annum over the next seven years, giving a total requirement of some 340 million kWh generated by 1972. This expansion allows for all probable industrial development within that period, together with a modest programme of extension into the rural areas.

3. The industrial situation in Kuwait

Communication presented by Kuwait

Introduction

Whereas most developing countries depend primarily on an agricultural sector which is primitive in nature, Kuwait depended in the past on marine resources which, through pearling, fishing, commerce and transportation, provided the major part of its income. The geographic location of Kuwait encouraged the development of sea transportation and commerce.

These conditions brought into existence certain types of industries, of which ship-building was very important. Together with this industry, other types of simple crafts were developed to satisfy domestic needs. The discovery of petroleum, however, brought about a complete change in the country's economic structure. Capital investment grew in the different economic sectors, contributing to the development of the industrial sector. As a result, certain industries directly connected with the construction sector, such as the tile and brick industries, blacksmithing and carpentry, came into existence. The development of these industries, however, was haphazard and was not based on economic viability studies. Moreover, the liberal legislation existing at the time contributed to the haphazard emergence of such industries.

Kuwait now depends mainly on petroleum, with the huge annual oil revenues constituting the prime mover of economic activities.

This dependence on one major source of income requires that serious measures should be taken to expand industrial activities. For although the petroleum wealth of Kuwait is huge, it is by no means limitless in quantity. Furthermore, given the great technological developments of our day, the utilization of atomic energy may ultimately weaken the position of oil as a source of energy. Atomic energy has already been utilized in the operation of submarines and power-generating plants, and, through intensive research, in the operation of huge industrial plants. Therefore the day may come when oil takes second place as a source of power, as did coal following the expansion in the exploration and utilization of petroleum.

But, although oil is threatened by these technological advances, its role in the development of new industries has latterly been increasing, especially with the rapid expansion in the petrochemical industry.

Position and structure of the industrial sector in Kuwait

An investigation of the industrial position in Kuwait necessitates a study of the bases of the industrial structure, namely, the country's natural wealth, capital, labour force and, finally, the level of technology.

Kuwait's natural resources consist of petroleum, natural gas, marine wealth and quarrying.

Petroleum and natural gas

Petroleum is the main wealth of Kuwait and the primary source of its income. The ratio of oil revenues to total Government revenues amounted to about 94 per cent in 1963-1964, 93.3 per cent in 1964-1965, and 94.6 per cent in 1965-1966.

Kuwait began producing oil in 1946. Production jumped rapidly from 787,500 tons in that year to 12 million tons in 1949 (or roughly fifteen times the quantity produced in 1946), 36.3 million tons in 1962, 81.5 million tons in 1958 and 114.2 million tons in 1964.

Natural gas is second in importance to petroleum. The quantity of natural gas produced in 1962 was estimated at 337.5 billion cubic feet, of which only about 25 per cent was utilized. The quantity of natural gas produced in 1964 was estimated at about 365 billion cubic feet, of which only about 20 per cent was utilized. However, if we take Kuwait's share from the neutral zone, the estimated quantity of natural gas produced would amount to approximately 410 billion cubic feet.

Marine wealth

Since the Persian Gulf was the prime source of life for Kuwait in the past, it is still capable of offering several opportunities to industry.

Ship-building

Most coastal countries depend on sailing, ship-building and related services for their livelihood. Like other coastal countries, Kuwait formerly depended on the manufacture of sailing boats and related activities such as sea transport, pearling and fishing, and it is capable of reviving this traditional industry, which is the major indigenous craft.

Fishing and related industries

The coastal area of the Gulf is a natural shelter for fish. The calm and warmth of the Gulf waters probably account for the great variety of fish. Indeed, all information on this source of wealth indicates the need for an extensive survey covering the establishment of fisheries, the organization of fishing periods and the establishment of industrial plants to prepare and preserve this wealth, especially high quality fish such as shrimps, which are exported to Europe and the Americas. Such operations, if carried out on a modern technical basis, will undoubtedly enhance the country's wealth from this source.

Salt and its derivatives

Table salt and other types of salt are another form of wealth which can be extracted from sea water. This, however, requires technical studies to determine the types of salt that can be extracted, the possible expansion of production, the economic cost of processing, preparing and marketing, and other possible uses of salt.

Quarrying materials

The belief is held in some quarters that the quarrying localities of Kuwait may be suitable for certain types of industry such as the construction industry. To determine the suitability of the soil for industrial purposes it is necessary to undertake a close and careful geological survey and other studies.

Industrial financing

Capital in Kuwait is abundant, but only a small portion of it is channelled into the industrial sector. This situation has, in many cases, led the Government to finance industry either by establishing industrial plants such as the Kuwait Limestone Company, the Kuwait

Prefabricated Housing Company, the Tile Factory and the Salt, Chlorine and Caustic Soda Company, or by participating in the equity of several industrial firms such as the Kuwait National Industries Company, the Kuwait Flour Mills Company, the Kuwait National Petroleum Company, and the Petrochemical Industries Company. The three companies in whose equity the Government has participated, but which have not been offered to the public for general subscription, are the Kuwait Asbestos Industries Company, the Kuwait Chemical Fertilizers Company, and the Kuwait Prefabricated Housing Company.

Government participation in the capital of the above-mentioned companies ranges between 38.25 and 80 per cent. Total government participation in the capital of the thirteen industrial joint-stock companies (including companies in the oil sector) amounted to KD 19,202,700 at the end of 1964, representing 50.93 per cent of the total authorized capital of those companies, which amounted to KD 37,697,345.

The ratio of Government participation in the equity of the industrial joint-stock companies may be considered high. This is due to many factors, the most salient of which is that the financial requirements of some of the existing industrial projects are considerable and beyond the capacity of the private sector. Likewise, the relatively long period of gestation, which may range from three to five years, tends to discourage private investors from industrial ventures. Because the private sector is inclined to concentrate its investment on low-cost, quick-yielding commercial or industrial projects, the Government has assumed the responsibility of investing in these large industrial projects, an action which, it was believed, would encourage the entry of the private sector into a particular type of long-term economic activity so badly needed by the country, and assist the private sector by providing the huge funds required by those large industries.

Moreover, through the Ministry of Finance and Industry, the Government has provided loans to many Kuwaiti industrial joint-stock companies; such loans, at the end of 1964, amounted to KD 7,496,020.

Another source of industrial credit in Kuwait is the Savings and Credit Bank, a government bank first established in October 1960 as the Credit Bank. By virtue of law No. 30 of 8 July 1965, all the assets and liabilities of the Credit Bank were surrendered to the new Savings and Credit Bank. By virtue of the same law, the capital of this bank was increased from KD 7.5 million to KD 20 million. This increase in capital, together with the authorization to borrow, against the guarantee of the Government, an amount equal to subscribed capital, has enabled the bank to widen the scope of its activities.

The bank actually started providing industrial loans during the fiscal year 1962-1963. In that year, its loans amounted to KD 371,000, representing 11.2 per cent of the total approved loans.

Although the ratio of industrial credit to total credit granted by the bank was increased during the fiscal year 1964-1965, it was still considered low. Total credit granted in that year amounted to KD 7,496,866 and total industrial credit to only KD 936,250, representing 12.4 per cent of total approved bank loans (see table 1).

Table 1. Loans approved and granted by the Savings and Credit Bank from the time of its establishment up to 31 March 1965

(Percentage of total)

	Industrial loans	*Real estate loans*	*Agricultural loans*	*Loans granted to government employees*
From the time of its establishment up to 31 March 1962:				
Approved	—	13.8	—	86.1
Granted	—	6.7	—	93.2
1962-1963:				
Approved	11.2	41.9	0.5	46.2
Granted	10.9	30.5	0.2	58.7
1963-1964:				
Approved	5.7	34.4	2.1	57.7
Granted	4.9	26.9	2.1	66.0
1964-1965:				
Approved	12.4	36.0	1.4	50.0
Granted	7.2	32.1	1.3	59.1
TOTAL LOANS GRANTED	5.8	25.6	1.1	67.4

SOURCE: This table was prepared by the Financial and Economic Committee of the Kuwait Chamber of Commerce and Industry and is based on the published statistics of the bank.

Table 2, which illustrates the bank's industrial activities, shows that, whereas approved loans in the fiscal year 1962-1963 numbered eighteen, such loans numbered twenty-seven in the fiscal year 1964-1965. The amount of the loans for the latter year was KD 936,250, representing an increase of 152 per cent over the 1962-1963 figure and 226 per cent over the 1963-1964 figure.

By the end of March 1965, 47.5 per cent of the total industrial loans had been granted to the producer goods industries, 34 per cent to the manufacturing industries and 18.5 to the services and repairs industries.

From the above figures, we can see that, by the beginning of 1965, the actual participation of the public sector in the financing of industrial enterprises amounted to more than KD 17 million, including the participation of Government in the equity of the industrial companies and the loans actually granted by the Savings and Credit Bank. This figure is high and represents roughly 140 per cent of the share of the private sector in the paid-up capital of these industrial enterprises, which amounted to KD 12.3 million at the end of 1964.

Sources of private financing

Because of the high level of national income in Kuwait, capital is abundantly available in the private as well as in the public sectors. However, private capital in Kuwait has been channelled into tangible types of investment such as land and real estate, and into commerce. Part of it has leaked out for investment abroad. It has moved slowly into the industrial and utilities sectors.

The preliminary estimates of national income recently published by the Planning Board show the importance of income derived from tangible investments and from investment abroad, compared with the total sources of private income (see table 3).

Table 2. Industrial loans of the Savings and Credit Bank from the time of its establishment to 31 March 1965

Type of industry	Loans approved						Loans granted		
	1962-1963 Amount	No.	1963-1964 Amount	No.	1964-1965 Amount	No.	1962-1963 Amount	1963-1964 Amount	1964-1965 Amount
Pipes	200,000	1	—		140,000	2	150,000	50,000	40,000
Engineering industries	50,000	1	100,000	1	—		50,000	50,000	—
Carpentry	45,000	3	50,800	3	12,000	3	35,000	50,800	3,100
Ice storage	15,000	1	55,000	4	92,000	4	9,000	45,000	55,230
Printing and publishing	20,000	1	20,000	1	—		19,500	5,000	15,500
Bicycles	26,000	5	11,000	3	24,150	8	13,000	8,000	19,900
Motor-car spare parts	—		20,000	1	—		—	—	13,791
Ice manufacture	—		15,000	1	—		—	—	15,000
Tile, marble and mosaic	—		10,000	1	7,400	1	—	3,500	6,500
Blacksmithing	6,500	2	3,000	2	8,700	2	4,590	3,350	6,000
Tailoring	4,500	1	—		—		4,500	—	—
Sweets	3,000	1	—	1	10,000	1	3,000	—	—
Decoration	—		—		6,000	1	—	—	5,000
Forage	—		—		50,000	1	—	—	—
Fishing	—		—		250,000	1	—	—	250,000
Insulating materials	—		—		30,000	1	—	—	25,000
Ship-building	—		—		6,000	1	—	—	6,000
Flour-milling	—		—		300,000	1	—	—	—
Miscellaneous	1,000	2	2,000	1	—	1	250	—	—
TOTAL	371,000	18	286,800	18	936,250	27	288,840	215,650	461,021

SOURCE: Annual report of the Savings and Credit Bank for the year ending 31 March 1965.

Table 3. Preliminary estimates of national income for the years 1962-1963 to 1964-1965

(In KD million)

	1962-1963	1963-1964	1964-1965
Wages and salaries			
Public sector	48.8	59.6	68.2
Private sector	73.8	75.0	74.0
Oil sector	14.6	15.0	16.0
TOTAL	137.2	149.6	158.2
Employment			
Family income from employment	38.0	41.4	45.8
Properties			
Family income from rent	40.5	42.3	46.0
Family income from interest and returns	15.7	18.0	24.6
Income in the privately organized business sector	1.8	2.0	2.5
TOTAL	58.0	62.3	73.1
Surplus arising in the organized private sector	4.0	4.7	5.2
Different government Revenues	204.0	217.0	231.7
Estimates of gross domestic product	441.0	475.0	514.0

SOURCE: The Planning Board, estimates of national income.

Although it is difficult to estimate the financial investment of the private sector in Kuwait, the facts cited below indicate the magnitude of such investments. The authorized capital of all the joint-stock companies in Kuwait amounted to KD 59 million at the end of 1964 and the authorized capital of all the industrial joint-stock companies amounted to about KD 38 million, of which the private sector's participation amounted to KD 18.8 million, or 49.5 per cent of the total authorized capital. The paid-up capital of these industrial companies, however, amounted to KD 21 million at the end of 1964, of which KD 12.3 million were advanced by the private sector, an amount which represents 58.6 per cent of the paid-up capital. However, if the loans which have been contracted by these companies are added to the paid-up capital, the ratio of the private sector's participation drops to 42.4 per cent.

Apart from private investment in joint-stock companies, the estimated total investment of the private sector in all the private business enterprises in Kuwait now amounts to more than KD 100 million. The accumulated capital of the private sector was estimated at KD 27 million in 1962 and at KD 47 million in 1963. The major sources of this accumulated capital were the savings and business profits of this sector.

Role of local banks in industrial financing

Although capital is abundantly available in the private sector, it shies away from industrial ventures. It therefore needs encouragement and support. Banks in Kuwait can indoubtedly play an important role in this field. A study of bank deposits, loans and advances shows that the availability of ample deposits and liquid funds makes it possible for banks to provide working capital to industry.

Foreign investment in Kuwait

If investment in the oil sector is excluded, the total foreign capital invested in Kuwait becomes quite insignificant. This is due to the fact that no such capital is needed in Kuwait unless it is linked to foreign skills.

The companies' law clearly states that the minimum Kuwaiti capital in any company should not fall below 51 per cent. As far as joint-stock companies are concerned, although the law stipulates that stockholders should be Kuwaiti nationals, it opens the way to foreign participation in special cases requiring the approval of the government authorities concerned.

Thus, foreign investment in Kuwaiti joint-stock companies was dictated by the need for technical and managerial experience. It was also dictated by the need for outlets in the international markets. Two international companies have participated to the extent of 40 per cent of the capital of the Chemical Fertilizers Company. This represents the largest foreign participation in the equity of industrial companies in Kuwait.

The labour force

Statistical estimates indicate that the total labour force in Kuwait exceeds 175,000. Other estimates, however, put the total at between 150,000 and 175,000. The main part of the labour force is in the public sector or under special contracts.

At the end of 1964, those employed in the government sector were estimated at 69,956, of whom 30,680, or 44 per cent, were Kuwaitis, and 39,276 or 56 per cent, were non-Kuwaitis. Of the non-Kuwaiti labour, 48 per cent were non-Arabs. Total salaries and wages paid in 1964 by the Government were estimated at KD 60.9 million, of which KD 28 million, or 46 per cent, were paid to Kuwaiti nationals and KD 34 million, or 54 per cent, to the non-Kuwaiti part of the labour force in the government sector.

According to the first industrial census, published in 1964, those employed in the industrial sector, including the oil sector, numbered 27,669, or 15.1 per cent of the total labour force. These were distributed among the industries in the country as follows: 6,063, or 21.9 per cent, in government industrial enterprises; 4,265, or 15.4 per cent, in establishments employing fewer than five persons; 10,402, or 37.6 per cent, in establishments employing five persons or more; and 6,940, or 25 per cent, in the production and distribution of oil.

Table 4. Industrial employment in Kuwait in 1963

Type of industry	*Number of persons employed*	*Percentage of total*
Production of oil	6,470	23.3
Distribution of oil	470	1.7
Repair and manufacturing (employing 5 persons or more)	10,402	37.6
Repair and manufacturing (employing fewer than 5 persons)	4,265	15.4
Government industrial establishments	6,062	21.9
TOTAL	27,669	99.9

Employment in the construction sector was estimated at between 20,000 and 25,000 persons. Finally, the number of persons employed by the different commercial enterprises, banks and insurance companies, was estimated at between 40,000 and 45,000.

It is to be noted that the greater portion of the labour force is employed not in manufacturing but in the repair industries, which, according to the industrial census of 1963, employed about 8,800 workers, or 42 per cent of the total work force in all industrial establishments, excluding the petroleum enterprises.

Scientific and technical progress and level of technology

Although economic progress depends on other factors as well, technological advancement is singularly important to the process of development. Economic superiority belongs to countries which, through scientific and technical advancement, possess the most efficient factors of production, transport equipment and distribution and marketing facilities.

One glance at the position of Kuwait is sufficient to indicate the country's dire need for such imports as capital goods and transport equipment and for improvements in its distribution and marketing facilities. It will also show Kuwait's limited industrial potentialities and the absence of the kind of technology necessary for efficient production and competition abroad.

The Government of Kuwait has made special efforts to raise the level of its labour force by sending groups abroad for training and by establishing technical and vocational schools. One such school was established to provide trainees with modern industrial techniques; and a secondary commercial school has already been established. Private enterprise has also contributed to the preparation of vocational and technical programmes. This is particularly true of the Kuwaiti joint-stock companies, especially the Kuwait National Petroleum Company, which has provided technical and vocational training programmes, and sent several groups for training abroad. Other petroleum companies also provide regular training courses which can be improved in number and in quality in order to meet the particular needs of industry. Despite the efforts which are being undertaken by the public and private sectors, Kuwait still badly needs a greater number of technically trained workers, especially if it decides to undertake large industrial and agricultural programmes in the future.

Progress involves not only factors of production but also scientific procedures. A successful project is one that is based on a thorough feasibility study covering the financial, technical and marketing aspects. The marketing problem in a country like Kuwait is of crucial importance and should be given due consideration.

INDUSTRIAL LEGISLATION

The industrial development law

This law was passed on 4 March 1965. It aims at organizing, encouraging and developing national industries on a scientific, technical and economic basis.

The law defines an industrial firm as an establishment engaged basically in transforming raw materials into either finished or semi-processed products, or transforming the latter into fully processed products. This definition also includes establishments engaged in the mixing, assembling, filling or packing of products, if these operations are carried out mechanically.

Article 4 of the law provides for the establishment of an industrial development committee composed of the Minister of Finance and Industry or his deputy as chairman, representatives of the port and customs administration of the Ministry of Finance and Industry, the industrial affairs department of the Ministry of Finance and Industry, the Ministry of Commerce, the Planning Board, the Savings and Credit Bank and

three representatives from the private industrial sector to be nominated by the Kuwait Chamber of Commerce and Industry. This committee is responsible for studying and recommending proposals pertaining to the development of national industries, including the adoption of measures for their organization, protection and encouragement, for studying applications submitted by new industrial enterprises and for recommending measures pertaining to the standardization of measurements and specifications.

Article 6 of the law requires owners or managers of existing industrial establishments, or of establishments under construction, to register within six months from the date of the enforcement of the law, and no industrial firm will be licensed unless it has been established in accordance with the provisions of the law. Upon the recommendations of the Industrial Development Committee, which will be made within sixty days from the date of receipt of the application, the Minister of Finance and Industry may grant or refuse the licensing of industrial establishments, and, in the latter case, must state the reasons for such refusal. In cases where licensing is granted, approval would be conditional upon joining the Kuwait Chamber of Commerce and Industry and adhering to the provisions of laws pertaining to the standardization of measurements and specifications. Licensing is granted in the light of certain considerations pertaining to the economic requirements of the country and the potentialities of local consumption and exports. The laws reserve for the Minister of Finance and Industry the right to revoke licences or to withdraw any privileges granted under the law if applicants fail to start contracted work, fail to produce within the specified period, introduce alterations in the firm's objectives or violate the conditions under which licences have been issued.

Exemption from taxes and duties

Upon the recommendation of the Industrial Development Committee and the consent of the Council of Ministers, the Minister of Finance and Industry was empowered to exempt industrial establishments for a period of ten years from all existing taxes, including income tax, or from any other tax that might be imposed in the future, from the date of licensing or registration or from the date of the commencement of production. These tax privileges include also:

(*a*) Exemption from customs duty of all imported machinery, equipment and spare parts, and of raw materials and semi-processed goods used by industrial firms for production purposes;

(*b*) Exemption of exports of local industrial products from all export duties and taxes;

(*c*) Raising of customs duties on competing imported goods for a period not exceeding ten years (the high customs tariff, however, may be extended beyond ten years if the economic circumstances requiring the continuation of such protection necessitate such extension).

Provision of State land for industrial purposes

The law extends to industrial firms the privilege of applying for free plots of land for plant construction, the size depending on the needs of the particular enterprise and its production requirements.

Technical information and studies

The law provides for assistance in the form of information, statistical data, technical maps, exploration results and other studies and research available at the Ministry of Finance and Industry relating to specific industries. The Government is empowered to contribute financially towards the costs of studies. Should projects prove unfeasible, the Government will bear 50 per cent of the expenses involved. If however, projects are successfully implemented, promoters will be required to reimburse the Government fully for all expenses incurred.

Industrial loans

The Savings and Credit Bank is required by the law to give priority in the allocation of its loans to industrial projects, especially new projects.

Priority in government purchases

Preference in government purchases should be given to domestic industries, provided that the products of these industries prove equal to foreign product from the point of view of quality and prices.

The General Authority for the Shuaiba industrial zone

On 14 May 1964, the Shuaiba industrial zone was established under the Shuaiba Authority, a financially and administratively independent organ attached to the Ministry of Finance and Industry. The authority is to be operated on a strictly commercial basis. The objectives of the Shuaiba industrial zone are to assemble all public utilities and industrial establishments in the Shuaiba zone and prepare the necessary plans for their development, and to coordinate the individual requirements of enterprises for the services of public utilities within the general framework of the economic plan.

Another decree excluded the electricity generating and transmission stations and the water desalination plant from the direct supervision of the Shuaiba board, attaching them to the Ministry of Power and Water Resources.

Industrial supervisory machinery

Between 1952-1961, a construction board supervised construction and building activities in the country, including those related to industrial activity. This board also supervised the construction of power generating plants, water plants, roads, schools and hospitals. Later, the Planning Board was set up to study the economic situation in the country and to prepare a comprehensive development plan. A special industrial affairs department was set up at the Ministry of Finance and Industry in 1961 to supervise the industrial activities in the country, to undertake industrial studies and to prepare statistical information on the state of industry in Kuwait.

Law No. 6 of 1965 provided for the establishment of the Industrial Development Committee under the Ministry of Finance and Industry; its membership and functions have already been mentioned.

The Kuwait Chamber of Commerce and Industry, which represents the private sector, widened the scope of its activities in 1963 by including industry. Of its fifteen members, three represent industry and the remaining twelve the commercial sector. The industrial development law made the licensing of industrial establishments conditional upon membership of the Kuwait Chamber of Commerce and Industry.

Among the important government authorities which supervise industrial activities are the Ministry of Power and Water, which administers the water desalination plants and other related industries, and the Ministry of Public Works.

The General Authority of the Shuaiba industrial zone is at present undertaking the execution of several projects, including a power generating plant, a water desalination plant, a pier and other infrastructural projects such as utilities, housing and gas storage centres. The first industry to be established in this zone was the Kuwait Chemical Fertilizers Company. An oil refinery owned by the Kuwait National Petroleum Company is soon to be established.

Public utilities

Industrial development in any country depends on the availability of services and public utilities.

Transport and communications

Road transport

Kuwait has a relatively adequate road system connecting various regions. The Kuwait Transport Company has just started to operate an organized bus service, but private cars and taxis remain the major mode of transport in the country.

Towards the end of the nineteenth century, attempts were made to extend the railway system from Turkey to Kuwait in order to expand Ottoman-German influence in the area, but nothing came of the project. Kuwait, as an active, centrally located market, would doubtless have benefited from a railway system connecting all countries of the region.

Although adequate roads exist connecting Kuwait with neighbouring countries, there is no doubt that the exchange of goods with those countries would be facilitated by the widening of those roads, the paving of some of them and continuous maintenance and repair work. Kuwait's industrial expansion is dependent on outside markets and therefore on the availability of an adequate transportation system.

Sea transport

Kuwait's new port was ready for use by the middle of 1960. Prior to its nationalization in 1953, the port had been administered by a private company. The new port has four deep-water berths, each 600 feet in length and dredged to 33 feet; three medium berths; two floating berths; one coastal berth; one berth for small craft; the old quay; mechanical and electric cranes; individual warehouses, and all the necessary road and sea modes of transport.

In addition, private ports exist, which are used for the export of petroleum. The Shuaiba industrial zone is also expected to have a modern harbour, comprising one quay 650 m long and 100 m wide, another pointing to the sea, 785 m long and 50 m wide; a smaller one; and an oil pier. The principal quay can accommodate five ships of 15,000 tons capacity each at one time.

Air transport.

Airport movements are very active, with several routes connecting Kuwait with different parts of the world. Although air transport is expensive, large quantities of goods are so transported.

Telephone and telegraph communications

Telephone and telegraphic communications in Kuwait are adequate and connect the country with various parts of the world.

Water and electricity

The output capacity of the electricity generating centre at Shuwaikh is estimated at 160,000 kW. There are also other power generating plants operated by fuel oil. In order to accelerate industrial growth, the Government has provided that a power generating plant should be located in the Shuaiba industrial zone. Although total consumption of electricity in Kuwait, including all sectors, was 154,000 kW in 1964, the new plant is expected to have a capacity of 210,000 kW. The rate for industrial use is 20 fils per kW.

Water is a major problem for Kuwait. 1,000 gallons of sweet water are sold to consumers at as high a rate as KD 1.5. In addition to the principal desalination plant, a second plant will be established in the Shuaiba industrial zone with an output of 10 million gallons per day.

Existing industries

In 1963, the Ministry of Finance and Industry conducted an industrial census of the public and private establishments in Kuwait. The census covered establishments employing fewer than five persons, and five persons or more. It revealed that typical industrial establishments in Kuwait were quite small and employed an average of nine persons. Very few establishments, it was found, employed more than 100 persons. The census also revealed that industrial establishments of all sizes and types, excluding the foreign oil enterprises operating in the country, numbered 2,371 and employed 21,199 persons, distributed as shown in table 5.

Table 5. Number of industrial establishments and number of persons employed, 1963

	Number of workers	*Percentage of total*	*Number of establishments*	*Percentage of total*	*Average number of workers per establishment*
Distribution of oil[a]	470	2.2	1	—	470
Manufacturing and repair (employing five persons or more)	10,402	49.1	588	24.8	17-18
Manufacturing and repair (employing fewer than five persons)	4,265	20.1	1,755	74.1	2 - 3
Government industrial establishments	6,062	28.6	26	1.1	23-24
Total	21,199	100.0	2,370	100.0	—

[a] Covers only persons employed by the Kuwait National Petroleum Company.

Government industrial establishments constituted 1.1 per cent of the total number of industrial establishments and employed 28.6 per cent of the total industrial labour force. The average number of persons per establishment was between twenty-three and twenty-four. The twenty-six government establishments were engaged in the type of industrial activity shown in table 6.

Table 6. Number of government industrial establishments and number of persons employed

Industry	*Number of workers*	*Number of establishments*	*Average number of workers per establishment*
Food processing	531	1	531
"Salbook" type of building stone	2	1	2
Wood	408	4	102
Printing and publishing	588	1	588
Salt	63	1	63
Tiles	10	1	10
Ironworks and metal products	580	3	193
Machinery and pumps repair	678	1	678
Motor vehicle repair	2,524	12	210
Electricity generation and water distillation	678	1	678
TOTAL	6,062	26	233

The number of Kuwaiti nationals employed in government industrial establishments was 1,546, or 25 per cent of the total number of persons employed. The census did not reveal the number of government establishments engaged in activities related to infrastructure such as roads, etc.

The majority of Kuwaiti establishments employed fewer than five persons and were either simple craft shops such as tailoring or repair and maintenance workshops. They constituted about 74.1 per cent of the total number of establishments and employed about 20 per cent of the total labour force. The average number of persons per establishment was between two and three. The number of Kuwaiti nationals employed in these establishments was 57, or 1.4 per cent of the total number employed.

Establishments employing five or more persons constituted 25 per cent of the total number of establishments and employed about 50 per cent of the total labour force. The average number of persons employed per establishment was between seventeen and eighteen. This average, however, varied greatly from one industry to another, as shown in table 7.

Table 7. Average number of persons employed in private industrial establishments in 1963

Type of industry	*Average number of workers per establishment*
Carbonated soft drinks	102
Tiles and marbles	44
Printing and publishing	41
Furniture	25
Dairy goods and confectionery	23
Ship-building and maintenance	20
Bakeries	12
Wood	12

The number of Kuwaiti nationals employed in these establishments was 353, of whom 278 were in administrative posts.

GENERAL OBSERVATIONS PERTAINING TO INDUSTRIAL STATISTICS*

The industrial census showed that some 8,800 persons, or about 42 per cent of the total industrial labour force in Kuwait, were employed in establishments engaged solely in repair work. The typical industrial establishment in Kuwait was quite small, employed mainly non-Kuwaiti nationals, and was engaged mainly in repair work rather than manufacturing. Only eight industries employed more than 1,000 persons (see table 8).

Table 8. Kuwaiti industries employing more than 1,000 persons, 1963

Industry	*Number of workers*
Repair of motor vehicles	6,767
Oil production	6,470
Tailoring	1,769
Metal products manufacture	1,692
Wood work	1,205
Bakeries	1,177
Tiles and mosaic	1,089
Printing, etc.	1,040

If government establishments are excluded, the average number of persons employed per establishment was six. The average was brought down to this low figure because of the existence of a large number of small workshops in such industries as tailoring, furniture manufacture, precious metal work, and the one-man units in the repair industries.

Table 9. Average size of establishments in certain industries, 1963 (including oil and government establishments)

Industry	*Average number of workers per establishment*
Oil production	1,618
Soft drinks manufacture	102
Salt, chlorine and caustic soda manufacture	63
Brick-making	42
Tiles and mosaic	35
Repair of motor vehicles	17
Metal products	10
Wood products	8
Bakeries	5
Tailoring	3

Industries in the private sector were manned very largely by non-Kuwaiti nationals. Excluding the oil industry, only 410 Kuwaiti nationals were employed in private industry as against 14,257 non-Kuwaitis. In government industrial establishments the proportion of Kuwaitis was much higher, amounting to about 1,546 Kuwaitis as against 4,516 non-Kuwaitis. These figures show that, in government establishments, 25 per

* From "Industry in Kuwait", by Dr. Fenelon, statistical expert at the Planning Board; published in Bulletin No. 45 of the Kuwait Chamber of Commerce and Industry.

cent of the total number of persons employed were Kuwaiti nationals, as compared with 2.8 per cent in non-government establishments.

The largest number of establishments in any one trade was found in tailoring, with 557 establishments, followed by motor vehicle repair with 394 establishments. Table 10 shows the number of establishments in certain Kuwaiti industries.

Table 10. Number of establishments in certain Kuwaiti industries, 1963

Industry	*Number of establishments*
Tailoring	557
Repair of motor vehicle	394
Repair of electrical appliances	275
Bakeries	239
Metal products	174
Wood products	155
Repair of rubber tyres	132
Repair of motorcycles and bicycles	91

It is to be noted that three out of every four establishments employed fewer than five persons each and that only 2 per cent of the total establishments employed fifty or more persons each. The largest units were found in such industries as sand-line bricks, motor and other repair shops, tiles and soft drinks. In table 11, industrial establishments are grouped according to size, measured in terms of the number of workers employed.

Table 11. Distribution of establishments by size, 1963 (excluding oil companies and government industrial establishments)

Size group (number of workers employed)	*Number of establishments in each size group*		
	Kuwait city and suburbs	*Towns and villages*	*Total*
Fewer than 5	798	957	1,755
5 to 9	151	142	293
10 to 14	69	31	100
15 to 19	39	16	55
20 to 24	24	9	33
25 to 29	22	—	22
30 to 34	13	1	14
35 to 39	9	3	12
40 to 44	9	1	10
45 to 49	4	—	4
50 to 54	8	—	8
55 to 59	1	—	1
60 to 64	1	—	1
65 to 69	2	—	2
70 to 74	4	1	5
75 to 79	1	—	1
80 to 84	6	1	7
85 to 89	2	—	2
90 to 94	—	—	—
95 to 99	1	—	1
100 to 149	12	—	12
150 to 199	2	1	3
200 to 249	2	—	2
TOTAL	1,180	1,163	2,343

Fifteen industries employed more than 400 workers each, including all industries in the public and private sectors. Table 12 shows the industries employing more than 400 workers.

Table 12. Industries employing more than 400 workers, 1964 (including oil companies and government establishments)

Industry	*Public sector*		*Private sector* [a]		*Total*	
	Number of establishments	*Number of workers*	*Number of establishments*	*Number of workers*	*Number of establishments*	*Number of workers*
Motor vehicle repair	12	2,524	382	4,243	394	6,767
Tailoring	—	—	557	1,769	557	1,769
Metal products	3	580	171	1,112	174	1,692
Wood products	4	408	151	797	155	1,205
Bakeries [b]	—	—	239	1,177	239	1,177
Tiles and mosaic	—	—	31	1,089	31	1,089
Printing, etc.	1	588	11	452	12	1,040
Electrical machinery repair	—	—	275	752	275	752
Miscellaneous food preparation [c]	1	531	28 [d]	299	29	830
Repair of non-electrical machinery	1	678	3	40	4	718
Soft drinks	—	—	7	715	7	715
Electricity and water	1	678	—	—	1	678
Brick works	1	10	13	577	14	587
Oil distribution	—	—	1	470	1	470
Furniture and mattress-making	—	—	75	464	75	464

[a] Includes companies with government participation.
[b] Does not include bakeries attached to Government Central Kitchen.
[c] Includes Government Central Kitchen and Bakery (school meals).
[d] Excludes bakeries and soft drinks manufacture.

Industrial joint-stock companies

During the last few years, a large number of joint-stock companies have been established in Kuwait, with an estimated capital amounting at the end of 1965 to about KD 80 million.

The State has adopted a policy of encouraging these companies by every means, including participation in the equity of some of these enterprises. However, State participation has been limited to industrial and transport companies, leaving banking and other services completely in the hands of the private sector.

The paid-up capital of the joint-stock companies amounted to KD 39.5 million at the end of 1964. Tables 13 and 14 contain information pertaining to joint-stock companies up to the end of 1964. The growth of joint-stock companies in Kuwait will doubtless constitute an important factor in the economic and social development of the country, and will help to develop a capital market on sound bases. Once this sector has been developed, its importance to the country may become equal to that of the oil sector. In 1964, there were fourteen Kuwaiti joint-stock companies, with a total capital of KD 35,494,227. Five of these companies, with a total capital of KD 29,018,227, were in the oil sector. Of the remaining nine companies, four, with a capital of KD 4,036,000, were in the food-processing industries and five, with a capital of KD 2,095,000, were in different construction materials industries.

The number of shareholders in these industrial companies was 31,108 at the end of 1964. Whereas 31,075 persons owned shares in companies that had offered stocks for public subscription, only thirty-three persons owned shares in companies whose stocks were closed to public subscription.

Total investment of the private sector in industrial joint-stock companies amounted at the end of 1964 to KD 14,252,327, or 40.1 per cent of their total capital. On the other hand, participation of the public sector amounted to KD 20,415,200, or 57.5 per cent of the total capital, and foreign participation amounted to only KD 826,700, or 2.33 per cent of the total capital of the industrial companies.

Ownership of industrial joint-stock companies in Kuwait varies in type. Some are totally owned by the private sector with no foreign or government participation, while others have mixed (private-government-foreign) ownership. Furthermore, a few companies have offered their stock for public subscription, while others have limited their shares to the original promoters only.

Five industrial joint-stock companies are totally owned by the private sector, namely, the Kuwait National Fishing Company, the Americana Food Processing Company, the Kuwait Oil Tanker Company, the Kuwait Limestone Company and the Cattle and Poultry Feed Company.

The Government has participated either directly or indirectly in the equity of a large number of Kuwaiti joint-stock companies. It participates directly in the equity of the Kuwait National Petroleum Company (to the extent of 60 per cent), the Petrochemical Industries Company (to the extent of 80 per cent), the National Industries Company (to the extent of 51 per cent), and the Kuwait Flour Mills Company (to the extent of 50 per cent). The Government has also indirectly participated in the equity of the Kuwait Chemical Fertilizers Company, the Kuwait Aviation Fuelling Company, and the Kuwait Prefabricated Housing Company.

In addition to equity participation, the Government has assisted these companies in a variety of ways, for instance, by granting loans and facilitating modes of repayment. Such assistance and encouragement has not been confined to companies operating with government participation, but has been extended to all other companies.

Table 13. Industrial joint-stock companies in Kuwait (capital and loans)

(KD)

Company	Year of establishment	Authorized capital		Paid-up capital 1964	Non-Kuwaiti authorized capital 1964	Government participation		Loans granted 1964
		Upon establishment	In 1964			Percentage	Authorized 1964	
1. *Companies which have offered their stocks for subscription:*								
Industrial companies:								
National Industries Co.	1961	1,500,000	1,500,000	750,000	--	51.00	765,000	382,500
Kuwait National Fishing Co.	1963	1,000,000	1,000,000	499,645	--	—	—	—
Kuwait Flour Mills Co.	1961	2,000,000	2,000,000	1,000,000	--	50.00	1,000,000	500,000
Americana Food Processing Co.	—	1,000,000	1,000,000	250,000	—	—	—	—
Total		5,500,000	5,500,000	2,499,645	—	—	1,765,000	882,500
Petroleum and Petrochemical Companies:								
Kuwait National Petroleum Co.	1960	7,500,000	7,500,000	7,500,000	—	60.00	4,500,000	4,500,000
Petrochemical Industries Co.	1963	16,000,000	16,000,000	4,000,000	--	80.00	12,800,000	3,200,000
Kuwait Oil Tanker Co.	1957	3,518,227	5,751,345	4,888,643	—	—	—	—
Total for the seven companies		32,518,227	34,751,345	18,888,288	—	--	19,065,000	8,582,500

Table 13. Industrial joint-stock companies in Kuwait (capital and loans) (*continued*)

Company	Year of establishment	Authorized capital: Upon establishment	Authorized capital: In 1964	Paid-up capital 1964	Non-Kuwaiti authorized capital 1964	Government participation: Percentage	Government participation: Authorized 1964	Loans granted 1964
2. *Companies which do not offer their stocks for subscription:*								
Kuwait Asbestos Industries Co.	1960	45,000	360,000	360,000	—	38.25	137,700	137,700
Kuwait Chemical Fertilizers Co.	1964	2,000,000	2,000,000	1,500,000	800,000	48.00	Indirect	Participation
Kuwait Limestone Co.	1963	10,000	10,000	10,000	—	—	—	—
Kuwait Prefabricated Housing Co.	1965	500,000	500,000	250,000	—	50.49	Indirect	Participation
Kuwait Felt Co.	1964	40,000	40,000	40,000	12,000	—	—	—
Cattle and Poultry Feed Co.	1964	36,000	36,000	9,000	—	—	—	—
TOTAL for the six companies		2,631,000	2,946,000	2,169,000	812,000	—	137,700	137,700
GRAND TOTAL		35,149,227	37,697,345	21,057,288	812,000	—	19,202,700	8,720,200

Table 14. Industrial joint-stock companies in Kuwait

(Capital and reserves, in KD)

Company	Obligatory reserves 1963	Obligatory reserves 1964	Other reserves 1963	Other reserves 1964	Total equity 1963	Total equity 1964
1. *Industrial companies which have offered their stocks for subscription:*						
Industrial companies:						
National Industries Co.	44,781	70,407	83,033	148,666	877,814	969,073
Kuwait National Fishing Co.	—	193	—	193	499,645	500,031
Kuwait Flour Mills Co.	5,995	5,995	5,995	39,842	1,011,990	1,045,837
Americana Food Processing Co.	—	—	—	—	—	250,000
TOTAL	50,776	76,595	89,028	188,701	2,389,449	2,764,941
Petroleum and petrochemical companies:						
Kuwait National Petroleum Co.	489,484	775,372	3,102,569	4,767,566	11,093,053	13,042,938
Petrochemical Industries Co.	—	17,108	—	17,108	4,000,000	4,034,216
Kuwait Oil Tanker Co.	119,877	168,731	266,168	368,446	6,137,390	6,288,522
TOTAL for the seven companies	660,137	1,037,806	3,457,765	5,341,821	23,619,892	26,130,617
2. *Companies which do not offer their stocks for subscription:*						
Kuwait Asbestos Industries Co.	307	23,360	—	157,960	360,307	541,628
Kuwait Chemical Fertilizers Co.	—	—	—	—	—	1,500,000
Kuwait Limestone Co.	—	—	—	—	—	—
Kuwait Prefabricated Housing Co.	—	—	—	—	—	—
Kuwait Felt Co.	—	—	—	—	—	—
Cattle and Poultry Feed Co.	—	—	—	—	9,000	9,000
TOTAL for the six companies	307	23,360	—	157,960	369,307	2,050,628
GRAND TOTAL	660,444	1,061,166	3,457,765	5,499,781	23,989,199	28,181,245

OIL AND PETROCHEMICAL INDUSTRIES

Oil production and transportation

The rapid growth achieved by foreign companies operating in Kuwait in all fields of oil production, refining and marketing provided an impetus to the establishment of domestic oil industries owned and managed by Kuwaiti nationals. The crucial step in this regard was the establishment of, and the support given to, the Kuwait National Petroleum Company and the Kuwait Oil Tanker Company.

The Kuwait National Petroleum Company

The Kuwait National Petroleum Company (KNPC) was established in 1960 with a capital of KD 7.5 million, in which the Government participated to the extent of 60 per cent. The remaining part of the capital was offered for public subscription. KNPC was to engage in all activities pertaining to the petroleum sector, including the processing of oil for local consumption and export.

In 1961, the Kuwait Oil Company Ltd. surrendered its concession for the distribution of oil products in the local market to the Government. Consequently, KNPC replaced the Kuwait Oil Company as the sole distributor of oil products in the domestic market. The company at present owns sixteen distribution centres. In May 1962, KNPC petitioned the Government for a concession to explore and exploit oil resources in regions relinquished by the Kuwait Oil Company Ltd.

Sales of petroleum products in Kuwait amounted to KD 4,614,471 in 1964. An analysis of the company's sales is shown in table 15.

Table 15. Analysis of the Kuwait National Petroleum Company's sales, 1964

(in gallons)

Premium gasoline	52,215,090
Regular gasoline	3,727,998
Kerosene	11,677,184
Gas oil	16,407,126
Lubricating oil	194,366
Motor boat fuel	8,571
Asphalt (bitumen)	18,879
Residual oil	5,521

In the field of refining, the Government granted KNPC a loan of KD 25 million for the establishment of an oil refinery in Kuwait with a 4.5 million tons capacity.

The Kuwait Oil Tanker Company

The authorized capital of the Kuwait Oil Tanker Company, an enterprise wholly owned by the private sector, was raised from KD 3.5 million to KD 5.75 million at the end of 1964. The paid-up capital was KD 4.88 million at the end of 1964. The Government has provided the company with a loan of KD 6.8 million. The realized net profits equalled KD 488,544 in 1964 (compared with KD 441,618 in 1963), and the total distributed dividends amounted in 1964 to KD 337,412 (as against KD 306,738 in 1963), representing 5.87 (as against 5.33) per cent of total paid-up capital.

The company owns three large modern tankers—the Kazima, the Warba and the Sabia—with a total loading capacity of roughly 161,000 tons. The company also distributes gas in Kuwait, and the board of directors is at present considering the possibility of exporting gas to neighbouring countries.

The company does not undertake activities in the industrial field, although its existence may encourage and support the industrial sector, especially the oil sector. The company constitutes an essential and integrated basis for the establishment of a national oil industry, owned and managed by Kuwaiti nationals.

Prospects for expansion

Excellent potentialities are available in Kuwait for the establishment of a domestic petroleum industry. Huge quantities of petroleum are expected to be discovered in areas relinquished by the Kuwait Oil Company Ltd. Likewise, the establishment of the new refinery in the Shuaiba zone is expected to open new horizons for public and private expansion in this vital sector of the Kuwaiti and Arab economies.

The petrochemical industry

Kuwait has shown great interest in the development of a petrochemical industry because of the availability in Kuwait of raw materials and capital and the existence of a strong world demand for the products of this industry. Two companies are in the process of establishment: the National Petrochemical Industries Company and the Kuwait Chemical Fertilizers Company.

Kuwait has adopted a policy of co-operating with large foreign companies to provide the petrochemical industry with the necessary technical skills and to ensure international marketing outlets, thereby resolving the two crucial problems hampering its growth.

The Petrochemical Industries Company

The Petrochemical Industries Company was founded in 1963 by the Government of Kuwait, the Kuwait Oil Company Ltd. and the National Industries Company. The distribution of the equity ownership of this industrial project is as follows:

	Number of shares	*Nominal values (KD)*	*Percentage*
Government of Kuwait	1,600,000	12,800,000	80
Kuwait National Petroleum Company	100,000	800,000	5
National Industries Company	60,000	480,000	3
TOTAL	1,760,000	14,080,000	88

The remaining 240,000 shares, or 12 per cent of total capital, were offered for public subscription.

The establishment of this company was motivated by the desire to erect a petrochemical complex in Kuwait by using natural gas, petroleum products and salt for the production of ammonia, urea, sulphuric acid, polyvinyl chloride (PVC), caustic soda and other derivatives of the petrochemical complex.

The company has established a subsidiary company, the Kuwait Chemical Fertilizers Company, for the production of chemical fertilizers, and is also planning to establish other industries, especially in the field of petrochemicals.

The Kuwait Chemical Fertilizers Company

The intensive studies undertaken by the Petrochemical Industries Company and the Ministry of Finance and Industry with a view to assessing production possibilities indicates that priority should be given to the production of chemical fertilizers.

The Kuwait Chemical Fertilizers Company was established on 18 March 1964, with a capital of KD 2 million, of which the Petrochemical Industries Company's participation amounted to 60 per cent and the British Petroleum Company (Bermuda) and the Gulf Oil Corporation to 20 per cent each.

The board of directors of the company is composed of ten members, six representing the Petrochemical Industries Company, two the British Petroleum Company and two the Gulf Oil Corporation. As a first stage, the company is building four plants in the Shuaiba zone, namely, an ammonia plant with a daily capacity of 400 tons; a urea plant with a daily capacity of 550 tons; an ammonia sulphate plant with a daily capacity of 550 tons, and a sulphuric acid plant with a daily capacity of 400 tons.

The company concluded an agreement with Foster Wheeler Ltd. for the establishment of these plants and other related infrastructural facilities. Foster Wheeler was requested to make use of local contracting facilities whenever possible. Construction is under way and is expected to be completed in 1966.

Prospects for industrial expansion

Petrochemicals have developed during the last ten years in such a way as to become one of the essential

bases of industrialized countries. Efforts have already been exerted to develop this type of industry by channelling into it substantial investment funds. Opportunities for expansion have been provided through technological progress and many essential raw materials are being replaced by petrochemical products such as fertilizers, plastic, rubber and nylon,

Of the industries that should be established in Kuwait, the following are important: petrochemical fertilizers; paints; plastic and plastic products; pharmaceutical products; insecticides; rubber, rubber tyres and related products; textiles and perfumes.

Potentialities for expanding this field of industrial activity are available, especially since world demand for petrochemical products has increased very rapidly, causing many countries to compete for the establishment of petrochemical industries as a means of supporting and strengthening their economies.

The construction industries

The construction industries in Kuwait comprise the manufacture of such building materials as asphalt, iron and metal products, marble tiles, bricks and mosaics, and related industries. The stimulus for the growth of this group of industries was provided by the building boom which characterized the Kuwaiti economy in the early nineteen-fifties.

These industries depended on domestic raw materials. Suitable deposits of limestone and rock containing a good calcium carbonate content were discovered in the Ushairej area, where a deposit of sand with a high silica content had been located. Thus all raw materials were available for the sand-lime brick plant which was established in 1953. The production of bricks using imported lime was begun in 1956. In the following year, a lime-making plant was completed so that lime produced domestically could be substituted for imports. It is to be noted that natural gas supplied by oil fields has been used as the fuel in the lime-making industry.

Government establishments

The need to provide building materials to government projects at reasonable prices necessitated government participation in the construction of industries. According to the industrial census of 1963, there were nine government establishments providing employment for 1,000 workers (see table 16).

Table 16. Number of government construction establishments and number of persons employed, 1963

(KD)

Industry	*Number of establishments*	*Number of workers*	*Value of production*	*Average number of workers per establishment*
Salbook*	1	2	139,831	2
Wood	4	408	76,370	102
Bricks	1	10	2,402	10
Iron and metal products	3	580	366,126	193
TOTAL	9	1,000	584,729	111

* Salbook is used in construction and is found in the northern section of Kuwait City.

Private construction establishments employing fewer than five persons

Such establishments numbered 180 and employed a total of 416 persons, distributed as follows:

Type of industry	*Number of establishments*	*Number of workers*
Wood manufacture	105	234
Iron manufacture	75	182
TOTAL	180	416

Private construction establishments employing five persons or more

Such establishments numbered 190 and employed 3,300 workers, as shown in the following table:

Table 17. Number of private construction establishments employing five persons or more, and number of persons employed, 1963

Industry	*Number of establishments*	*Number of workers*	*Average number of workers per establishment*
Wood	46	549	12
Tiles	31	1,076	35
Glass and glass products	3	85	28
Bricks and marbles	13	559	43
Iron and metal products	97	881	9
Asbestos	1	150	150
TOTAL	191	3,300	17

The tile and marble industry which was developed during the construction boom is largely in the hands of Iranians who are traditionally skilled in tile and mosaic work. Marble is imported, but cutting to size and polishing are carried out by local firms using modern machinery.

Thus a total of 379 public and private establishments are engaged in the production of building materials and employ a total of 4,716 workers, of whom 1,000 are in the public establishments and 3,716 in the private sector. The average number of workers per establishment is 111 in public establishments, three in private establishments employing fewer than five persons and seventeen in private establishments employing five persons or more.

Joint-stock Construction companies

The first private company formed for the production of building materials, the Asbestos Industries Company, was established in 1960. In 1961, the National Industries Company was founded, and several other private joint-stock companies were established thereafter. This sector is still small but prospects for its expansion are promising. Some of the more important companies in the construction sector are listed below.

The National Industries Company

The National Industries Company was established in 1961 with a capital of KD 1.5 million, 50 per cent of which was subscribed by the State. The company was to take over and operate the sand-lime and brick factory and the State-owned cement factory and to set up other appropriate industries to meet domestic or export demands.

During the first year of its operation, the company concluded an agreement with the Kuwait Asbestos Company under which it acquired a 75 per cent interest in that company. The company is engaged in the production of sand-lime, lime, concrete pipes of all sizes, bricks, sidewalk tiles, electric and telephone wire coatings and paving stones. The National Industries Company acquired equity shares in several joint-stock industrial companies, the most important of which are the Petrochemical Industries Company, the Kuwait Prefabricated Housing Company and the Kuwait Asbestos Company.

The Kuwait Asbestos Company

The Kuwait Asbestos Company was established at the end of 1960 with a capital of KD 45,000, of which the National Industries Company held 75 per cent.

The company is engaged in the production of asbestos sheets and pipes and related products. In terms of quality and prices, the products of the Kuwait Asbestos Company enjoy an advantage over foreign imports. Consequently, the company made considerable profits in 1964, which were re-invested in a second asbestos plant designed to produce sewer and water pipes. An agreement has already been concluded with a foreign concern for the construction of the new plant.

Other joint-stock construction companies

A number of other joint-stock construction companies have recently been established to supply building materials. The most important of these are the Kuwait Prefabricated Housing Company, which was established jointly by the Kuwait Investment Company and the National Industries Company with a capital of KD 500,000; the Kuwait Felt Company, which produces asphalt-coated papers and other asphalted materials used in construction (the company started operations in 1965 and expects to export part of its production to the Arab Gulf Emirates and to Saudi Arabia); the Kuwait Limestone Company, which is engaged in the extraction and cutting of stones.

Repair and maintenance industries

The rapid increase in the number of imported motor vehicles in the country has brought about the development of the repair and maintenance industries. The number of motor vehicles in Kuwait is estimated at about 100,000, or approximately one car to every five persons in the country. Kuwait imports an average of 1,000 cars per month. This great development in motor transportation has led to the growth of an important group of industries engaged in motor car repairs, maintenance and servicing. According to the 1963 industrial census, this group of industries offered more employment than any other industry in the private sector. In that year, 6,767 persons were employed in 400 repair establishments, and 447 in the rebuilding and repair of tyres, motor-cycles and bicycles. Other establishments were engaged in the repair of electrical appliances such as refrigerators, radios and television sets, whose consumption has increased tremendously over the last few years, and of sailing boats, the construction of which was formerly the most important local industry.

Government establishments

The Government has set up establishments for the repair and maintenance of State-owned motor vehicles and machinery. There were thirteen such establishments in 1963, employing 3,202 persons.

Private establishments employing fewer than five persons

Such establishments constituted more than 39.6 per cent of the total establishments in the repair and maintenance industries and employed roughly 33 per cent of the total work force in that group of industries. There were on average between two and three workers per establishment, and the number of Kuwaiti nationals employed in such establishments constituted only about 1.5 per cent of the total. Table 18 gives the number of establishments and of persons employed in the repair and maintenance industries.

Table 18. Private establishments engaged in the repair and maintenance industries, 1963, and employing fewer than five persons

	Number of establishments	*Number of workers*
Repair of rubber tyres	132	301
Repair of electric appliances and machinery	266	524
Repair of motor cars	141	343
Repair of bicycles	91	121
Repair of watches	46	75
Mirrors and frames	20	45
TOTAL	696	1,409

Private establishments employing five persons or more

Such establishments numbered 260, or 44 per cent of the total number of establishments, and provided employment for 4,287 workers, or 43 per cent of the total number of persons employed in the repair and maintenance industries. The majority of these were engaged in the repair of motor vehicles (see table 19).

Table 19. Private establishments engaged in the repair and maintenance industries, 1963, and employing five persons or more

	Number of establishments	*Number of workers*
Repair of rubber tyres	3	35
Repair of machinery other than electric	3	40
Repairs of electric machinery and appliances	9	228
Boat-building and repair	5	84
Repair of motor vehicles	241	3,900
TOTAL	261	4,287

The average number of workers per establishment was roughly eleven in the rubber tyre repair, sixteen in the motor vehicle repair and twenty-five in the machinery and apparatus repair.

Prospects for expansion

The rapid developments that have taken place in Kuwait will no doubt result in the further expansion of the repair and maintenance industries. Some believe that availability of skills in the motor vehicles repairs industry may even bring about the establishment of an assembly industry in the future. However, the establishment of such an industry may not prove

feasible owing to the high cost of labour and the absence of needed raw materials.

Expansion in the ship-building industry is also possible, although this requires elaborate technical and economic studies pertaining to Kuwait's export potentialities. Other possibilities include the setting up of a radio and television assembly plant, and a small plant to manufacture rubber tyres. Kuwait imports about 100,000 tyres annually, a quantity justifying the establishment of such industry.

SALT, CHLORINE AND CAUSTIC SODA

The salt and chlorine plant is situated at Showaikh, adjacent to the electricity generating and water desalination plants. The Ministry of Electricity and Water Resources chose that site in order to ensure an adequate supply of chlorine for the water desalination plant. At present, the plant produces 2.4 tons of chlorine gas per day, of which 80 per cent is dissolved with the sea water, and the remaining 20 per cent is used in the hydrochloric acid plant. This plant produces about 350 gallons of hydrochloric acid per year, of which 100 gallons were sold last year to the oil-producing companies. In addition to chlorine gas, the plant produces 4.5 tons of caustic soda per day. The Ministry of Electricity and Water Resources has concluded an agreement with the Kuwait Oil Company Ltd. under which the plant is to supply the company with 600 tons of caustic soda annually. In addition, the soft drinks plants consume about 200 tons of caustic soda annually.

Furthermore, about 20 tons of salt are produced daily, of which 5 tons are consumed in the chlorine and caustic soda operation, 3 tons are sold as table salt in packets of 1 kg each, and the remaining 12 tons are packed in jute bags containing 60 kg each for industrial uses.

A total of sixty-three persons were employed in this group of industries, only two of them Kuwaiti nationals.

The Ministry of Electricity and Water Resources is at present considering expanding this plant, in order to ensure an adequate supply of chlorine to the new water desalination plant which is to be located in the Shuaiba industrial zone. Such expansion will result in doubling the production of chlorine and caustic soda and in trebling the production of hydrochloric acid. The ministry is also considering the setting up of four units: one for liquefying chlorine gas in cylinders containing one ton each; another for compressing caustic soda in barrels to facilitate its export to neighbouring Arab markets where the demand for this important commodity has lately increased; a third for the production of sodium chloride, which is used by the Ministry of Public Health in detergents and sterilizers; and a fourth for bottling hydrogen gas, which will be used by the new electricity generating plant located in the Shuaiba industrial zone.

FOOD PROCESSING, FISH AND OTHER PROCESSING INDUSTRIES

Rapid progress has been achieved in a number of food processing industries such as flour milling, bakeries, dairy goods, confectioneries, carbonated soft drinks, fish preserving and other industries. This progress, however, has been hampered by several factors, the most important of which is the complete absence of an agricultural sector, without which the development of food processing industries cannot be achieved. Whatever food processing industries exist in Kuwait are largely confined to the home market. The fish industry has been able, however, to satisfy not only the local market but also to export considerable quantities of high quality fish, such as shrimps.

Government establishments

The Government has established several food processing industries to satisfy the requirements of public schools and hospitals.

Private establishments employing fewer than five persons

According to the 1963 census, such establishments numbered 214 and employed 732 workers, distributed as follows:

Type of establishment	*Number of establishments*	*Number of persons employed*
Bakeries	199	687
Flour mills	12	34
Dairy goods and confectioneries	3	11
TOTAL	214	732

Private establishments employing five or more persons

Such establishments numbered sixty and provided employment for 1,459 workers distributed as follows:

Type of establishment	*Number of establishments*	*Number of persons employed*
Bakeries	40	490
Ice	9	161
Carbonated soft drinks	7	715
Dairy goods and confectioneries	4	93
TOTAL	60	1,459

The average number of workers per establishment was twenty-four, a figure higher than the general average in Kuwait of sixteen per establishment. The average in this group was brought up to this high figure because of the large number of persons employed in the carbonated soft drinks industry, where the average is 102 workers per establishment.

The Kuwait Flour Mills Company

This company began operations at the beginning of 1966. It aims at providing flour and bread according to established health standards and, according to its statutes, its annual profits should not exceed 5 per cent.

Fish Industry

A plentiful variety of fish breeds are to be found in the Persian Gulf. In the past, fishing and pearling were of crucial importance to the economy of the country, but, as has been mentioned in the early part of this paper, the importance of fishing and pearling has diminished. The private sector, however, has recently shown great interest in developing the traditional fish industry. Two companies have been established using modern methods of catching, handling, preserving and marketing, namely, the Gulf Fishing Company and the Kuwait National Fishing Company.

The Kuwait National Fishing Company

This company was established in 1963 with a capital of KD 1 million. It was to undertake such activities as pearling, fishing, handling, packing, preserving, market-

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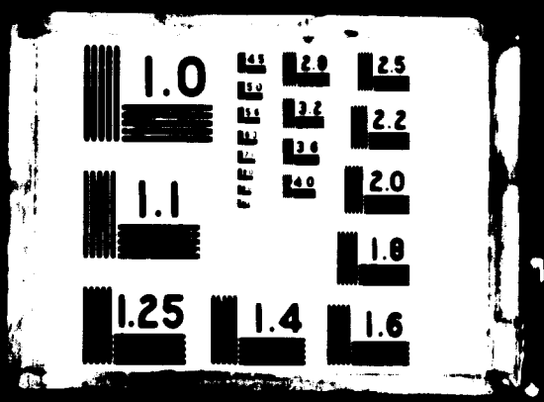


ing and all related activities. The company owns ten boats, of which the largest is 54 m long, 10 m wide, and with a draft of 3 m, and eight similar boats, each 27 m long, 6.7 m wide and with a draft of 2.7 m. The company is still in the early stages of operation.

Prospects for expansion

The food processing industries may witness considerable expansion when the project of pumping water from Shat-al-Arab is realized. This project will assist in the creation of a modern agricultural sector in the country.

The Kuwait Flour Mills Company has been considering the question of expanding its productive capacity with a view to realizing an export surplus. Greater expansion is, however, expected to take place in the fish processing and preserving industry.

Again, it must be emphasized that no considerable expansion in the food processing industry is likely to take place unless a modern agricultural sector is created in Kuwait; and this in turn depends on increasing the water resources in the country.

Other industries

Other industries which exist in Kuwait are the small crafts and workshops such as tailoring, furniture manufacturing and blacksmithing, which are market-oriented industries.

Conclusion

It is evident from the foregoing discussion that potentialities exist in Kuwait for developing an industrial sector. The following factors, however, may impede the full growth of this sector: industrial co-ordination with the countries of the region; availability of technicians and engineers; training of workers, foremen and managers; industrial productivity; standardization of specifications and measures; marketing.

The Government of Kuwait is doing its utmost to find solutions to these difficulties, some of which can be tackled only on a regional or an international level.

Solution of problems on a regional level

The problem of industrial co-ordination should be resolved on a regional level.

Countries of the region each have certain comparative advantages in the establishment of particular projects. Specialization, however, may not be fruitful unless all countries of the region co-ordinate their industrial projects in the light of existing potentialities in each one of them.

Training of workers, foremen and managers should be dealt with on a regional level, by establishing vocational centres whose facilities would be available to all countries of the region.

Standardization of specifications and measures is of crucial importance and needs to be tackled on a regional level if the region is to develop in the future into a single market.

Solution of problems on an international level

Most of the difficulties of marketing industrial domestic products arise from the consumers' lack of confidence in national products. If agreement on the use of the trade-marks of reputable international concerns could be reached, consumers' confidence in the quality of domestically produced goods would be enhanced. For this reason, it is necessary for the countries of the region to benefit from the experience of developed countries, to adopt the technical specifications applied to their products and operate under the supervision of the international firms concerned.

The countries of the region need to co-operate with international establishments, and it is preferable that the basis of such co-operation be undertaken within the framework of the United Nations.

The inability of these countries to undertake precise studies related to industrial productivity is due to lack of adequately trained economists and experts; it is therefore advisable for the United Nations to undertake such productivity studies in every industrial field.

Industrial surpluses may have to be marketed outside the region. Breaking into international markets may prove to be a difficult, if not an impossible, task. Therefore it is essential for the United Nations to try to ensure the conclusion of agreements between the countries of the region and other developed countries whereby the latter would permit the marketing of qualified goods produced under competitive conditions.

4. The industrial situation in Lebanon

Communication presented by Lebanon

Historical review

During the Second World War, industry in Lebanon enjoyed exceptional protection and high profits. It continued to enjoy a seller's market for several years following the war, and that period was one of industrial expansion for the country. Available statistics do not permit measurement of the rate of such expansion, but the rapid growth of imports of capital goods during those years indicates that it was substantial. The behaviour of these imports since 1950 shows a decline in this rate of expansion.

Unlike neighbouring countries, Lebanon did not follow a policy of building high protective tariff walls for new industries, and established industries continued to enjoy varying degrees of protection which had been granted to them.

The years after the Second World War witnessed increased world competition in exports of manufactured products and a growing technological supremacy of advanced over developing economies. These factors, combined with the open-door economic policy which Lebanon had adopted, reduced the competitiveness of Lebanese industrial products, both at home and abroad. The rupture of the customs union with Syria in 1950 further limited the market for Lebanese industrial products. Many industries which had been established with a view to serving both the Lebanese and the Syrian markets and under conditions of only mild competition from foreign products, faced growing market limitations, and their operations were reduced by varying degrees to less than full capacity.

While industrial expansion was tapering off in the early nineteen-fifties, developments in the domestic market and in the markets of most Arab countries were

contributing to a rapid expansion of the construction, trade and finance sectors and of several other service sectors. The rapid expansion in these sectors resulted in a gradual widening of the domestic market for manufactured, semi-finished intermediate and finished products and helped promote the development and growth of a number of industries. Although difficult to establish statistically, industrial expansion, as evidenced by the growth of imports of capital equipment and of intermediate products and raw material for industry, appears to have revived in the late nineteen-fifties and resumed a moderately upward trend.

Industrial expansion has been associated with significant changes in the relative importance of the different branches of the manufacturing industry. Taking the number of establishments as a basis, the establishments producing clothing, footwear and made-up textiles registered the greatest increase (over thirty-fold) followed by printing and publishing (fourfold), wool products and furniture establishments (twofold) and petroleum, mineral and metal products and food beverages. Judging by the value of output, the branches of industry which registered the most impressive expansion have been clothing, footwear and made-up textiles, petroleum mineral and metal products, paper and paper products and food and beverages.

Income arising in the industrial sector is estimated to have been LL 280 million at 1954 prices, or approximately 12 per cent of the national income. It is next only to trade and agriculture, which account for 27 per cent and 13 per cent of the national income respectively. Lebanese industrial exports approximate LL 50 million annually and account for about 18 per cent of total exports and about 12 per cent of the total products of the industrial sector. The balance of the products of this sector is consumed locally.

The 6,650 establishments constituting the Lebanese industrial sector in 1964 employed some 63,100 workers, or approximately 13 per cent of the Lebanese labour force. About one-third of the workers in industry are in handicrafts; the remaining two-thirds are in various manufacturing industries, the majority of them small-scale enterprises. The average number of workers per industrial enterprise has been 9.5 and the approximate capital invested per person LL 1,000. Compared with the services sector of the economy, i.e. with sectors other than agriculture and industry, *per capita* investment in industry is low. This implies a relatively higher contribution to employment by industry than by the services sector.

Given the present estimated rate of population growth in Lebanon of 2.3 per cent per year, some 37,000 persons are added to the population every year. With the small proportion of women entering the labour force, it may be assumed that some 18,000 to 20,000 persons enter the labour force every year. Furthermore, the modernization of agriculture, slow as it may be, has resulted in a reduction in the agricultural labour force. Judging by the small size of the Lebanese trading, financial and other service firms and by the relatively inferior contribution of these activities to employment, a very large number of new firms would have to be established every year to absorb the increase in the labour force. These sectors can certainly not expand at the necessary rate and heavy dependence on industrial expansion to absorb the increasing labour force is unavoidable. Hence, judged by its share in the national product, the importance of the industrial sector appears slight, but as a source of employment it is relatively more impressive.

Present structure of industry

With only a few exceptions, industries in Lebanon are small and devoted chiefly to the production of light consumer goods. The most important industries, judging by capital invested, are food manufacturing, ferrous and metallic industries, textiles and chemical products. Together they include some 45 per cent of the number of industrial establishments and represent about 37 per cent of the industrial sector in terms of persons employed and 40 per cent in terms of capital invested. Table 1 gives Lebanon's principal industries, capital investment and employment statistics for the various categories of industry in 1964.

Scale of operation

Smallness of size is a major characteristic of Lebanese industry. The extent to which the small-scale enterprise predominates is reflected in the data compiled in tables 2 and 3. An outstanding feature of these small firms, and to a lesser extent of the large firms, is their individual or family form. This feature is evidenced by the fact that most Lebanese industrial firms bear family names.

The size of establishments in textiles and non-metallic industries is well above average from the standpoint of capital invested, labour employed and the value of output. The average size of establishments in the food industries, although accounting for a greater value of output than any other industry, is far below average in terms of capital invested, labour employed and value of output.

The establishments generally known as handicrafts in Lebanon consist principally of carpentry, tailoring, shoemaking, knitting, basketmaking, pottery, etc. They employ slightly less than one-third of the labour force engaged in industry and produce about 15 per cent of the income arising in the industrial sector.

Ownership

Most industrial enterprises in Lebanon are privately owned. The Government operates only certain public utilities, of which the Beirut Electricity Service and the Tobacco Monopoly are industrial. Principal foreign capital investments in Lebanon are Arab, French, British and American. United States private capital investment is mainly in the petroleum industry and Arab investment mainly in apartment buildings. In addition, there are numerous foreign investments in industry, trade and services. A large number of foreign firms, attracted by the facilities, conveniences and specialized services which Lebanon provides, have regional representatives in Beirut. They generally maintain rented offices and have limited, if any, capital investment in Lebanon.

Geographical distribution

Geographically, industrial establishments in Lebanon are concentrated in Beirut and vicinity, particularly those which are of large size; it is estimated now that 50 per cent of all industrial establishments in Lebanon are located in Beirut, some 25 per cent of them in Mount Lebanon and the remaining 25 per cent distributed among the other three muhafazats—about 13

per cent in north Lebanon, 7 per cent in the Beka'a and 5 per cent in south Lebanon.

Industrial financing

As to the methods of industrial financing, it is generally true that in most cases the firm's capital is provided largely or entirely by the family or associated relatives or friends and is built up and extended out of profits. There is no significant dependence on external long-term capital, and investment institutions are practically non-existent. It follows that a large part of investment is carried out directly by those who save and a good portion of the profits are reinvested in the same or related activities.

The organized credit market, however, provides relatively limited amounts of short-term and medium-term credit. According to the 1964 annual report of the Bank of Lebanon, outstanding industrial credits from commercial banks amounted at the end of 1964 to LL 236 million, or roughly one-fourth of the total declared capital of industrial establishments, which stood at the time at LL 828 million. These credits are believed to be mostly short-term credits; but a significant portion represents short-term credits extended with the understanding that they will be renewed automatically several times until their duration is about five years.

Such credit and most industrial credits extended by commercial banks come from local banks. Foreign banks have very little or no interest in financing domestic industry. Their share in industrial financing in Lebanon was hardly 10 per cent of the LL 236 million outstanding industrial credits at the end of 1964, and is believed to be extended largely to a few large foreign firms that operate in the country.

One additional but limited source of industrial credit in Lebanon is represented by the semi-public Agricultural, Industrial and Real Estate Credit Bank. Outstanding credits of the industrial portfolio of this bank were only LL 36.6 million at the end of January 1965.

Structure of the country's foreign trade with reference to the manufacturing sector

The structure of Lebanon's foreign trade suggests significant dependence on imported equipment and materials for the industrial sector. Foreign trade statistics for the period 1957-1963 show that Lebanon imports annually for its industrial sector about LL 27 million worth of machinery and equipment, about LL 105 million worth of intermediate products and some LL 40 million worth of raw materials.

Assuming prices in Lebanon to have been rising at the rate of about 2 per cent per year since 1954, the income arising in 1964 in the industrial sector and estimated at LL 280 million at 1954 prices will approximate LL 342 million at current 1964 prices. Assuming further that the income generated by the industrial sector is twice the cost of materials and intermediate products used, total costs of materials and intermediate products, i.e. local and imported, would be about LL 170 million. Given the value of imported intermediate products and raw material for industry to be about LL 145 million, there appears to be a heavy dependence on imports; the data, however, are very general and calculations based on almost arbitrary assumptions. The main branches of manufacturing which depend heavily on imports are those engaged in the production of chemical products, plastics, compressed wood, steel structures, aluminium, heaters, etc.

In contrast to such heavy dependence on imports, the Lebanese industrial sector depends very little on foreign markets to dispose of its products. Exports of industrial products hardly reach LL 50 million a year, which leaves the bulk of the output of this sector to be absorbed by the domestic market. The major industrial products of Lebanon are textiles and textile articles, products of chemicals and allied industries, articles of plaster, cement, asbestos and ceramics. Lebanese industrial exports are largely destined to Arab markets and the share of other markets in these exports is very small.

Although the bulk of Lebanese industrial products are consumed locally, Lebanon depends heavily on imports to satisfy its requirements of such products, particularly machines, equipment and most products of large-scale industries. In addition, Lebanon imports substantial quantities of industrial goods which are produced locally but which are so different in quality that they may be considered as different products altogether. The major categories of industrial products which Lebanon imports are textiles and textile products, machinery and mechanical appliances and electrical equipment, base metals and articles made thereof, vehicles and other transport equipment, material for the manufacture of paper and paper board and articles made thereof, artificial resins and plastic materials, rubber and substitutes, articles of wood, cork, products of straw, esparto, etc.

Transportation and power facilities serving the manufacturing sector

With the exception of the petroleum refinery plants and the cement plants which to some extent use the railway system, industry in Lebanon depends entirely on highway transportation facilities. This system is predominant in Lebanon and is generally considered adequate and economical for the economy as a whole.

The road network is largely influenced by the presence of the coastal mountain chain. The country has two main highways: The coastal road running from Nakura on the Palestinian border through Beirut and Tripoli to the Syrian border; and The Beirut-Damascus road, which climbs from Beirut over a mile-high pass through the mountains. Secondary feeder roads run east from the coastal highway up to the mountain towns. A fairly good road runs the length of the broad Beka'a valley. It is connected with the east-west highway at three passes across the Lebanon mountains at Marjayoun in the south, at Chtaura on the Beirut-Damascus highway, and at Homs in Syria on the Tripoli-Aleppo road. The total length of the highways is about 6,000 km (3,750 miles) and constitutes an extensive network of generally adequate roads which connect all industrial and business centres with one another and with the country's seaports and airports. Operating on these roads are some 98,000 motor vehicles, of which 11 per cent are trucks, 2 per cent buses and the remaining 87 per cent passenger cars.

Industrial programmes and major projects

Lebanon has no set industrial programme. The five-year plan adopted by the Government in April 1965

provides for the implementation of a number of projects which are essential for the development of the industrial infrastructure. They are mainly concerned with providing power and improving transportation facilities. The plan leaves industrial development essentially in the hands of the private sector, with the government function limited to indirect encouragement, provision of incentives, implementation of certain projects, and the provision of services and facilities essential for the development of the industrial base.

The selection of such projects or facilities may be initiated by any ministry within whose jurisdiction the project falls, but the Ministry of General Planning and the Economic Planning Board have the function of studying the projects proposed by the various ministries and presenting them to the Government in the form of a general programme, which includes all types of projects contemplated by the authorities.

Environmental conditions affecting industrial development

Judging by the environmental factors affecting industrial development in Lebanon, it may be concluded that:

There is a general shortage of capital for industry, despite a potential abundance of short-term capital for the financing of other activities, mainly trade and other services activities;

The level of skill of industrial workers and foremen is low by standards of industrially developed countries;

Specialized entrepreneurial experience, particularly in investigating and grasping investment opportunities in industry and in opening up new market outlets, is also lacking;

There are serious market limitations, and

There is a dearth of natural resources.

The conclusion that industry faces a shortage of capital is evidenced by the high rates for long-term credit. High rates generally reflect high risks rather than market discrimination against the activities involved. But the fact that highly secured loans to Lebanese industries pay substantially higher rates than those charged for similar types of loans in developed markets indicates the prevalence of market discrimination. The market seems to favour trade and activities in the field of services, and to some extent construction activities. The credit system with its developed money market, but much less developed capital market, has been channelling a relatively abundant supply of capital mainly into activities that usually require short-term credits. It fails to provide any significant supply of medium and long-term credit, which is essential for industrial expansion, especially for the establishment of new industrial enterprises.

As to the technical skills needed in the manufacturing industries, there is a serious shortage of such skills at the level of workers and foremen. There is no serious shortage of engineers. The scarcity of skilled workers is reflected in the sizable wage difference between skilled and unskilled workers, in the relatively high wages of foremen and specialized technicians, and also in the poor quality of a number of locally produced goods by comparison with similar goods produced in industrialized countries. The development of such skills normally takes place as industry develops and expands, but this process is a time-consuming one and depends on a number of industrial environmental factors which are absent in Lebanon.

Another important type of specialized skill which seems to be lacking in Lebanon is industrial entrepreneurial ability. The success of the Lebanese in other business avenues suggests that entrepreneurial ability as such is not lacking in Lebanon but that insufficient interest has been shown in industry. Given favourable conditions for industrial development, it is believed, industrial entrepreneurial skills will develop at a sufficient pace. There are already some obvious signs of development in this direction.

Market limitations might be thought to be partly the result of an insufficient supply of specialized entrepreneurship. While Lebanese business entrepreneurship is engaged heavily in securing foreign products and finding market outlets for them, very little specialized efforts are made to secure market outlets for local manufacturing products. This may be partly due to the relatively inferior quality of these products; but their quality is not independent of the availability of markets and scale of operation. The limitation of the local market, combined with the lack of any important foreign outlets, excludes many industries whose technically feasible minimum output is relatively large, and checks expansion and specialization in many directions; per unit costs are in many instances kept high and improvement in quality is also impeded. Securing foreign market outlets and improvement in the competitiveness of Lebanese manufactures are interdependent.

Natural resources are scarce in Lebanon. The mining industry is very limited and there are at present no good prospects for its expansion. All mineral oil is imported. The cost of fuel and power is relatively high compared with the cost of those items in industrial countries. This constitutes a serious handicap for a number of industries whose fuel and power costs represent a significant proportion of their over all expenditures. Until low-cost power is made available, this factor will continue to constitute a deterrent to increased industrialization.

Industrial policies

Lebanon's industrial and economic policies are oriented towards providing a favourable climate for private enterprise. This is reflected in the Lebanese exchange and tariff regulations, which provide for a free exchange market and a liberal trade control policy with low import duties on raw materials and non-competitive items. In an attempt to promote industrial development and growth, the Government has been favouring industry by raising import duties on those items which compete with domestic production.

Lebanon's liberal policies give private investors virtually a free hand in their operations. As a further inducement, the Government passed a law on 29 December 1953, which came into effect on 10 February 1954, granting exemption from income tax to certain new corporations or companies for a period of six years. Before expiration of this period in 1959, the law was extended for a period of five years ending 10 February 1964. To enjoy the tax exemption, a company must have as its objective the exploitation of a new project to enhance national production, contributing at the same time to the economic development of the country; it must have a minimum initial capital of LL 1 million, invested totally in Lebanon, and it must

pay out a minimum of LL 100,000 annually in the form of wages and salaries to Lebanese employees and workers.

A recent draft policy, formulated with a view to promoting industrial development in Lebanon, makes the stipulations listed below.

1. *General principles for developing industry in Lebanon*

(*a*) All decisions having to do with industrial policy should be made on the basis of sound technical and economic studies.

(*b*) Industrial policy should encourage the establishment and promotion of:

(i) Light industries;

(ii) Industries which use a high proportion of Lebanese raw materials;

(iii) Industries which provide substantial employment;

(iv) Industries which produce for the export market;

(v) Industries which produce import substitutes;

(vi) Industries which produce for the population at large, and

(vii) Industries located in rural centres.

(*c*) Foreign trade policy should be oriented to the promotion of industrial development through protection of new industries or industries that face dumping or unusual foreign competition, and authorization of duty-free imports of machinery.

(*d*) Adequate measures should be undertaken to improve the quality of Lebanese industrial products and to promote free competition among producers.

2. *Supplying the necessary information for the application of a sound economic policy*

(*a*) The Ministry of General Planning, the Ministry of National Economy, the Industrial Research Institute and the Association of Lebanese Industrialists should undertake jointly the appraisal of existing industries for the purpose of determining their soundness and industrial development potentials.

(*b*) The appropriate administration and specialized organizations should undertake:

(i) Theoretical and empirical research for improving methods of production;

(ii) A detailed study of imports to determine possibilities of producing substitutes;

(iii) A study of the requirements of foreign markets to determine consumers' tastes with respect to the types and quality of Lebanese products that are in demand; and

(iv) A study of rural industries to find out about industries that could be developed in the rural sector.

3. *Measures governing the establishment of industrial enterprises*

The main provisions governing the establishment of industrial enterprises shall be as follows:

(*a*) Application for the establishment of an industrial enterprise should be accompanied by a feasibility study prepared by a specialized institution;

(*b*) The Ministry of National Economy, in co-operation with the Industry Institute, shall review the feasibility study and give its recommendations thereon within three months;

(*c*) Should the project be found not feasible and should the applicant insist on carrying out the project, he will be permitted to import the necessary machinery but will not be entitled to any official support or help;

(*d*) In certain cases the establishment of certain industrial enterprises may be prohibited. Such prohibition should be announced in advance and should be effective for a specific period of time.

4. *Promoting free competition*

In order to eliminate monopoly evils and promote free competition, it is stipulated that:

(*a*) Import of machinery for industrial enterprises be free from any restrictions;

(*b*) Appropriate legislation be promulgated to prevent the creation of trusts which aim at creating monopolies that control production and prices against the consumers' interests; and

(*c*) Adequate powers be accorded to the office of consumer protection to enable it to perform its functions satisfactorily.

5. *Tariff protection and exemptions*

(*a*) With a view to promoting the development of new industries and strengthening established ones, it is stipulated that adequate tariff protection be granted to:

(i) New industries, or infant industries, provided that they can prosper eventually with only moderate tariff rates;

(ii) Industries of strategic importance or essential for social welfare, and

(iii) Industries that face dumping or other illegal practices.

(*b*) Such protection, when accorded, should be accompanied by official regulation of prices to prevent "illegal" price increases. Any request for tariff protection exceeding 25 per cent ad valorem duty should be accompanied by a comprehensive and detailed study that provides the following information:

(i) Production costs compared with costs of producing the same commodity abroad;

(ii) Transportation costs of importing the commodity;

(iii) Level of protection needed during the infant years of the enterprises, and

(iv) Length of period during which protection is needed.

(*c*) In addition to tariff protection, exemption from payment of customs duties should be accorded for imports of raw materials, intermediate products, semi-manufactured products and industrial machinery, equipment and spare parts, provided such imports do not compete with local products.

6. *Fiscal measures*

The draft policy stipulates exemption from payment of taxes on income, real estate and transfers for a period of five years, and for a ten-year period if the enterprise is located in specific regions which need special development measures. The exemption scheme is designed to encourage large investments that contribute signif-

icantly to employment and that produce for export. The scheme also stipulates the granting of subsidies.

7. *Industrial credit*

Recognizing the shortage of long- and medium-term capital, the draft policy envisages strengthening the Industrial, Agricultural and Real Estate Credit Bank, and establishing specialized financial institutions with a view to making available the needed medium- and long-term credit for industrial development.

Table 1. Number of establishments and declared capital in manufacturing industry, by branch of industry, 1950 and 1965

Industry	Number of establishments		Percentage annual change	Declared capital		Percentage annual change
	1950	1965		1950 (in LL million)	1965 (in LL million)	
Foodstuffs	616	2,424	26.2	31	153	32.9
Beverages	123	198	10.7	10	43	28.7
Textiles	56	174	20.7	31	85	18.3
Clothing and shoes	15	330	146.7	1	22	146.7
Wood products (other than furniture)	48	342	47.5	1	46	306.7
Furniture	94	114	8.1	4	16	26.7
Paper and paper products	9	59	43.7	0.5	11	146.7
Printing	79	263	22.2	5	39	52.0
Leather products	64	127	13.2	17	13	5.1
Rubber and byproducts	6	48	53.3	1	5	33.3
Chemical products	64	219	22.8	5	82	109.3
Non-metallic mining	156	867	37.1	38	62	10.9
Ferrous and metallic industries	25	382	101.9	3	87	193.3
Electrical machinery and Appliances	29	26	6.9	5	28	37.3
Miscellaneous	29	1,074	246.9	8	114	95.0
TOTAL	1,414	6,647		161	806	

Table 2. Number of establishments classified by type of legal organization

Industry	Individually owned	General partnership	Limited partnership	Corporations	Other	Total
All industries	1,129	659	28	38	7	1,861
Mining and quarrying	47	21	—	—	—	68
Metal mining, stone quarrying, clay and sand pits	41	18	—	—	—	59
Other non-metallic mining and quarrying	6	3	—	—	—	9
Manufacturing	1,082	638	28	38	7	1,793
Food manufacturing, except beverages	389	150	4	11	—	554
Tobacco manufacturing	1	—	—	2	—	3
Beverages industries	46	21	2	5	—	74
Textiles	49	58	2	4	—	113
Footwear, wearing apparel and other made-up textile goods	165	80	—	—	—	245
Wood and cork manufacturing, except furniture	43	27	1	—	—	71
Furniture and fixtures	111	55	1	—	1	168
Paper and paper products	5	8	2	1	—	16
Printing, publishing and allied industries	61	42	2	—	3	108
Leather and other products, except footwear and apparel	21	24	—	—	—	45
Rubber products	7	6	1	1	—	15
Chemical and chemical products	18	14	2	3	—	37
Non-metallic mineral products	69	72	8	3	1	153
Basic metal industries	3	—	—	—	—	3
Metal products, except machinery and transport equipment	51	43	2	5	1	102
Manufacture of machinery except electrical machinery	13	9	1	—	—	23
Electrical machinery and appliances	7	3	—	—	—	10
Transport equipment	6	3	—	1	—	10
Miscellaneous	17	23	—	2	1	43

SOURCE: Ministry of National Economy, Beirut, June 1957, pp. 37-39.

Table 3. Lebanese industrial establishments by number of employees

	Beirut	*Mount Lebanon*	*North Lebanon*	*South Lebanon*	*Beka'a*	*All districts*
Total number of establishments	995	480	241	57	88	1,681
Establishments in which the following number of persons are employed:						
5 to 9 persons	531	250	152	39	59	1,031
10 to 24 persons	341	131	72	15	22	581
25 to 49 persons	94	43	5	2	5	149
50 to 99 persons	24	31	5			60
100 and over	5	25	7	1	2	40

5. The industrial situation in Saudi Arabia

Communication submitted by Saudi Arabia

A. General survey

The Kingdom of Saudi Arabia depends almost entirely on the export of one commodity, oil. Since oil production and prices are subject to exogenous factors, the economy of Saudi Arabia is highly vulnerable, a situation that calls for diversification and development of production in various sectors as an essential prerequisite for the achievement of economic stability and self-sufficiency. In such circumstances, the greatest possible development and encouragement of the industrial sector becomes essential, especially since Saudi Arabia depends greatly on imports to meet the bulk of the local demand for consumer goods. In addition, several other economic benefits can be derived from the process of industrialization, such as the raising of national income, expansion of employment opportunities and the opening of new channels for the investment of idle capital funds.

Present situation and problems facing industry in Saudi Arabia

Industrial activity in Saudi Arabia is quite recent. In 1954, for example, there were only five industrial companies with a total invested capital of SR 42 million. Four of these companies were financed by domestic capital and the fifth by mixed capital (domestic and foreign). In 1964, the number of industrial companies rose to sixty-seven, with a total invested capital of SR 211 million. Of these companies, forty-seven operated with domestic capital and the remaining twenty with mixed capital. Furthermore, the rate of industrial growth during the last five years in Saudi Arabia has varied between 4.75 and 6.88 per cent. A higher rate of industrial growth could have been achieved had it not been for the deep-rooted obstacles which industrialization usually encounters in the developing countries. However, Saudi Arabia is fortunate in having ample capital funds and a high purchasing power due to oil revenue, which most developing countries obviously lack. The obstacles impeding the process of industrialization in Saudi Arabia are summarized below.

So far, Saudi Arabia's national resources have not been adequately assessed, with the exception of oil, natural gas and other minerals such as iron and magnesium. Moreover, the studies and surveys that are being undertaken in that direction suffer from lack of technical know-how and skilled labour and from deficiencies in the means of transport and communications within the vast areas to be surveyed. Consequently industrialization has been confined to the limited natural resources so far explored.

Owing to their recent origin, some industries in Saudi Arabia have not been sufficiently developed to stand on their own feet or to produce high quality goods. They cannot compete effectively with the quality and prices of imports from the highly industrialized countries, owing to the advantages which those countries derive from large-scale production and the resulting reduction in costs. The small scale at which many industries in Saudi Arabia operate, together with other factors which will be discussed below, have contributed to the high cost of industrial production in Saudi Arabia.

At the same time, consumers' preferences as well as the level and distribution of income have operated in favour of imported goods. While the high-income groups of the urban population are mainly interested in the quality of products and hence prefer high-quality imports irrespective of price, most middle-class consumers, including the rural population, are more interested in price than in quality and consequently consume goods which are sold at prices lower than those of imported goods.

This trend was countered by the implementation in 1961 of the law for the protection and encouragement of domestic industries.

Although labour in general is relatively abundant in Saudi Arabia, skilled labour is fairly scarce. Domestic industries are therefere forced either to employ skilled labour from outside at high wages or to depend on inexperienced domestic labour. Obviously, in both cases this will lead to low productivity and high production costs. In addition to the problem of shortage of skilled labour, domestic industry has to face the problem created by the bedouin workers who, being still unaccustomed to urban life, exhibit a high degree of mobility.

In order to obviate these problems, the Government has recently established technical and vocational training centres in most of the principal cities.

Industrialization is a process of transforming raw materials and other inputs brought in from various locations into finished or semi-finished products. Once processed, these goods have to be transported to consumers in various parts of the country. In all phases of industrialization, therefore, the presence of an adequate system of communications and transport is most essential.

The absence of such a system in Saudi Arabia is one of the important factors tending to retard the growth and progress of industrial activity in the country.

The Government has given this problem special attention and has been able to construct about 3,000 km of modern roads during the past three years. However, the vastness of Saudi Arabia—an area about two-thirds the size of Western Europe—and the nature of its soil and its climatic conditions render the construction of an adequate communications network in the country a slow and costly operation.

Abundant water is of vital importance to the expansion and progress of industrial activity. It is known, for example, that 65,000 gallons of water are needed for the production of one ton of iron, 66,000 gallons for the production of one ton of paper and five gallons for the processing of one gallon of milk.

The known water resources in Saudi Arabia which are being exploited at present may not be sufficient to meet the water requirements of the expected industrial expansion; this factor could retard industrial growth. The Government is therefore undertaking widespread well-boring operations in various districts with a view to exploring new water resources for irrigation and industrial purposes. Moreover, a huge project for the desalination of sea water at the lowest possible cost is still under study.

The supply of needed electric power in Saudi Arabia is insufficient and is offered at relatively high rates owing to administrative and technical difficulties and deficiencies in the distribution facilities of some power companies. Lately, a specialized international consulting firm was called upon to study the power service problem. As a temporary solution, the Government is subsidizing the power companies so as to reduce power rates to consumers and especially to industrial enterprises.

Many owners of capital prefer to invest their money in fields other than industry, such as commerce and real estate. This is quite natural in most developing countries, where capital usually seeks quick returns in the least complicated activities and shies away from enterprises characterized by technical difficulties and a high degree of risk. Nevertheless, interest in investment in industry has increased noticeably during the past three years.

Industrial policy and legislation

The Government has adopted an industrial policy which is consistent with the economic and social conditions of the country. This policy aims at encouraging the expansion of the industrial sector as a means of accelerating economic development. The main elements of this policy are summarized below.

Industrial activities are left to the private sector, which owns sufficient financial resources and has recently exhibited a mounting interest in investing in industrial ventures.

As a preliminary step, the State is to undertake, either independently or in cooperation with local investors or international enterprises, the establishment of strategic and vital industries in which the private sector alone is unlikely to invest in the short run either because of the huge size of the undertaking or because of the technical complexities involved. At a later stage, when these industries have been successfully launched, they will be handed over to the private sector.

The State will spare no effort to eliminate the problems confronting local industries and to provide the climate suitable for the expansion of such industries. The planning and implementation of several projects designed for the realization of this goal have actually been started. The following examples may be cited:

(*a*) A centre for industrial studies and promotion has been established with United Nations Special Fund participation;

(*b*) Industrial estates in the principal cities are being built on scientific and modern bases consistent with the principles of the law pertaining to the protection and encouragement of local industries;

(*c*) The metric system has been adopted and measures are being taken for the standardization of measurements and specifications;

(*d*) Steps have been taken for the provision of electric power at reasonable rates;

(*e*) Vocational and training centres are being established, and

(*f*) A comprehensive plan for a widespread network of land communication in all parts of the country has been prepared.

Industrial laws consistent with the Government's industrial policy referred to above have been promulgated. They are listed below.

1. *Law for the protection and encouragement of local industries* (royal decree issued in 1962)

This law aims at improving the conditions and climate needed for private investment. The most important provisions of the law are:

(*a*) Exemption from the payment of import duties on imports of machinery, tools, equipment, spare parts and certain other materials if these are used by new industrial establishments or for expanding existing ones;

(*b*) Exemption from the payment of import duties on imports of raw materials, semi-processed products and certain other materials which either do not exist or are insufficiently produced in the country;

(*c*) Provision of industrial land at nominal rent for plant construction and accommodation facilities in specially located industrial estates;

(*d*) Adoption of the following measures for the protection of local production:

(i) Prohibition or restriction of imports competing with local products;

(ii) Raising of customs duties on such imports;

(iii) Provision of various types of subsidies to industries.

(*e*) Exemption from export and other duties of domestic products destined for export;

(*f*) Establishment of a technical and industrial office in the Ministry of Commerce and Industry to examine and scrutinize all suggestions pertaining to new industries with a view to taking whatever measures are deemed necessary in light of the decree pertaining to the protection and encouragement of local industries.

2. *Public bureau for petroleum and minerals* (Royal decree issued in 1962)

A public board for petroleum and minerals was established as a semi-independent administration attached to the Ministry of Oil and Mineral Wealth. This government organization undertakes, in addition

to producing, refining and marketing oil, the processing of various stages of the mineral industry, and assists in the expansion of industries that depend on oil, natural gas and minerals.

3. *Decree on foreign capital investment* (Royal decree issued in 1963)

This decree, which replaced an earlier decree on the investment of foreign capital, has liberalized policies with respect to investments. Although foreign capital is not needed in Saudi Arabia at the present, the inflow and investment of such capital in domestic industrial development may achieve two objectives: first, it may attract or encourage domestic capital to enter the industrial field and, secondly, it may pave the way for the importation of technical and managerial talent.

The decree contains the following provisions:

(*a*) It allows foreign capital invested in approved development projects to enjoy all the concessions accorded to domestic capital under the decree for the protection and encouragement of local industries referred to above;

(*b*) It exempts foreign capital invested in approved development projects from income and corporate taxes for five years commencing from the date of production, provided that the share of domestic capital in such ventures does not fall short of 25 per cent of total capital over the whole period of tax exemption;

(*c*) It calls upon the ministries concerned to issue visas and residence permits to foreign investors, their employees and workers;

(*d*) It excludes oil and mineral industries from the provisions of this regulation, since these are organized under a separate decree on the public bureau for petroleum and minerals.

Conclusion

Saudi Arabia is striving to resolve the problems in the way of its industrial expansion, but the achievement of a quick and effective remedy may require close and fruitful co-operation at the international level, especially in the technical, economic and social fields.

It has now become obvious that the means used by the United Nations in its attempts to resolve these problems, by way of advisory services, information and technical assistance, have not been adequate in fulfilling the aspirations of the developing countries. It is therefore essential for the United Nations and its specialized agencies to expand their activities and to give these countries needed support in a field which has become of paramount importance to their economies.

B. Role of the General Organization for Petroleum and Minerals (PETROMIN) in the economic development of Saudi Arabia

Introduction

Economic development is a vital and sensitive field, and has become indeed the subject of the hour. Governments are seriously engaged in finding ways and means of achieving balanced economic growth, especially since the large gap that exists in the standards of living in the developed and developing countries is widening in such a way that serious and continuous action has become imperative. The spread of modern means of communication has strongly influenced the attitude of peoples and Governments of the developing countries to the essential measures that have to be taken to ensure a continuous rise in production and income. Many Governments have increased their allocations for development projects; and public investment in health, education, transport, communications, social and other public fields has become an essential prerequisite for the development process.

In the Kingdom of Saudi Arabia, government revenues from oil production have been increasing rapidly, and the amounts allocated for development projects have continuously risen. The Government's policy is based on the need to implement the economic development programme and to diversify the economic base of the country, which now depends heavily on one source of wealth, namely, oil. Undoubtedly, the attainment of this goal requires great efforts based essentially on the exploitation of oil revenues, on the one hand, and on the mobilization of all available human and natural resources, on the other.

The oil industry is at present the most important industrial activity in Saudi Arabia. In fact, the whole economy is directly affected and dominated by oil production, since the value added in the oil sector exceeds 50 per cent of the gross national product (GNP). Moreover, government income from petroleum activities, including royalties and taxes, constitutes about 80 per cent of its total revenues. Fortunately, oil prices in the world market have been relatively stable. Hence, at least for the time being, Saudi Arabia is not suffering violent fluctuations in its national income. Such fluctuations occur in countries producing other primary products, undermining the implementation of their long-term economic development plans.

It should be pointed out that about one half of the oil revenues remain outside the country, and that about 20 per cent of the remaining part is paid out in the form of wages and salaries. Moreover, about 40 per cent of the whole income from oil accrues to the Government in the form of taxes and royalties. The heavy burden of industrial development in Saudi Arabia must therefore fall on the State. The measures that have been adopted for the encouragement of private industries through the exemption of machinery and raw materials from customs duties, the trend towards the establishment of industrial estates and the granting to industrial establishments of public facilities, technical and financial support and advisory services on industrial feasibility studies, are all measures necessary for creating an environment conducive to private investment in industry.

The need to adopt development programmes, whether in industry or in agriculture, is obvious. However, it may be mentioned that a considerable portion of the national income in Saudi Arabia is spent on the importation of consumer goods and foodstuffs. This leakage in the domestic purchasing power is likely to reduce the volume of local investments in productive projects. For this reason, it is believed that the establishment of import substitutes as well as of export industries will help to safeguard domestic savings and to channel these savings into such fields as may strengthen the economic base of the country.

Establishment of the General Organization for Petroleum and Minerals (PETROMIN)

In line with the policy adopted for the development of the country and the diversification of the sources of national income, the Government established this organization late in 1962 for the specific purpose of

setting up basic industries that depend on petroleum, mineral and other resources. The main objective behind the creation of PETROMIN was to ensure the effective participation of the State in industrial promotion and in the channelling of foreign and domestic investment into vital and basic industries. Since the nature of industries such as iron, steel and petrochemicals requires huge capital investments and is characterized by high risks, it may prove difficult for private investors to undertake such ventures, especially since profits can be achieved only after a long time. Nevertheless, due consideration has been given to the participation of private domestic and foreign capital in these huge ventures, which are expected to contribute to employment and income, on the one hand, and to the acquisition of technical and managerial experience on the other. Obviously, the main purpose in attracting foreign capital into PETROMIN'S projects is to invite technical and managerial skills.

The Government allocates funds for new industrial projects in the light of the technical and economic studies which must precede the implementation of industrial projects, and with a view to orienting these projects to conditions prevailing in the country.

The establishment of such basic industries as petrochemicals, iron and oil refining will result in the expansion of the economic base, diversification of income and the creation of external economies. This, in turn, will lead to the establishment of subsidiary industries which depend for their raw materials and intermediary products on the products of the basic industries. The presence of conditions favourable to industrialization has motivated the creation of these basic industries, and permitted the exploitation of such resources as natural gas, minerals and crude oil. Furthermore, the establishment of these industries will tend to reduce the country's dependence on oil as a source of revenue and will create opportunities for the training of the labour force in various fields of industry. Training in itself constitutes a considerable gain since it will help to produce an industrially trained and experienced generation, especially since shortage in technical skills is one of the main bottlenecks in Saudi Arabia. PETROMIN, which has been aware of this serious problem, has mobilized its facilities for vocational training in all fields related to these projects. It is believed that such training will raise labour productivity and therefore reduce the cost of production and maintain stability and continuity.

In this study, discussion will be centred on the two most important industries which are being promoted because of their importance to industrial development: the petrochemical and the iron and steel industries.

The petrochemical industry

Natural gas is one of the most important resources in Saudi Arabia. Unlike other resources, natural gas tends to be dissipated if not properly exploited. In fact, the Arabian American Oil Company (ARAMCO) injects part of the natural gas to maintain underground pressure, but the larger portion of it remains unexploited. The total production of natural gas during the last seven years was 2,000 billion cubic feet, of which 6.1 per cent was put to domestic and industrial use and 32.1 per cent injected. The remaining 61.8 per cent was lost. This gives an idea of the heavy loss sustained by Saudi Arabia as a result of its inability adequately to exploit all its sources of natural wealth. PETROMIN has given special attention to this resource and has prepared plans for the establishment of a petrochemical industry.

Because of the narrowness of the domestic market and the lack of subsidiary industries, the establishment of a petrochemical industry in Saudi Arabia must depend on foreign markets. Hence an essential prerequisite for the establishment of such an industry is its ability to compete effectively in world markets. To ensure its competitive strength, production must be large enough for economies of scale to be adequately reflected in lower production costs. Moreover, the marketing of this large-scale production must be guaranteed so that the returns on investment remain high and attractive. PETROMIN has always been aware of this marketing problem.

Fertilizer project

The establishment of a fertilizer industry, which will put part of this wasted wealth to use, will create new employment opportunities and prepare a pool of well-trained personnel. Moreover this project will cater to the country's need and provide the necessary fertilizers for the development and expansion of its agricultural sector.

The results of the detailed studies undertaken by PETROMIN clearly indicated the necessity of closer co-operation with specialized international organizations and companies in order to make use of their technical expertise and ensure the success of the fertilizer project. In line with this policy, PETROMIN towards the end of 1964 concluded agreements with two American companies, the Occidental Petroleum Corporation and its affiliate, the International Ore and Fertilizer Company. Under these agreements, the first company undertook to provide the technical skills necessary for the operation of the fertilizer project and to train Saudi Arabian nationals in all technical and managerial fields. The International Ore and Fertilizer Company is to market externally the output of fertilizers in excess of local requirements.

Mention may also be made of the royal decree establishing the Saudi Arabian Fertilizer Company, which should begin operations as soon as certain studies connected with the project are completed. Furthermore, the establishment of a nitrate industry at the industrial estate in Dammam has been decided upon. The total capital invested in this industry will amount to about $40 million (SR 180 million). PETROMIN plans to issue about 1 million shares, valued at SR 100 million, for public subscription. This is undertaken for the specific purpose of channelling domestic savings into effective exploitation of local resources.

The productive capacity of the fertilizer project, which is designed to use about 30 million cubic feet of natural gas daily, will amount to 1,000 tons per day. Accordingly, this project may provide the impetus for further expansion in the application of fertilizers to agricultural areas, thereby raising agricultural productivity in general. At the same time, the export of fertilizers is expected to raise Saudi Arabia's annual earnings of foreign exchange by about $30 million, which may be used in various other economic activities.

The PVC project

PETROMIN has shown great interest in the development of a PVC project which uses natural gas as a raw material and transforms it into plastic resins. Because of technical inexperience and the narrowness

of domestic markets, the Government called upon certain petroleum companies to participate with PETROMIN in establishing petrochemical projects. Thereupon an Italian company, ENI, which specializes in the production of petrochemicals, signed an agreement with PETROMIN on 13 June 1965. The agreement provided for the carrying out of a feasibility study for a PVC project with an annual capacity of 6,000 tons and a total investment of SR 250 million (55 million). This feasibility study has been started and it is hoped that the results will prove encouraging. Moreover, it is hoped that the availability of natural gas at low cost and the rapid expansion of the plastics industry throughout the world may promote the successful implementation of the proposed PVC project.

PETROMIN is giving special attention to this PVC project in order to encourage Saudi capital to participate more effectively in the development of other industries. When PETROMIN acquires sufficient experience in the PVC industry, it may decide to undertake the establishment of other projects.

The establishment of the nitrogenous fertilizer and PVC projects at the industrial estate in Dammam will undoubtedly enhance the importance of that area and therefore lead to the emergence of external markets and the establishment of subsidiary projects. The availability of various industrial facilities such as electricity, water and gas will further raise prospects for the exploitation of natural gas which is abundantly available in the eastern part of Saudi Arabia.

PETROMIN is also studying the possibility of establishing a plant for the production of raw sulphur. The revenue to be accrued from the sale of this by-product will be discounted from the cost of operating the fertilizer and plastic projects. There is also the possibility of extracting sulphuric acid from the raw sulphur and using it for the expansion of the fertilizer industry; sulphur will thus become an effective factor in the acceleration of the process of industrial development.

The iron and steel industry

PETROMIN has studied in considerable detail the establishment of an iron and steel industry, which is of strategic importance to the process of industrialization in Saudi Arabia. It has been encouraged to develop this industry by the availability of iron ore in three districts of Saudi Arabia: Wadi Fatima, where iron ore reserves are estimated at 50 million tons, with a purity of 45 per cent and a concentration of 58 per cent; the Edsas mountain, where iron ore reserves are estimated tentatively at 6.5 million tons; the degree of purity of this ore reaches up to 64 per cent; and Wadi Swawine, where iron ore reserves are estimated at 1,500 million tons, with a purity of 39 per cent.

Owing to the manifold benefits that may be derived from an iron and steel industry, PETROMIN, having completed several feasibility studies, decided to establish such an industry in Saudi Arabia. To ensure economic viability, PETROMIN plans to enter the steel industry by stages the implementation of each stage being dependent on the success of the preceding one. PETROMIN chose to begin with the most manageable and technically simple stage, namely, the rolling mill operation at Jedda, which happens to be the last stage in the project. During its first years of operation, this mill will use imported iron billet to manufacture a variety of light products. The capacity of the plant is planned at 45,000 tons annually on the basis of three working seasons. However, it has been decided that, during the first years of operation, production is to proceed on the basis of two working seasons with an annual capacity of 30,000 tons only. The possibility of expanding this annual capacity to 70,000 tons is now under careful study, in view of the recent rise in the country's imports of iron bars. The total value of imported iron bars over the last four years amounted to SR 180 million.

It is expected that this stage will be completed by the end of 1966. The next stage may be undertaken with the purpose of installing a new plant that will use imported pig iron to manufacture iron billets used as a raw material for the rolling mill operation. The final stage will involve the exploitation of iron ore in Wadi Fatima and other districts.

Total investment in the rolling mill will be about SR 30 million ($6.7 million). While the return on investment is likely to be low, the strategic importance of this project justifies its implementation. At present, PETROMIN is financing the whole project, but it is likely that, once the project is sufficiently developed, a part of the invested capital will be sold to individuals and private institutions.

Apart from the industrial training involved and the dissemination of income, the steel mill is likely to promote the establishment of related industries, such as light engineering and assembly plants.

6. The industrial situation in Syria

Communication presented by Syria

Introduction

Industrial development in Syria dates far back and first appeared in the form of small primitive industries and handicrafts. It was not until the establishment near Damascus of the first cement factory in 1930 that modern mechanized industry was introduced. However, industrial development was very slow because of the colonial policy followed by the French authorities during the mandate period. Up to the outbreak of the Second World War, Syrian industry remained dependent mainly on manual production methods and had to face strong competition from machine-made imports, a situation which seriously hampered its development.

No sooner was the country freed from colonialism, having gained complete independence at the cost of great sacrifices on the part of its people, than a great industrial renaissance took place in all fields, leading to the establishment of a modern mechanized industry.

The spinning and weaving industry led the way. Among other important industries to be established, or expanded, during the period following independence, were vegetable oils, sugar, canning, cereal milling; cement, glass, modern tanning, matches, rubber and plastic products and metal products. Among the factors contributing to the development of Syrian industry were scarcity of foreign industrial products and the rise

in their prices during, and immediately following, the war.

The State contributed substantially and successfully to this development, either through the regulation and encouragement of industry or through customs protection.

The development of the bases of industrialization, i.e., power, transport and communication, contributed to the development of industry. This development was also furthered by industrial planning in the context of comprehensive economic and social planning. It is therefore necessary, in a general survey of the industrial position and policy of the country, to discuss industrial planning and the bases of industrialization. This is what we intend to do in the pages that follow.

Industrial planning and programming

Historical background

The economically backward or developing countries are characterized, according to modern terminology, as having unutilized economic resources, both material and human, low levels of technical know-how and low productivity. The result is a low level of national and *per capita* income, and average savings and rate of investment, leading inevitably to a slowing down and weakening of economic growth.

The fact that Governments in economically advanced countries play an active part in guiding and accelerating economic progress indicates the need for the State to play a similar role in developing countries, such as the Syrian Arab Republic, and to formulate the plans necessary for accelerating economic and social progress. Hence, economic progress is linked with the setting of a well defined economic policy, the formulation of a comprehensive economic plan and continuous concern with its implementation. This is what is known as planning, which is a means of accelerating progress and is mainly the responsibility of the State.

Planning, in this sense, is a new concept in Syria, introduced only after the Second World War, i.e., since independence. However, during the early years of that period, the successive Governments were unable to formulate a comprehensive development plan owing to the wide responsibilities which they had to shoulder and the circumstances in which the country was placed. It was nevertheless possible to initiate development by executing certain important projects, some parts of which were financed under the regular budget through loans extended by the Currency and Credit Board, and with Treasury credits financing the major part.

Surveys of economic potentialities

In February 1946, the Syrian Government called upon the firm of Sir Alexander Gibbs and Partners to study economic conditions in Syria in accordance with the following terms of reference:

(*a*) To survey Syria's virgin resources, concentrating on thermal and electric power, irrigation and water utilization, industrial development and public buildings;

(*b*) To report and submit recommendations relating to the items referred to above, indicating the priorities to be accorded.

The firm submitted its report to the Syrian Ministry of Public Works and Communications on 30 April 1947. The report was made up as follows:

Section 1: Topography, population, meteorology;

Section 2: Natural resources: agriculture, metallic minerals, water resources, irrigation and drainage;

Section 3: Economic resources: transportation, industry, fuel and power, public buildings and social services as related to industry and agriculture;

Section 4: Summary of the report and conclusions; with a programme of priorities for the different investment projects and suggestions for achieving economic development.

The report included, in its fourth section, a ten-year programme providing for the expenditude of about LS 477 million, or about $171 million (converted at the average rate of $1=LS 2.80), distributed as follows:

	(*LS million*)	(*$ million*)
Irrigation and drainage	70	25.0
Electric and thermal power	70	25.0
Water resources	65	23.2
Roads	40	14.3
Railways	93	33.2
Airports	12	4.9
Seaports	25	9.0
Telephone and broadcasting	32	11.4
Public buildings	70	25.0
	477	171.0

This report did not, however, meet with the approval of the Syrian Government, because it failed to recommend basic measures essential for the development of a sound industrial structure in Syria.

Early in 1954, the Syrian Government called upon a group of experts from the International Bank for Reconstruction and Development (IBRD) to study the country's economic potentialities and submit suggestions for a long-range programme for the development of productive capacities and the raising of the standard of living of the population. The group of experts undertook their study in Syria during the period February-April 1954. In March 1955, their report was submitted to the President of the Syrian Republic.

It consisted of two main parts. Part I included recommendations for the organization and financing of a six-year programme. It covered the following: structure and development of the Syrian economy; economic programmes and data; agriculture and animal husbandry; industry; electric power; transport and communications; education, public health and housing; rural planning and services; financing and implementation of the plan. Part II included a number of appendices containing technical information on Syria's international economic position, public financing, agriculture, irrigation, agricultural institutions, industry, electric power, transport and communications, housing and social services.

The proposed investment programme for the period 1955-1960 was estimated at about LS 1,903.5 million, or about $533 million (converted at the average rate of $1=LS 3.575), distributed as shown in table I.

Table 1. Estimates expenditures for the period 1955-1960

Sector	Yearly average (LS million)	Yearly average ($ million)	Total (LS million)	Total ($ million)
Development projects:				
Irrigation and land reclamation	33.5	9.4	201.2	56.3
Agriculture	23.2	6.5	139.1	38.9
Industry	2.0	0.5	12.0	3.4
Tourism	1.3	0.4	7.9	2.2
Electric power	10.1	2.8	60.7	17.0
Transport and communications	28.9	8.1	173.3	48.5
Education	45.3	12.7	271.8	76.0
Public health	12.4	3.5	74.2	20.8
Rural planning and services	4.2	1.2	25.0	7.0
Housing	1.3	0.4	7.5	2.1
Miscellaneous	2.3	0.6	13.5	3.8
TOTAL	164.3	46.1	986.2	276.0
Public administration	73.2	20.5	439.3	123.0
Defence	75.5	21.1	453.0	127.0
Salary increments of employees	4.2	1.2	25.0	7.0
GRAND TOTAL	317.2	88.9	1,903.5	534.0

This report was useful in that it included, in addition to those mentioned, specific proposals regarding policies that must be followed in the various fields of economic activity. These proposals were utilized later as a basis for the extraordinary budget, also known as the seven-year programme, 1955-1961, which was promulgated by law No. 116, dated 29 July 1955.

This extraordinary budget comprised old and new projects totalling LS 659.89 million or about $184.7 million (converted at the average rate of $1 = LS 3.575) distributed as follows:

Sector	Allocations (LS million)	Allocations ($ million)
Irrigation and agriculture	221.10	61.9
Industry	117.00	32.8
Transport and communications	185.12	51.8
Public buildings	32.52	9.1
Defence	45.00	12.6
Social development	12.30	3.4
Miscellaneous	46.85	13.1
TOTAL	659.89	184.7

However, the Government had to refrain from spending on the new projects included in the extraordinary budget because of the circumstances prevailing in the country following the tripartite aggression on Egypt. The sum of LS 136.16 million ($28.1 million) was spent on projects of the extraordinary budget during 1955 and 1956.

Following the establishment of union between the Egyptian and Syrian regions on 22 February 1958, a mission from the Ministry of Industry in the Egyptian region undertook a general study of the industrial situation in Syria and studied the bases for formulating industrial development plans, especially since Syria, in 1957, had concluded with the Soviet Union an agreement for technical and economic assistance under which the Soviet Union undertook to study and implement a number of important developmental projects. The mission carried out the assignment between 28 April and 13 May 1958 and submitted a report in three parts containing the results of its work and certain recommendations on petroleum, mineral resources and industry, as follows:

Part I. *Petroleum* — Historical background; petroleum exploration authorities and their activities; prospects; imports; marketing; prices; requirements; storage; transportation; a brief account of petroleum agreements; recommendations;

Part II. *Mineral resources* — Government machinery responsible for supervising mining operations, mining and quarrying legislation, potentialities, the Soviet agreement, observations and recommendations;

Part III. *Industry* — General survey, spinning and weaving industry, foodstuffs industries, cement industry, engineering industries, industrial expansion.

This report was utilized in the preparation of the first industrial programme for the Syrian region, which provided for the expenditure of about LS 560 million, or about $155.7 million (converted at the average rate of $1 = LS 3.60), distributed as follows:

Projects	Allocations (LS million)	Allocations ($ million)
Petroleum	266.160	74.0
Mining	2.430	0.7
Manufacturing	216.900	60.2
Productivity and vocational training	14.283	4.0
Miscellaneous	60.227	16.7
TOTAL	560.000	155.7

In 1958, some time before the formulation of the first industrial programme, a decree was issued promulgating Law No. 133, which contained the ten-year economic development programme 1958-1968. This programme aimed at freeing agriculture from dependence on rainfall, improving agricultural methods, producing different types of fertilizers, building a road network connecting production and distribution centres, constructing a petroleum refinery, creating an industrial base, and preparing a general geological map for the country. The programme provided for the expenditure of about LS 2,139.9 million, or about $595 million (converted at the average rate of $1 = LS 3.60), distributed as follows:

Sector	Allocations (LS million)	Allocations ($ million)
Agriculture, irrigation and electric power	1,461.5	406.3
Communications	365.0	101.5
Industry and petroleum	160.0	44.5
Technical and vocational training	10.0	2.8
Tourism, summer resorts, etc.	143.4	39.9
TOTAL	2,139.9	595.0

The country's economic and social objectives for the ten years 1960-1970 were defined in 1960 as follows: doubling the national income in ten years by raising it from LS 2,400 million, in the base year, to LS 4,800 million in the tenth year; achieving stable growth in which economic disturbances are minimized, and without inflation; improving the distribution of income.

On the basis of these objectives, the first five-year plan for economic and social development, 1960-1965, was formulated with the participation of both private

and public sectors. Implementation of the plan started on 1 July 1960.

First five-year plan, 1960-1965

This plan provided for the expenditure of about LS 2,720 million, or $756.3 million (converted at the average rate of $1 = LS 3.60), during five years, distributed among different projects in the public and private sectors, as shown in table 2.

Table 2. Distribution of expenditures under the first five-year plan, 1960-1965

Economic sectors	Investments: Public sector (LS million)	Investments: Private sector (LS million)	Total (LS million)	Total ($ million)	Percentage
1. Irrigation and land reclamation	780	50	830	230.7	30.5
2. Agriculture	95	175	270	75.1	9.9
3. Industry, electricity, mining and petroleum			509	141.5	18.7
4. Transport and communications	387	150	537	149.3	19.7
5. Education	100		100	27.8	3.7
6. Health	46	10	56	15.6	2.1
7. Public utilities and tourism	32		32	8.9	1.2
8. Housing	15	245	260	72.3	9.5
9. Social affairs	18		18	5.0	0.7
10. Entertainment		11	11	3.1	0.4
11. Laboratories, training and research	7		7	2.0	0.3
12. Changes in stocks		90	90	25.0	3.3
TOTAL	1,720	1,000	2,720	756.3	100.0

This investment programme was aimed at achieving an increase of LS 960 million in national income by 1964-1965, or a 40 per cent increase over the base year, at an average rate of 7.9 per cent per annum. The plan was divided into five yearly stages.

Implementation encountered a number of obstacles, including shortage of funds, scarcity of technicians and reluctance of the private sector to carry out its share of investments, as envisaged under the plan. As a result, implementation was limited to certain proportions of allocated investments differing, according to variations in the available financial resources, from year to year.

Actual expenditures in the industrial, power and fuel sectors, in both public and private sectors, amounted during the plan period to the following:

Period	LS million
1960-1961	127
1961-1962	143
1962-1963	128
1964	145
TOTAL	543

Second five-year plan, 1966-1970

Upon the suggestion of the Supreme Planning Council, it was decided to consider the year 1965 as a continuation of the first five-year plan, and begin the second five-year plan in 1966. The latter plan is currently under consideration and is expected to be released soon. Its aim is to increase the national income at the rate of 7.2 per cent per annum.

Proposed investments in the second five-year plan, 1966-1970, for the industrial, mining, electricity, fuel and transport and communications sectors are as follows:

Economic sectors	Investments (LS million)	Investments ($ million [a])
Industry, mining and fuel	1,059.5	264.9
Electricity	237.6	59.4
Transport and communications	1,040.0	285.0

[a] Converted at the average rate of $1 = LS 4.0.

We shall attempt to set out, in some detail, the proposed investments in projects of the industrial, mining and fuel sectors in connexion with future industrialization plans.

Planning machinery

The highest planning authority in Syria is the Supreme Planning Council, created by legislative decree No. 97, dated 3 July 1963. The Council is composed of the head of the National Revolutionary Council, who serves as chairman; the Prime Minister, vice-chairman; the Ministers of Defence, Planning, Finance, Economy, Agriculture, Industry and Public Works, and the Governor of the Central Bank of Syria; and the Secretary-General of the Ministry of Planning, rapporteur.

The Supreme Planning Council is responsible for the development of economic and social affairs, in accordance with well worked out plans, and for the mobilization of the economic and human resources, both public and private, needed for the implementation of those plans. In addition, the council co-ordinates eco-

nomic, financial, currency and social policies with a view to achieving national objectives. Accordingly, the council fulfils the following functions:

Supervises the formulation of the general economic and social development plan as well as the annual plans;

Defines the economic, financial and currency policies that guarantee the adequate implementation of the plan;

Supervises the formulation of the State's annual draft budget within the general framework of the economic and social development plan;

Defines the principles to be followed in implementing the development plan and studies projects, recommendations and other matters relating to the plan;

Supervises the progress made in implementing and financing projects; studies the obstacles encountered and takes the necessary measures to overcome them;

Ratifies contracts for implementing projects whose cost exceeds LS 1 million, and all contracts enjoying credit facilities.

The Ministry of planning is the central technical planning body which serves as the link between the higher political authorities, such as the Council of Ministers and the Supreme Planning Council, on the one hand, and the executive authorities such as the ministries and public departments, on the other. It was created by law No. 194, 1958, and re-organized by law No. 120, of 11 May 1959. Under that law, the Ministry of Planning undertakes the following:

Formulation of comprehensive long-term plans embodying defined major targets for accelerating economic and social development;

Mobilization of public and private resources to implement proposed plans, which are divided into a number of specific stages in which the required rate of development and means of achieving that rate are indicated;

Distribution of programmes and projects whose implementation will take a definite number of years over the different stages of the plan;

Division of the plan into annual plans;

Preparation of recommendations, proposals and legislation drafted in the light of studies and statistics to ensure the implementation of plans;

Follow-up of progress in the over-all plan and its various stages, and periodic revisions and adjustments;

Preparation of statistics, especially those necessary for the formulation of comprehensive plans and development programmes;

Organization, co-ordination and supervision of technical assistance offered by the United Nations and its specialized agencies, or by public and private foreign organizations and institutions.

The Ministry of Planning, in accordance with the provisions of legislative decree No. 205 of 11 December 1961, and decree No. 50 issued by the Ministry of Planning on 24 March 1964, is composed of the following directorates: statistics and census; economic and social planning; programmes and follow-up; technical and economic assistance; administrative and financial affairs.

The central technical planning machinery is assisted by planning units in the ministries and public departments (previously this function had been assumed by committees). Legislative decree No. 97 of 3 July 1963 provided for the establishment in each ministry or public department of a planning unit to be attached directly to the minister and headed by the secretary-general or an assistant secretary-general in the ministries, and by the director-general or his deputy in the public departments.

These units are established by a decree issued by the minister or director-general concerned. Their function consists of collecting data and statistics, and preparing, studying and analysing reports on the progress achieved in development projects in accordance with forms and models laid down by the Ministry of Planning.

Decree No. 38 of 20 October 1963 issued by the Supreme Planning Council provided for the establishment of planning committees in each mohafazat. These committees are headed by the mohafez (governor) and have a membership of at least ten, representing official bodies and various other social and economic groups in the mohafazat. However, it was stipulated that one-third of the members of the planning committees should represent the private sector.

The committees are to be established by decree of the mohafez, to undertake a study of the human and material resources available in the mohafazat, and recommend viable economic and social projects for their exploitation. The reports and recommendations of these committees will be submitted, through the Ministry of Planning, to the sectoral preparatory committees for study and consideration in the formulation of the over-all plan.

By decree No. 10 of 19 September 1963, the Supreme Planning Council created preparatory committees for each of the following sectors: irrigation and land reclamation, agriculture, industry, mining, petroleum, electricity, transport and communications, culture, guidance, education and health services, public utilities, housing, social and labour services, public administration and municipalities. These committees are to be established by decree issued by the minister concerned, subject to the approval of the Ministry of Planning. Each committee is headed by the secretary-general of the ministry whose field of activity lies closest to the relevant sector. Meetings are attended by a member designated by the Minister of Planning to represent the ministry, and by one or more members representing the private sector.

The committees are concerned with the formulation of over-all long-and medium-term plans, as well as with annual plans, and with the collection of data and the preparation of studies in the sectors within their competence. They are established by decree of the ministers concerned, with a membership of between ten and thirteen. They are empowered to form sub-committees to study matters which cannot be handled by the main committee.

Development of the bases of industrialization

Power

The development of electricity is a factor of major importance to the general development of Syrian industry. Electric power is used in a number of industries, especially the manufacturing industries which predominate in Syria. The following figures show the development in the consumption of electric power between 1956 and 1964:

Per capita *consumption of electric power (kWh/year)*

Year	*Consumption*
1956	41
1957	56
1958	59
1959	64
1960	67
1961	76
1962	86
1963	86
1964	91

A comparison of these figures with corresponding figures for developed countries such as Switzerland (2,685 kWh/year) or Western Germany (1,950 kWh/year) indicates the extent to which Syria lags behind in the field of economic development.

The industry has been characterized in recent years by the multiplicity of projects and companies engaged in the generation and distribution of electricity, and in the number of government supervisory agencies. This has resulted in a wastage of power, a dissipation of effort and in discrepancies in rates and regulations.

In order to organize this vital activity, legislative decree No. 8 of 11 January 1965 nationalized all electricity companies and established the Public Organization for Electricity to supervise the industry throughout the country. To that end, the new organization was divided into the following five districts:

The southern district, with Damascus as centre, covering the city of Damascus and the mohafazats of Damascus, Dara', Suweida and Quneitra;

The middle district, with Homs as centre, covering the two mohafazats of Homs and Hama;

The northern district, with Aleppo as centre, covering the two mohafazats of Aleppo and Idlib;

The eastern district, with Deir Ez-zor as centre, covering the mohafazat of Deir Ez-zor;

The coastal district, with Latakia as centre, covering the mohafazat of Latakia.

The duties of the central administration of the Public Organization for Electricity include the following:

General and detailed studies of power generation and distribution installations of 20 kv or more;

Implementation of projects relating to the installations referred to above;

Supervision of the implementation of projects carried out by the districts;

Guidance and organization, and matters pertaining thereto;

Investment operations; technical, administrative and financial control of investment operations in the districts.

District directorates are responsible for the following:

Studies relating to voltage up to 20 kv;

Implementation of projects relating to power generation and distribution installations of 20 kv or more;

Participation with the central authorities in the execution of projects assigned to the latter;

Investment operations.

Electric power generating facilities in Syria are varied and are distributed all over the country. They comprise steam generators, diesel generators—varying from the smallest units to those exceeding 3,000 steam hp—and hydroelectric installations.

Table 3 shows the installed capacity in each of Syria's electricity districts, and the development of this capacity since 1956.

Table 3

A. Installed capacity in each of Syria's electricity districts

	Installed capacity (kW)				*Percentage of total*
	Hydro-electric	*Diesel*	*Steam*	*Total*	
Southern district	7,000	13,261	45,000	65,261	27.0
Middle district	7,000	5,200	30,000	42,200	17.0
Northern district	—	17,905	25,000	42,905	17.0
Eastern district	—	6,915	—	6,915	2.8
Coastal district	—	6,732	—	6,732	2.7
Industrial establishments	—	61,926	10,000	71,926	28.5
Other government establishments	—	12,311	—	12,311	5.0
TOTAL	14,000	124,250	110,000	248,250	100.0

B. Development of installed capacity

Year	*Installed capacity (kW)*	*Year*	*Installed capacity (kW)*
1956	51,392	1961	129,265
1957	71,051	1962	186,067
1958	105,076	1963	221,254
1059	94,751	1964	208,329
1960	120,264	1965	248,250

The power used at present has a voltage of 110-190, except in industrial establishments and in some electricity branches where voltage has a range of 220-380. The southern district has started to introduce the 220-380 voltage system in some of its networks. It is noteworthy that the 110-190 voltage system calls for an increase in the length of medium-voltage networks, the number of transformation stations, and certain other modifications which will increase costs and lower efficiency.

On average, medium voltage equals 6.75 kv, with some lines operating on 13.5 kv. Both lines, however, are irregular. The Public Organization of Electricity, upon the recommendation of a French company, has adopted 20 kv as an average, with the neutral connected to the ground. This will enable the networks to carry large quantities of electricity at lower costs.

Table 4. Production and consumptions of power, number of subscribers and Population in Syria, 1956-1964

Year	Population (millions)	Production (mWh)	Consumption (lighting and transportation) (mWh)	Industrial consumption (mWh)	Total consumption (mWh)	Ratio of industrial consumption to total consumption (Percentage)
1956	4.025	165,710	90,596	46,692	137,288	34.0
1957	4.145	262,142	95,562	136,777	232,339	58.5
1958	4.421	292,669	105,790	152,819	258,609	59.0
1959	4.657	334,381	122,285	177,358	299,643	59.1
1960	4.841	368,209	123,288	209,562	332,850	63.0
1961	4.972	430,789	139,885	241,948	381,833	63.3
1962	5.180	502,399	153,604	292,066	445,670	65.5
1963	5.308	524,997	167,213	387,663	454,876	63.2
1964	5.467	574,181	179,870	319,345	499,215	63.9
			Index numbers (1956 = 100)			
1956	100	100	100	100	100	100
1957	103	158	105	293	170	172
1958	110	177	115	327	188	174
1959	116	202	135	380	218	174
1960	120	222	136	449	242	185
1961	124	260	154	518	278	186
1962	129	303	170	626	325	192
1963	131	317	185	616	331	186
1964	136	347	198	684	364	186

Lately, a number of studies have been conducted to determine the magnitude of the new generating facilities that should be added to those in existence in order to meet the rapidly growing demand for electric power. These studies have shown that it is necessary to limit purchases of small diesel units in favour of steam generators which have a larger capacity, and to extend the electricity network to the various consumption centres.

The Public Organization for Electricity in Syria has set the following targets for the electricity sector under the five-year plan, 1966-1970:

Follow a unified policy providing large towns with electric power by building a main network that would link these towns together; the main generation centre to be located in Homs because of the economic advantages peculiar to the site;

Extend electricity to small towns and villages so as to cover the major part of the Syrian countryside;

Provide consumers with a regular and adequate supply of electric power.

Thus the programme for expanding the generation of electric power during 1966-1970 includes the following:

Installing a steam-generating unit having a capacity of 30 mW in Homs during 1967;

Installing a second steam-generating unit with a capacity of 30 mW in Homs early in 1968;

Installing a third steam unit with a capacity of 30 mW in Homs during the first half of 1968;

Installing a number of diesel units to provide distant villages with electricity, and expanding existing generation facilities as the need arises.

Investment allocations for the electricity sector were estimated in the five-year plan, 1966-1970, at LS 237.63 million, or about $59.4 (converted at the average rate of $1 = LS 4.0).

Table 5. Distribution of investment allocations for the electricity sector

Project	Investment (LS million)	Investment ($ million)	Percentage of total
Main network and its generation units [a] ...	81.69	20.4	34.4
Projects for lighting the Syrian countryside	26.00	6.5	10.9
Projects of internal distribution of electric power	25.50	6.4	10.7
Distribution projects ..	95.16	23.8	40.0
Complementary projects	9.28	2.3	3.9
TOTAL	237.63	59.4	100.0

[a] Installations of the main network consist of: the transmission line connecting Damascus-Homs-Aleppo, having a length of about 220 km and a voltage of 230 kv; four main transformation centres in Damascus, Homs and Aleppo; and three steam-generation units with a capacity of 90 mW.

At the end of 1964, the number of persons employed in the electricity sector was estimated at 3,600. This number is expected to rise by the end of the plan, in 1970, to about 4,200.

Income arising from the execution of these projects is estimated at LS 75 million, i.e. at an annual average of LS 15 million.

Transport and communications

The geographic location of the Syrian Arab Republic derives its importance from the fact of being a meeting point between east and west. Syria's land is fertile and rich in natural resources, but its transportation system is poor. The development of its transport facilities is necessary for the promotion of the country's internal and external trade as well as for the transit of goods across its territory.

Transport and communication facilities may be classified as follows: inland transport, consisting of railways and motor roads; airways; waterways, and telecommunications.

Railways

The length of the Syrian railway network is 855 km. Bearing in mind that Syria has an area of 185,000 km², we find that there are 4.65 km of lines for every 1,000 km². This ratio is small compared with those of other countries. The following figures, based on statistics for 1950, show the number of kilometres of railway per 1,000 km² of territory in four industrialized countries: Belgium, 161 km; United Kingdom, 100 km; France, 75 km; United States, 45 km.

Syrian railways are of two types: ordinary gauge and narrow gauge.

Ordinary-gauge lines cover a total of 548 km and consist of:

The line extending from Tel Kojak on the Iraqi border to Kamishli on the Turkish border, with a length of 82 km;

The line extending from Jopanbey on the Turkish border through Muslimia to Aleppo, with a length of 64 km;

The line extending from Muslimia to Midan Ekbes on the Turkish border, with a length of 103 km;

The Aleppo-Homs-Akkar line on the Lebanese border, with a length of 260 km;

The Riyak line, extending from Homs to the Lebanese border, with a length of 39 km.

Narrow-gauge lines cover a total of 314 km and consist of:

The line extending from Damascus to Sergaya on the Lebanese border, with a length of 67 km;

The Hejaz line, extending from Damascus-Dar'a and the Jordanian border, and from Dar'a to Himmeh, with a length of 247 km.

Type	*Ordinary gauge*	*Narrow gauge*	*Total*
Automotrices	4	4	8
Locomotives	41	35	76
Goods cars	985	452	1437
Passenger cars	50	47	97
Tank cars	107	25	132
Other cars	48	22	70

Table 6. Railway traffic, 1960-1964

A. In goods (ton/km)

Year	*Ordinary gauge*	*Narrow gauge*	*Total*
1960	82,849,886	24,286,266	107,136,152
1961	59,633,214	17,339,063	76,972,277
1962	77,413,572	16,780,357	94,193,929
1963	75,484,377	12,177,027	87,661,404
1964	84,822,785	18,653,858	103,476,643

B. In passengers (passenger/km)

Year	*Ordinary gauge*	*Narrow gauge*	*Total*
1960	24,575,662	17,276,029	41,851,691
1961	31,222,620	15,705,590	46,928,210
1962	36,719,252	18,693,150	55,412,402
1963	36,452,705	19,465,089	55,917,794
1964	38,063,856	22,292,067	60,355,923

These statistics reveal clearly the weakness of the Syrian railway network, not to mention competition from motor vehicles.

Motor roads

By the end of 1964, the length of motor roads usable throughout the year was 8,389 km, consisting of 5,590 km asphalted roads; 915 km paved, non-asphalted roads, and 1,878 km levelled roads. Thus for every 1,000 km² of the country's area, there are 45.3 km usable roads. Again, this ratio is small in relation to Syria's present and future needs.

Table 7. Length of motor roads in Syria, 1960-1964

(*In km*)

Year	*Asphalted roads*	*Paved non-asphalted roads*	*Levelled roads*	*Total*
1960	4,170	660	2,780	7,610
1961	4,094	1,109	1,970	7,173
1962	4,763	788	1,879	7,430
1963	4,926	898	2,062	7,886
1964	5,596	915	1,878	8,389

The types of motor transport available as of the end of 1964 are shown below.

Type	*Number*
Taxis and private cars	26,635
Buses	1,676
Trucks	10,550
Pick-ups	1,477
Tank trucks	675
Jeeps	384
TOTAL	41,397

Postal and telecommunication services

Table 8 shows the development in the number of post and telegraph offices between 1956 and 1964.

Table 8. Post and telegraph offices, 1956-1964

Year	*Post offices*	*Telegraph offices*
1956	282	209
1957	282	213
1958	309	213
1959	290	212
1960	296	212
1961	295	212
1962	305	220
1963	315	221
1964	352	221

Table 9 contains statistical data on the telephone system between 1958 and 1964.

Table 9

A. Number of telephone exchanges and lines, 1958-1964

Year	*Automatic exchanges*	*Manual exchanges*	*Total*	*Automatic lines*	*Manual lines*	*Total*
1958	5	141	146	29,676	4,871	34,547
1959	5	80	85	30,890	5,120	36,010
1960	5	77	82	33,722	5,163	38,885
1961	5	78	83	34,349	6,282	40,631
1962	5	76	81	35,366	6,413	41,779
1963	5	72	77	40,518	7,975	48,493
1964	5	75	80	45,238	9,105	54,342

Table 9 (*continued*)

B. Automatic telephones in cities, 1964

City	Existing capacity	Number of subscribers	Average number of yearly applications 1959-1965
Damascus	30,000	22,301	3,000
Zabadani	1,000	492	39
Aleppo	17,400	14,966	2,000
Homs	3,800	2,615	425
Hama	2,600	1,993	200
Latakia	3,200	1,986	350
Deir-ez-Zor	1,500	885	163
TOTAL	59,500	45,238	6,177

Railway projects

From the foregoing it is clear that the Syrian railway network is inadequate and unable to meet the new demands resulting from the economic and social developments that have taken place in the country. New lines have to be built to develop the network. The principal projects envisaged are listed below.

A line is to be built linking Latakia-Aleppo-Kamishli (passing through Deir-ez-Zor) with a length of about 766 km (Latakia-Aleppo = 206 km; Aleppo-Kamishli = 560 kms). The cost of the project is estimated at about LS 385 million or $96.3 million (converted at the average rate of $1 = LS 4.0). In 1960, work started on the first section of this project, i.e. Aleppo-Latakia, at an estimated cost of about LS 203 million, as part of the technical assistance agreement concluded between Syria and the Soviet Union in 1957. So far, only LS 44.9 million have been spent on this project, which is very important to Syria because it links Latakia to Aleppo city and the Jazireh area, the principal producer of agricultural crops in the country.

The 260 km line linking Aleppo-Homs-Al'Akkari is to be renewed. The cost of this project is estimated at about LS 97 million or $24.3 million (converted at the average rate of $1 = LS 4.0).

A 220 km line is to link Homs with Damascus at an estimated cost of about LS 113 million, or about $28.3 million (converted at the average rate of $1 = LS 4.0).

The sum of LS 583.36 million, or $145.84 million (converted at the average rate of $1 = LS 4.0), has been allocated in the second five-year plan for investments by the Public Authority for Syrian Railways.

Motor road projects

Because of the high cost of building good roads, the State has sought to finance them by means of long-term external loans. A loan agreement was signed with the International Development Association on 24 February 1963. This agreement, which was approved by legislative decree No. 39 of 5 March 1964, aims at:

Ensuring the financing of the studies needed to carry out a comprehensive survey of Syria's need for roads;

Improving two of the most important roads, i.e., the Damascus-Aleppo road, which is the main north-south road in Syria, and the Aleppo-Raqqa road, on which the agricultural produce of the eastern agricultural area is transported;

Preparing final studies and designs for 600 km of main roads to be determined later in the light of the comprehensive surveys. The construction of these roads will be financed with another loan from the International Development Association.

Table 10. Projects for motor roads in the second five-year plan, 1966-1970

Project	Allocations (LS million)	Allocations ($ million)
Financing of road operations with the participation of the International Development Association	56.65	14.2
Strengthening and widening the existing network of international and first-class roads	22.00	5.5
Paving and covering with asphalt sections of international and first-class roads	24.00	6.0
Building of new roads (rural development projects)	30.00	7.5
Expenditures under the World Food Programme agreements	20.00	5.0
Machinery and spare parts	5.00	1.2
TOTAL	157.65	39.4

Postal and telecommunication services projects

The five-year plan includes a number of projects in this sector estimated at LS 100.99 million, or about $25.25 million (converted at the average rate of $1 = LS 4.0). Among the projects included are: internal and external telephone networks, inter-town telephone networks, telegraphic networks, rural telephone networks, telegraphic equipment, transportation for postal services, buildings and other installations.

INDUSTRIAL POLICY

Introduction

Industry plays an important role in the country's economic development because of its varied scope and aims, such as: the efficient utilization of domestic natural resources; transformation of a large number of raw materials and semi-manufactured articles into final products; provision of employment and creation of an experienced and skilled work force; promotion of self-sufficiency in the sense of reducing dependence on imports, and expansion of export possibilities; provision of employment opportunities for indigenous specialists in their specific fields of competence, and growth in national income.

If industry is to achieve its goals, suitable machinery must exist to handle matters pertaining to it. Until a few years ago, the Syrian Arab Republic lacked such machinery. Law No. 212 of 8 December 1958, amended by presidential decree No. 903 of 11 June 1966, established a Ministry of Industry to deal with matters relating to industry and the mineral resources of the country.

The establishment of the ministry was the first step taken to organize this field. It was followed, however, by a number of other important steps. The public interest called for the establishment of a number of public bodies constituting legal entities and enjoying administrative independence. The main objective in giving these agencies financial and administrative independence was to motivate them to undertake serious and fruitful work with flexibility and vigour

and to be able to achieve their aims independently of any government routine.

The first body to be established was the Public Petroleum Authority, created in accordance with legislative decree No. 113 of 22 November 1961. A number of other authorities were later established, among them the following: the Public Authority for the Execution of Industrial Projects, established by legislative decree No. 156 of 4 December 1961; the Nasr Television Company, established and attached to the Public Authority for the Execution of Industrial Projects referred to above; the Public Organization for Electricity in Syria, established by legislative decree No. 8 of 11 November 1965; and the General Authority for the Public Industrial Sector, established by legislative decree No. 84 of 13 May 1965.

Functions and structure of the Ministry of Industry

The functions of the Ministry of Industry were broadly defined in the law establishing it as covering all matters relating to industry and the country's mineral wealth. The ministry is to:

Supervise and raise the standard of the different industries through increased productivity, improvement in quality and lower costs of production;

Carry out all matters relating to the mining industry by determining the location of mineral deposits and the manner of conducting exploration and exploitation;

Guide industries within the frame-work of the industrial development programmes by suggesting measures that will achieve the aims of such programmes through legislation, encouragement, protection or other means;

Collect statistics on industrial establishments, industrial production and the different types of factors of production;

Concern itself with matters relating to the needs of industry, such as formulating industrial vocational training programmes; promoting industrial products by issuing brochures and participating in the holding of international fairs and exhibits, etc.;

Organize and supervise chambers of industry.

The central administration of the Ministry of Industry consists of the following directorates: industrial control and supervision; industrial organization; productivity and vocational training; geological and mineral research; quarries, mines, salts and fuel. Under law No. 212, the Minister of Industry is authorized to define in detail the functions of the departments in each directorate in the light of the country's needs.

Following the adoption of socialist measures providing for the nationalization of the main sources of production in Syria, the General Authority for the Public Industrial Sector was established to deal with all matters relating to industry. As a result, it became necessary to reorganize the Ministry of Industry in line with the new changes and the new government plans in the sector. The subject is now under discussion.

Laws for the regulation, encouragement and control of industry

Industrial legislation in the Syrian region includes the following:

Law No. 82 of 19 March 1959 on the application of the provisions of law No. 21 for 1958 to the Syrian region;

Law No. 21 of 1958 on the regulation and encouragement of industry, containing provisions relating to the licensing of industrial establishments; determining specifications for industrial products and raw materials, and encouraging and supporting industry;

Legislative decree No. 103 of 7 August 1952 on granting industrial establishments certain tax exemptions and privileges, including:

Exemption of new factories from the real estate tax for six years, from the income tax for three years and from the "temettu" tax for six years;

Exemption from the income tax of all reserve funds allocated for expansion, provided that certain conditions are met;

Exemptions from customs duties on machinery, equipment and tools imported for use by enterprises;

Legislative decree No. 245 of 16 May 1952 on trademarks of certain national and foreign products;

Legislative decree No. 138 of 8 October 1953 on fraudulent practices in the manufacturing of industrial products.

The Industrial Bank

It has been mentioned at the beginning of the report that the scarcity of foreign industrial products and the rise in the prices of those products during, and immediately following, the Second World War were important factors contributing to the development of industry in the country. Windfall profits in industry attracted considerable national capital, resulting in the establishment of a number of new factories.

After independence, the State contributed further to the growth of industry by emphasizing the importance of the industrial sector to the national economy.

Owing to capital shortage in the industrial sector, and because commercial banks confined their activities in this field to the extension of credit in the form of operating capital only, such growth could not have been sustained. The State decided to intervene and in 1949 issued law No. 139, allowing the Ministry of Finance to guarantee long- and medium-term loans to industrial joint-stock companies for periods ranging from five to ten years, at a rate of interest of 3 per cent per annum.

This legislation proved inadequate to meet the demands of industry for long- and medium-term capital because it lacked flexibility and comprehensiveness. An Industrial Bank was therefore established under law No. 177 of 1958, later amended by law No. 31 of 1959. This law provided for the establishment of the Industrial Bank as a joint-stock company with a capital of LS 12 million. Its objectives were defined as follows:

(*a*) To extend medium-term loans for periods not exceeding five years, and long-term loans for periods not exceeding ten years;

(*b*) To extend short-term credit and loans for seasonal financing;

(*c*) To participate in the establishment of national joint-stock industrial companies;

(*d*) To purchase shares and bonds of national industrial companies;

(*e*) To provide technical advice to industrialists;

(*f*) To carry out all banking operations relating to industry.

The bank's credit operations since its inception are shown in the table 11.

Table 11. Credit operations of the Industrial Bank according to their duration, 1960-1964

(*LS 000*)

End of year	Total credit extended (1)	Short-term loans due within one year (2)	Percentage of total (2) + (1) × 100 (3)	Medium-term loans due within five years (4)	Percentage of total (4) + (1) × 100 (5)	Long-term loans due within ten years (6)	Percentage of total (6) + (1) × 100 (7)
1960	4.8	11,930	48.10	9,903	39.91	—	—
1961	26.2	12,557	47.90	10,844	41.37	—	—
1962	28.2	9,977	35.35	13,438	46.62	0.380	1.34
1963	33.8	14,951	44.23	13,461	39.82	0.873	2.57
1964	35.7	14,530	40.73	14,200	39.78	0.930	2.60

The above figures indicate clearly the important role played by the Industrial Bank in the financing and development of the industrial sector.

Productivity and Management Development Centre

Syrian industry was founded, developed and expanded without the benefit of scientific and technical studies in the fields of public administration and technical and financial management. For this reason, the Ministry of Industry considered it essential to establish a centre for the development of management and productivity to train those engaged in industry, at all levels, in management, production and supervision methods as applied in the industrially advanced countries.

The Ministry of Industry submitted to the Special Fund of the United Nations a request for technical assistance to establish such a centre. The Special Fund agreed to participate in this important project and, on 11 November 1965, the agreement was signed between the Syrian Government (Ministry of Industry) and the United Nations (Special Fund and the International Labour Organisation).

The total cost of the project is $1,077,350, or LS 4,309,400, distributed as follows:

Contribution of the United Nations Special Fund ... $490,800 (or LS 1,963,200)
Contribution of the Syrian Government ... $586,550 (or LS 2,346,200)

Implementation is to take place over a period of five years, with the International Labour Organisation designated as the executing agency.

The objectives of the project consist, briefly, in providing training in industrial engineering; industrial cost accounting; management and organization; marketing and selling operations; instructing supervisors; productivity in the spinning and weaving industry.

These objectives cover the most important activities in fields so vital to Syrian industry because of the need to raise its technical, managerial and productivity standards.

Centre for Industrial Research and Experimentation

By virtue of legislative decree No. 71 of 25 March 1965, the Centre for Industrial Research and Experimentation was established in Damascus to serve industry in a number of fields. The purposes of the centre are to:

Improve the quality of industrial products by providing industrial enterprises with technical studies, preparing studies on specifications, calibration, and measurements, carrying out tests and analyses on industrial raw materials and products, and conducting applied research in the various aspects of industry;

Guide industry in raising the quality of products and the level of productivity and assist in the installation of testing equipment in factories;

Assist in research and development activities, particularly in connexion with the utilization and exploitation of local raw materials on the largest possible scale;

Carry out the research necessary for the development and co-ordination of industrial development institutions programmes, and supply industrial establishments with technical and economic assistance;

Train technicians and persons engaged in industry in the activities of the centre. In this area, there is to be co-operation between the centre, the universities and the colleges.

The centre includes the following branches: specifications and information; chemistry and textiles; mechanics and electricity; supervisory; technical and economic studies; financial and administrative affairs.

The Centre for Industrial Research and Experimentation is one of the projects implemented with the help of the United Nations Special Fund. The agreement for this project was signed between the Syrian Government (Ministry of Industry) and the United Nations (Special Fund and the United Nations Educational, Scientific and Cultural Organization (UNESCO)) on 26 March 1965. The total cost of the project is $2,539,199, or LS 10,156,796, distributed as follows:

Contribution of the United Nations Special Fund $989,099 (or LS 3,956,396)
Contribution of the Syrian Government ... $1,550,100 (or LS 6,200,400)

The project is to be implemented over a period of five years, with UNESCO as the designated executing agency. Implementation began following the signing of the agreement.

It is worth mentioning that the centre is the first project of its kind to be undertaken in the Syrian region, and the authorities, fully realizing the country's pressing need for this vital project, are doing their utmost to ensure its success and to raise its level to that of similar centres in advanced countries.

Vocational training

In 1960, the Syrian Arab Republic, like most other developing countries, formulated a project for vocational training comprising the establishment of two

training centres in Damascus and Aleppo, with ten training units in the main industries: spinning and weaving, metals, electricity, construction and carpentry, printing, car repairs, etc.

The centres were established to meet the need to create a skilled work force, in line with the country's industrial development programme, in order to raise productivity, increase and improve the quality of output and consequently raise national income and the standard of living. The whole project should have been completed during 1965. However, this did not prove possible. The Ministry of Industry has exerted considerable effort to push forward the implementation of the project. As a result, it became possible by the end of 1965 to begin actual training in the electricity unit of Damascus. It will not be long before the other units start training workers in other fields.

In trying to achieve their objectives, these centres use the following methods of training:

Industrial apprenticeship; the duration of this type of training is three years;

Intensive training;

Special training seminars.

In the early stages, training will concentrate on the second and third methods. Use of the industrial apprenticeship method will be temporarily delayed.

The Directorate of Productivity and Vocational Training in the Ministry of Industry has made a number of attempts in the direction of manpower survey. In particular, it has:

Carried out a census of persons engaged in industry (unfortunately, a number of circumstances made it impossible to obtain accurate results);

Obtained statistics available at the Administration for General Mobilization covering all branches of industry;

Obtained statistics from the Social Security Department and the Ministry of Labour and Social Affairs;

Studied the industrial registries. The results of this study are currently being checked by the authorities directly responsible for the industrial sector. The results obtained from a sample survey conducted by the Ministry of Planning and the Ministry of Labour and Social Affairs show the numbers of persons employed in industry as follows:

Year	*Number of persons*
1961	85,754
1962	87,680
1963	97,452
1964	96,087

The vocational training centres will ultimately be able to provide training for the following numbers of workers and technicians:

Industry	*Workers/year (at different levels)*
Spinning and weaving	200 - 250
Motor cars	100 - 150
Metals	250 - 300
Electricity	100 - 150
Electronics	100 - 150
Construction and commerce	200 - 250
TOTAL	950 - 1250

It may be too early as yet to assess the results of this project. However, the studies conducted by the authorities concerned indicate the presence of an urgent need for vocational training in all sectors, and not in the industrial sector alone. Since the general policy of the State is concerned with the quality of the country's labour force, it is natural for the State to attempt to raise the educational, social, behavioural and professional standard of the working population, which will thus be better equipped and able to participate more fully in the development of their homeland.

Investment in the industrial sector

The statistical information available at the Ministry of Industry indicates that the capital invested in the industrial sector constitutes a small proportion of the total investments in all sectors. It amounts to LS 541 million, or about $135.3 million (converted at the average rate of $1 = LS 4.0).

Table 12. Capital invested, number of establishments and number of persons employed, by principal branch of industry, end 1964

Branch of industry	*Capital invested* (LS million)	*Capital invested* ($ million)	*Percentage of total*	*Number of establishments*	*Number of persons employed*
Spinning and weaving	202	50.5	37.4	2,027	18,970
Engineering (including electricity)	73	18.3	13.5	558	9,834
Chemicals	117	29.3	21.6	347	7,403
Foodstuffs	84	21.0	15.5	1,412	12,615
Petroleum	65	16.2	12.0	1	700
TOTAL	541	135.3	100.0	4,345	49,522

The capital invested in industry in 1953 amounted to only LS 287 million; thus the increase in the capital invested in industry during 1953-1964 was of the order of 88.5 per cent.

Table 13 illustrates the main industries in Syria, the number of establishments in each branch of industry and the ratio of the capital invested in individual industries to the total invested capital in each branch of industries.

Table 13. Main industries, number of establishments and ratio of capital invested in individual industries to total invested in each branch

	Number of establishments	*Ratio of capital invested to branch total*
1. *Spinning and weaving*		
Cotton ginning	116	17.7
Cotton yarn	9	25.9
Cotton fabrics	147	11.2
Mechanical silk fabrics	1,366	20.4
Mechanical wool fabrics	5	4.1
Nylon socks	84	2.8
Nylon stockings	6	1.5
Wool (knitted)	190	4.3
Cotton (knitted)	75	2.3
Printing and dyeing of fabrics	2	7.3
Nylon threads	1	0.6
Mechanical carpets	2	1.0
Other	24	1.8
TOTAL	2,027	100.0

Table 13. Main industries, number of establishments and ratio of capital invested in individual industries to total invested in each branch (continued)

	Number of establishments	Ratio of capital invested to branch total
2. Engineering industries		
Electric power generation	49	39.2
Cables	1	2.7
Plywood	1	6.8
Compressed wood	1	1.4
Tin containers	20	3.3
Cigarette paper	1	1.4
Nails and screws	6	1.5
Metallic furniture	27	2.5
Tiles	96	7.1
Marble sawing	26	4.3
Pumps	7	2.0
Bamboo chairs	8	1.4
Aluminium utensils	23	2.6
Refrigerators	11	1.2
Washing machines	7	2.1
Metal turning	34	1.5
Other	220	19.0
TOTAL	558	100.0
3. Chemical industries		
Cement	5	41.3
Soap	61	15.9
Detergents	5	1.4
"Arjoum" oil	9	1.7
Paints	13	1.6
Glass	2	7.4
Oxygen	3	0.9
Shoes and rubber products	8	3.5
Plastics	21	1.6
Matches	5	2.3
Pharmaceuticals	14	1.4
Hides tanning	115	2.5
Ceramics	1	1.0
Porcelain	1	1.1
Laundries	21	14.7
Other	62	1.7
TOTAL	347	100.0
4. Foodstuffs industries		
Grain milling	1,022	2.2
Sugar	2	29.1
Conserves	10	2.8
Biscuits	4	3.9
Alcoholic beverages	30	2.0
Confectioneries and chocolates	93	5.8
Tobacco and tombac	3	23.8
Beer	2	4.2
Olive oil	141	3.8
Vegetables oils	17	15.0
Dairy products	2	1.2
Other	86	6.2
TOTAL	1,412	100.0

The ownership of a large number of industrial establishments fell to the State as a result of the adoption of the socialist measures in the Syrian Arab Republic providing for the nationalization of the major centres of production. Tables 14, 15 and 16 contain information on the nationalized industries.

Table 14. Number of nationalized industries, capital invested and persons employed, 1965

Industry	Number of establishments	Capital (L.S million)	Number of persons employed
Spinning and weaving	44	96.00	14,950
Engineering	10	13.75	778
Chemicals	30	72.50	4,579
Foodstuffs	19	49.34	3,787
TOTAL	103	231.59	24,094

Table 15. State-owned industries

Industry	Number of establishments	Capital (L.S million)	Number of persons employed
Tobacco and tombac (foodstuffs)	3	20.00	2,833
Petroleum (Homs refinery)	1	65.00	700
Electricity (engineering)	49	28.67	3,641
Nasr Television Co. (engineering)	1	0.50	350
TOTAL	54	114.17	7,534

Table 16. Share of the public sector in industry

Industry	Number of establishments	Capital (L.S million)	Number of persons employed
Spinning and weaving	44	96.00	14,950
Engineering	60	42.92	4,769
Chemicals	30	72.50	4,579
Foodstuffs	22	69.34	6,620
Petroleum	1	65.00	700
TOTAL	157	345.78	31,618

This brings up the share of the public sector in the industrial sector to 63.9 per cent of the total capital invested in industry.

Table 17. Distribution of capital invested in different branches of industry

Sector	Total capital invested (L.S million)	Public investment as percentage of total	Private investment as percentage of total
Spinning and weaving	202	47.5	52.5
Engineering	73	58.8	41.2
Chemicals	117	62.0	38.0
Foodstuffs	84	82.6	17.4
Petroleum	65	100.0	—

In addition to the data already presented, it is possible to illustrate the development of existing industries in Syria by using certain other selected data on the structure of the industrial sector, such as: share of industry in the gross national product or in national income; contribution of industry to employment; extent to which industry is capable of satisfying the demand for industrial products; contribution of industry to the export trade.

Table 18. Contribution of industry to national income, 1956-1964

(In LS million, at constant 1956 prices)

Year	National income estimates (1)	Index No. (1956=100) (2)	Value added in the industrial sector (3)	Index No. (1956=100) (4)	Percentage ratio of (3) to (1) (5)
1956	2,445	100	267	100	10.9
1957	2,593	106	288	108	11.1
1958	2,244	92	304	114	13.5
1959	2,275	93	315	118	13.8
1960	2,265	93	321	128	15.1
1961	2,496	102	352	132	14.1
1962	3,183	130	387	145	12.2
1963	3,311	135	443	166	13.4
1964	3,594	147	467	175	13.0

The above figures show that the income originating in the industrial sector was constantly increasing during that period, and that by 1964 it was 75 per cent above the 1956 level. However, the share of the industrial sector in national income failed to rise consistently; on the contrary, it fluctuated from one year to another.

It may be useful at this point to show the relative share of the different economic sectors in national income.

It may be concluded from the following set of figures that agriculture is the most important economic activity in Syria, contributing the largest share of the national income.

Contribution of industry to employment

Table 21 shows the number of paid workers in the Syrian Arab Republic during 1961-1964 and the proportion of those employed in different sectors of indus-

Table 19. Industrial origin of the national income, 1956-1964 (percentages)

Economic sector	1956	1957	1958	1959	1960	1961	1962	1963	1964
Agriculture	39.3	42.1	32.4	32.7	29.1	33.2	39.5	36.2	36.9
Industry	10.9	11.1	13.5	13.8	15.1	14.1	12.2	13.4	13.0
Construction	4.0	2.9	4.0	3.5	5.2	4.7	5.7	3.9	4.0
Transport and communications	10.5	9.3	11.1	11.2	11.4	10.0	9.1	9.1	9.2
Trade	15.3	14.9	14.9	14.1	13.6	13.5	13.2	16.2	15.8
Banking and insurance	1.8	1.8	2.0	2.0	2.0	1.3	1.5	1.6	1.4
Ownership of dwellings	5.6	5.6	6.9	7.2	7.5	7.1	5.8	5.8	5.7
Public administration	6.1	6.1	7.5	7.8	8.0	8.1	7.0	7.2	7.6
Services	6.5	6.2	7.7	7.7	8.1	8.0	6.5	6.6	6.4

Table 20. Index numbers for national income estimates, 1957-1964

(1956 = 100)

Economic sector	1957	1958	1959	1960	1961	1962	1963	1964
Agriculture	114	76	78	69	86	129	125	138
Industry	108	114	118	128	132	145	166	175
Construction	76	92	81	119	119	185	133	148
Transport and communications	95	97	100	109	98	114	118	130
Trade	103	89	85	82	90	153	143	151
Banking and insurance.....	109	105	102	102	73	111	120	116
Ownership of dwellings	105	113	119	124	130	134	140	148
Public administration.....	105	112	119	121	135	148	158	182
Services	102	108	111	116	126	131	138	145
NATIONAL INCOME	106	92	93	93	102	130	135	147

Table 21. Contribution of industry to employment

Year	Number of paid workers [a]	Percentage of male workers	Percentage of female workers	Number of paid workers: Manufacturing industries	Electricity and water	Mining and quarrying	Total	Percentage of male workers	Proportion of paid workers in industry to total
1961.....	346,556	90.7	9.3	76,858	6,945	1,951	85,754	93.5	24.7
1962.....	334,553	91.4	8.6	80,086	6,126	1,468	87,680	95.6	25.4
1963.....	410,845	87.4	12.6	89,091	5,961	2,400	97,452	94.7	23.7
1964.....	355,697	91.1	8.9	84,601	6,095	5,391	96,087	96.3	27.0

NOTE: The above figures exclude paid workers in the construction sector.

[a] Comparing these figures, in particular the 1964 figures, with those mentioned in the section on the general framework of the industrial sector, we find that the above figures exceed those given previously by 94 per cent. This could be explained by the fact that a large number of those working in different sectors of industry were not recorded in the industrial register.

try. This information is based on the results of the sample survey conducted jointly by the Ministry of Planning and the Ministry of Labour and Social Affairs.

It is clear from the figures in tables 22 and 23 that the ratio of the labour force to the total population is relatively low. The figures in table 24 may help to explain this fact.

Table 22. Employment in relation to population, 1961-1964

Year	Population of Syria	Labour force	No. of employed persons	No. of persons employed as percentage of total labour force	No. of unemployed persons	No. of persons unemployed as percentage of total labour force	Labour force as percentage of population		No. of persons employed as percentage of total population		No. of persons unemployed as percentage of total popn.
1961	4,972,316	1,194,479	1,086,403	90	108,076	10	24.0	=	21.8	+	2.2
1962	5,179,684	1,175,348	1,099,522	93	75,826	7	22.6	=	21.2	+	1.4
1963	5,307,753	1,244,760	1,112,319	89	132,441	11	23.0	=	20.9	+	2.1
1964	5,467,135	1,264,783	1,120,832	88	143,951	12	23.1	=	20.5	+	2.6

Table 23. Employment in industry in relation to population, 1961-1964

Year	Labour force in industry	Persons employed in industry		Persons unemployed in industry		Labour force in industry as percentage of total labour force	Labour force in industry as percentage of total population
		No.	%	No.	%		
1961	144,146	134,077	93	10,069	7	12.0	2.9
1962	149,670	140,753	94	8,920	6	12.7	2.9
1963	176,589	166,039	94	10,550	6	14.1	3.3
1964	170,346	158,152	93	12,194	7	13.4	3.1

Table 24. Ratio of male and female workers to labour force, 1961-1964

Year	Population of Syria		Labour force [a]		Ratio of male labour force to male population	Ratio of female labour force to female population
	Males	Females	Males	Females		
1961	2,546,176	2,426,140	1,024,418	170,061	40.2	7.0
1962	2,649,768	2,529,916	1,028,672	146,676	38.8	5.8
1963	2,715,691	2,592,062	1,046,924	197,836	38.5	7.8
1964	2,799,129	2,668,006	1,037,360	227,423	37.0	8.5

[a] This figure excludes the labour force employed in the construction and building sector.

These figures show that while the ratio of male labour to the total male population is a reasonable one, the corresponding ratio of female labour is extremely low because of prevailing social conditions and values. The result is that the total labour force in Syria (male and female) represents only 23 per cent of the total population.

We notice from table 25 that about one-half of the labour force in Syria is engaged in the agricultural sector.

To determine domestic industry's role in satisfying the demand for industrial products, such demand must itself be determined on the basis of the following formula: demand for industrial products equals imports of industrial products less exports of industrial products plus value of domestic industrial output. The contribution of domestic industry to satisfying the total demand for industrial products is determined by dividing the value of domestic industrial output by the total demand for industrial products.

In the absence of reliable statistics on the value of industrial production, use will be made of the value added in the industrial sector. On this basis, it is possible to reach the results shown in table 26.

Table 25. Distribution of the labour force among the different sectors of economic activity, 1964

Sector	Number of employed persons	Number of unemployed persons	Total labour force	Percentage of total
Agriculture and fishing	556,023	79,950	635,973	50.3
Industry	158,152	12,194	170,346	13.4
Construction and building	51,335	21,063	72,398	5.7
Trade	134,172	3,487	137,659	10.9
Transportation and communications	38,839	4,863	43,702	3.5
Services	177,601	8,206	185,807	14.7
Miscellaneous	4,710	14,188	18,898	1.5
TOTAL	1,120,832	143,951	1,264,783	100.0

Table 26. Domestic industry's share in satisfying demand for industrial products, 1956-1964

Year	Imports of finished manufactured products		Exports of finished manufactured products		Value added in industry	Demand for industrial products	Contribution of domestic industry to total demand for industrial products
	(LS million)	(000 tons)	(LS million)	(000 tons)	(LS million)	(LS million)	(percentage)
1956	429	195	94	56	267	602	44.3
1957	369	192	90	53	288	564	51.0
1958	383	268	78	78	304	709	42.8
1959	414	270	121	98	315	608	51.8
1960	473	261	113	75	341	701	48.6
1961	398	218	89	63	352	661	53.2
1962	513	327	72	80	387	828	46.7
1963	542	266	69	74	443	916	48.3
1964	481	256	76	52	467	872	53.5

It may be useful at this point to give some information on the export and import trade of Syria during 1956—1964, in order to provide an idea of the position of the trade balance and of exports and imports of finished manufactured products.

Table 27. Trade balance, 1956-1964

Year	Imports			Exports		
	(LS million)	($ million)	(000 tons)	(LS million)	($ million)	(000 tons)
1956	690	191.7	1,206	516	143.3	874
1957	716	171.1	1,188	548	152.2	1,140
1958	730	201.8	1,349	420	116.1	680
1959	694	191.4	1,712	425	117.2	412
1960	858	227.5	2,129	405	107.3	357
1961	711	197.5	1,908	395	109.7	397
1962	862	231.5	1,905	617	165.7	1,164
1963	896	228.5	2,046	621	183.9	1,260
1964	898	223.3	2,202	673	167.3	996

SOURCE: Syrian Arab Republic, Ministry of Planning, statistical abstract.

NOTE: Figures for 1958-1961 include trade with the United Arab Republic. Relation of LS to $ at free market rates, as published in the bulletin of the Central Bank of Syria, as follows ($100.00 = LS):

1956	1957	1958	1959	1960	1961	1962	1963	1964
360.00	360.00	361.80	362.60	377.10	360.00	372.31	392.15	402.18

It should be mentioned that the deficit in the trade balance is more than covered by invisible receipts and revenues from the transit of crude petroleum across Syrian territory. In fact, these receipts and revenues not only cover the trade deficit but also produce a surplus.

Table 28. Ratio of exports and imports of finished manufactured products, 1956-1964

Year	Percentage ratio of value of imported finished manufactured products to value of total imports	Percentage ratio of value of exported finished industrial products to value of total exports
1956	16.2	18.2
1957	16.2	16.4
1958	19.9	18.5
1959	15.7	28.4
1960	12.3	27.9
1961	11.4	22.5
1962	17.1	11.6
1963	13.0	9.5
1964	11.6	11.2

Table 29 illustrates the relative changes in the contribution of industry and other sectors to total exports.

Table 29. Relative contribution of industry and other sectors to exports, 1956-1964

Year	Exports		Exports of finished manufactured products as percentage of total exports		Exports of raw materials and semi-manufactured products as percentage of total exports		Exports of foodstuffs as percentage of total exports	
	Value (LS million)	Quantity (000 tons)	Value	Quantity	Value	Quantity	Value	Quantity
1956	516	874	18.2	6.4	42.4	21.3	39.4	72.3
1957	548	1,140	16.4	4.6	47.5	22.8	36.1	72.6
1958	420	680	18.5	11.5	55.4	32.4	26.1	56.1
1959	425	412	28.4	23.8	59.8	58.9	11.8	17.3
1960	405	357	27.9	21.1	61.9	62.8	10.2	16.1
1961	395	397	22.5	15.8	69.2	58.9	8.3	25.3
1962	617	1,164	11.6	6.9	54.7	28.7	23.7	64.4
1963	621	1,260	9.5	5.9	64.9	35.0	25.6	59.1
1964	673	996	11.2	6.2	63.9	37.9	24.9	56.9

These figures clearly indicate that the rise in the relative share of exports of manufactured products during 1959-1961 was due to the fall in the relative share of foodstuffs, which was caused by poor harvests and an increased volume of exports of manufactured products to the United Arab Republic.

Table 30. *Per capita* value added in industry, 1956-1964

Year	*Number of population*	*Value added in industry (LS million)*	*Per capita value added (LS)*
1956	4,025,165	267	66.3
1957	4,144,980	288	69.4
1958	4,420,587	304	68.7
1959	4,656,688	315	67.6
1960	4,840,539	341	70.4
1961	4,972,315	352	70.7
1962	5,179,684	387	74.7
1963	5,307,753	443	83.4
1964	5,467,135	467	85.4

Table 31. Value added per worker in industry, 1961-1964

Year	*Number of paid workers in industry*	*Value added in industry (LS million)*	*Value added per worker (LS)*
1961	85,754	352	4,104
1962	87,680	387	4,413
1963	97,452	443	4,545
1964	96,087	467	4,860

Both the *per capita* value added and the value added per worker in industry are low because of low productivity and redundant labour, a fact which points to the need for adequate training in order to create a highly skilled and productive work force.

Industrial growth rates

It is possible to express the growth of industry over a certain period of time either by means of index numbers of industrial production, or by showing the developments that have taken place in the output of the principal industries.

Table 32. Index numbers of the output of principal industries, 1957-1964

(1956 = 100)

Type of industry	*1957*	*1958*	*1959*	*1960*	*1961*	*1962*	*1963*	*1964*
Mining and quarrying	77	68	75	76	51	41	36	40
Food and food processing	95	115	79	138	150	157	173	192
Alcoholic beverages	186	207	177	187	188	246	243	255
Tobacco and tombac	94	93	103	112	127	128	139	143
Spinning and weaving	115	123	124	134	139	161	156	206
Rubber and rubber products	143	152	212	215	227	294	368	390
Chemicals	138	149	189	187	191	217	206	221
Non-metallic industries	90	124	130	149	152	177	192	174
General index number	112	124	125	143	147	167	173	197

Table 33. Production of the principal industries, 1956-1964

Type of industry	*Unit*	*1956*	*1957*	*1958*	*1959*	*1960*	*1961*	*1962*	*1963*	*1964*
Spinning and weaving										
Silk and cotton fabrics	Tons	18,000	21,000	22,000	23,000	25,000	25,625	26,999	25,731	31,622
Tricot	Tons	610	613	685	494	494	500	601	605	728
Wool	000 metres	95	119	123	140	157	172	380	389	671
Socks and stockings	000 dozen	671	469	1,700	972	1,065	1,100	1,128	1,000	1,181
Underwear	Tons	775	1,113	1,218	890	1,091	1,200	1,126	1,150	1,373
Cotton yarn	Tons	7,952	7,965	9,327	9,500	9,737	9,937	15,324	16,273	18,113
Silk yarn	Tons	3,478	3,201	3,000	3,000	3,000	3,000	3,823	3,326	2,825
Wool yarn	Tons	221	322	310	320	320	320	35	141	278
Chemicals										
Cement	000 tons	326	315	408	447	489	540	607	685	635
Glass	Tons	10,654	6,712	12,633	10,578	15,275	10,105	14,704	12,403	9,241
Soap	Tons	11,146	17,416	18,650	25,000	25,000	25,625	26,189	34,329	26,550
Matches	000 gross	662	736	813	775	700	700	1,202	1,172	1,271
Rubber shoes	000 pairs	789	1,125	1,198	1,673	1,700	1,870	2,323	2,901	3,081
Oxygen	000 m^3	174	184	203	251	255	259	336	302	363
Paints	Tons	500	508	576	1,027	1,127	1,150	1,175	732	829
Plastics	Tons	—	—	—	283	574	535	—	—	1,012
Food manufacturing										
Vegetable oil	Tons	10,300	11,926	12,600	14,148	15,148	15,648	16,022	20,833	26,852
Olive oil	Tons	12,370	7,392	14,585	27,714	10,100	18,621	20,447	15,093	25,511
Margarine	Tons	2,464	2,552	2,260	2,700	3,000	3,300	2,885	2,081	4,418
Sugar	Tons	50,391	44,598	56,667	61,064	69,631	71,720	76,876	83,234	78,341
Conserves	Tons	2,600	2,345	2,580	2,682	2,982	3,000	3,308	3,703	3,746
Chocolates	Tons	291	350	410	777	800	820	840	925	579
Biscuits	Tons	510	481	495	821	821	821	869	1,415	913
Alcoholic beverages	000 litres	1,754	3,256	3,622	3,101	3,275	3,300	4,313	4,268	4,686
Macaroni	Tons	1,487	1,620	1,680	2,139	2,139	2,139	1,868	2,373	2,462

Table 38. Production of the principal industries, 1956-1964 (*continued*)

Type of industry	*Unit*	*1956*	*1957*	*1958*	*1959*	*1960*	*1961*	*1962*	*1963*	*1964*
Mining and quarrying										
Natural asphalt	Tons	43,031	20,858	29,323	20,691	21,462	27,516	11,543	10,732	10,354
Tobacco and tombac	Tons	3,123	2,947	2,908	3,231	3,500	3,969	3,992	4,344	4,470
Oil refining										
Benzine	000 tons	—	—	—	50	126	131	117	127	159
Kerosene	Tons	—	—	—	40	89	93	106	106	105
Gas oil	Tons	—	—	—	57	175	192	207	252	329
Fuel oil	Tons	—	—	—	93	276	313	328	334	260
Asphalt	Tons	—	—	—	3	17	27	21	26	28
Butane gas	Tons	—	—	—	—	0.6	3.6	4.6	7.3	9.3
Crude oil, refined	Tons	—	—	—	265	696	770	794	878	1,014
Engineering industries										
Electric washing machines	Piece	—	—	—	2,300	7,200	9,300	10,300	10,810	12,570
Electric refrigerators	Piece	—	—	—	1,120	1,680	4,210	4,100	4,500	4,500
Gas cooking stoves	Piece	—	—	—	—	—	—	—	650	6,650
Plywood	M^3	—	—	—	8,039	9,603	9,459	2,721	1,958	4,669
Cables	Km	—	—	—	—	—	—	—	14,707	13,524
Tin containers	000 pieces	—	—	—	2,132	3,267	3,264	7,339	7,727	—
Metallic threads	000 M^2	—	—	—	72	92	66	97	103	131

[a] Groz = 5,000 sticks.

Projects for industry

Following the adoption of the socialist measures which brought the ownership of the principal means of production in Syria under the control of the State, it became necessary for the authorities to pay special attention to the industrial sector. State policy in this field aims at providing support and encouragement to industry and raising the standard of productivity within the following general framework:

(*a*) Development and expansion of the public sector through the establishment of new and complementary industries; in the process, all available resources are to be used in a manner compatible with the requirements of the economic development plan in order to achieve, as far as is feasible, a state of self-sufficiency, paying due attention to the possibility of increasing and promoting exports;

(*b*) Accurate definition, on the basis of research, of the limits of the public sector in all fields of activity;

(*c*) Re-organization and co-ordination of the public sector through the amalgamation of small-scale production units and larger ones with a view to benefiting from the advantages peculiar to modern industry and large-scale production; and through the up-dating of production methods, renewal of machinery and equipment, and introduction of all modern means of production in order to reduce costs, improve quality, increase returns and raise the productivity of labour;

(*d*) Organization of the public sector in aspects related to inter-establishments relationships, type of controlling authorities and their relationship with the ministries and planning machinery to ensure compatibility with the general development plan and economic policy;

(*e*) Development of the application of the democratic system of administration in public establishments.

In the light of the above, the section dealing with the development of industry, mining and petroleum in the second five-year plan, 1966-1970, provides for the expenditure of about LS 1,059 million, or $265 million, of which 26 per cent is in local currency and the balance in foreign exchange.

The increase in income that will result from these investments is estimated at LS 255 million, or about $64 million, i.e. an investment of LS 1 million will lead to an increase of LS 250,000 ($62,500) in income; this figure is low in view of the fact that most of the projects are long-term. The increase in employment is estimated at about 12,800 persons. This figure is also low, owing to the fact that some important projects, such as those in the field of petroleum and fertilizers, are capital intensive.

Table 34. Major industrial projects included in the second five-year plan, 1966-1970

Authority concerned	*Project*	*Allocations*		*Quantity or value of expected production*	*Expected employment*	*Date of commencing production*
		LS million	*$ million* [a]			
Public Authority for the Execution of Industrial Projects	Nitrogenous fertilizer plant	71.9	18.0	148,500 tons of nitrogenous fertilizers per year	400	Early 1966
Idem	Dry cells factory	2.3	0.6	16 million dry cells per year	130	Mid-1966
Idem	Salt mine	7.9	2.0	3,000 tons of salt per year	52	
Idem	Exploitation of phosphate ores	61.8	15.5	75,000 tons of superphosphates per year to reach, within four years, full capacity of 102,000 tons per year	380	1969
Idem	Iron bars factory	26	6.5	75,000 tons per year in the first stage; 121,000 tons per year in the second stage	280	1970
Idem	Onion dehydrating factory (a study of the project)	0.025	0.006	3,400 tons of dehydrated onions per year	1,640	
Public Authority for the Public Industrial Sector	Projects of the spinning and weaving industry	28.2	7.1	LS 335 million per year	1,551	
Idem	Projects of the chemical industries	16.0	4.0	LS 56 million per year	548	
Idem	Food manufacturing industries	106.9	26.7	LS 433 million per year	920	
Idem	Metal industries	4.1	1.0	LS 22 million per year	261	
Idem	Wood, paper, leather, plastic and rubber industries	3.5	0.9	LS 23 million per year	314	
Administration of Defence Factories	Electric meters factory	0.62	0.2	50,000 meters per year	82	Early 1967
Idem	Hydrometers factory	1.1	0.3	5,000 meters per year	30	
Idem	Agricultural tractors factory	24	6.0	2,000 tractors per year	150-200	
Nasr Television Company	Miscellaneous projects	4.2	1.1	150,000 TV sets per year in addition to other products	350	
Ministry of Agriculture	Damascus milk pasteurization factory	0.48	0.12	30 tons of milk per day	70	Mid-1966
Idem	Aleppo milk pasteurization factory	0.36	0.09	20 tons of milk per day	70	Mid-1966
Idem	Modern olive-oil press	10	2.5		300 workers for three months i.e. 75 workers	

Table 34. Major industrial projects included in the second five-year plan, 1966-1970 (*continued*)

Authority concerned	*Project*	*Allocations* LS million	*Allocations* $ million [a]	*Quantity or value of expected production*	*Expected employment*	*Date of commencing production*
General Petroleum Authority	Karatchuk-Tartous pipeline	254.5	63.6	Carry 5 million tons per year, capable of being raised to 7 million tons per year	1,000	
Idem	Well-drilling and development of oil fields	101.3	25.3			
Idem	Developing and expanding the oil refinery	110.0	27.5	Refine 1 8 million tons of crude petroleum per year		
Idem	Seismic surveys	15	3.8	—		
Idem	Exploratory drilling and other projects	65	16.3	—		
Ministry of Supply	Mechanical mills	13.9	3.5	200 tons per day in Damascus. 100 tons per day each in Hama, Idlib, Latakia and Hasakah	200	1966
Cotton Ginning and Marketing Authority	Miscellaneous projects: new projects and renewal of old ones	20	5	—	2720	
Tobacco and Tombac Monopoly	Miscellaneous projects: warehouses, factory buildings and others	19.4	4.9	—		

[a] Converted at the average rate of $1 = LS 4.0.

It is clear from table 34 that most of the proposed industrial projects in the second five-year plan, 1966-1970, aim at producing goods for local consumption to take the place of imports with large export potentialities.

7. The industrial situation in Yemen

Communication presented by Yemen

Historical review

The development of the industrial sector, as of every other sector during recent years, could be divided into two stages: prior to the revolution of 26 September 1962 and since that date. The difference between these two stages lies in the possibilities for the development of the national economy.

The country led a completely closed economic life before the revolution of 26 September 1962. The policy of isolation from the external world and the lack of imports into the country held up the development of handicrafts, industry and the application of modern methods of land cultivation. The development of handicrafts lagged because of insufficient materials or trained workers. What handicrafts existed were at the level of domestic production, in accordance with local traditions and without a big market. A great difficulty confronting their development was the absence of a good road network connecting the different regions of the country. The available roads were very primitive, with the exception of the highway linking Sana' to Hodeida, which was completed at the end of the stage to which we refer.

During the period prior to the revolution, handicrafts existed to meet the needs of the people. Such handicrafts produced hats in the national style, turbans, belts, knives, nargil pipes, pottery and other objects for personal use. The development of shoe-making was at a primitive stage and shoemakers produced simple and light shoes, such as sandals. In every region, the people produced rugs and other objects to meet their individual needs. Some wove rugs for the market. In the region of Tihama, the people embroidered cloaks and sold them in other regions of the country.

We see, therefore, that a well-developed handicraft industry did not exist in the country and that experience in that field was very poor. The handicrafts were not specialized by workshop or region and were not guided by the Government.

Although certain natural conditions exist which are conducive to the development of some branches of industry, we had only one completed textile factory, located in the town of Bagil. It had been built by the Government, in co-operation with a Syrian national and equipped with modern French machines. The location of the factory was very convenient, because it was near the cotton plantations. The factory is now government-owned, but has not so far started operations. In the opinion of some experts, only $50,000 are required to put it into operation.

Besides this textile factory, there was a weaving workshop in the city of Sana'. This workshop made clothes to meet the needs of the Government. After the revolution, production stopped and the building was occupied by the Ministry of Internal Affairs.

During the period mentioned, the internal system of transportation and communication was underdeveloped.

Electricity was limited to the royal palaces, and by the end of the old régime only a few cities were lit by electricity. Since the revolution, electricity has been introduced in many cities and towns. But these electric power-generating stations are not able to ensure electricity for industrial purposes. That is why the textile factory in Bagil has its own generator and every new project should have its own electric power-generating unit.

Yemen's relations with other countries were initiated under the old régime and have continued and greatly improved since the revolution. As a result of the foreign relations established by the old régime, the textile factory in Bagil, the sea port in Hodeida and the road between Sana' and Hodeida were built. Moreover, certain agreements signed by the old régime are now being implemented by the Government. The Government has also established relations with many other countries. All this has created great possibilities for drawing on foreign experience in economic and social development and obtaining assistance in different fields.

Importance of the manufacturing industry in the national economy

The manufacturing industry plays an important role in the national economy of every country. It ensures the use of local raw materials, provides employment, supplies the population with goods locally produced and increases exports of domestic products rather than of raw materials which can be used by indigenous industrial enterprises. The development of manufacturing provides the country with a relative independence. For these reasons, every developing country has instituted a programme to accelerate industrial development.

In the Yemen Arab Republic, no such programme exists for the development of industry. Any enterprises which exist or are to be established are the result of agreements between Yemen and other countries or of the action of individuals.

The importance of manufacturing in the national economy of Yemen at present may be seen from the share of the manufacturing sector in some production indexes. Unfortunately, we do not have enough statistical data on the present economic situation. The data available are collected from different departments without co-ordination or classification. They do not reflect the exact situation of the economy because they do not cover all activities and areas in the country. Yemen is now trying to organize a statistical survey and to plan its development with the help of some foreign experts and the United Nations.

On the basis of available data, we can see that the manufacturing industry in Yemen contributes a very small share to the economic life of the country. The share of manufacturing, mining and quarrying was 1.3 per cent of the gross national product in 1964. The share of electricity and water services was less than 2 per cent of the gross national product during the same period. This means that manufacturing and industrial production contribute about 3 per cent of the gross national product, and do not play an important role in the economic life of the country. At the same time, the contribution of manufacturing, mining and quarrying in Yemen's export trade was about 6.6 per cent during the same period. This shows that an increase in industrial production will enable Yemen to expand exports and foreign currency deposits.

The number of persons employed in the manufacturing sector is so small that it does not play an important role in the lives of the people. The manufacturing sector is now expected to play an increasing role in the country's life by breaking down traditional methods of production and showing the way to development.

Present structure of the manufacturing industry

In this part of the report we shall discuss questions related to all Yemen's industrial enterprises, because it is very difficult to isolate manufacturing industry from other branches of industry, and because some small-scale manufacturing enterprises exist on whose share in the over-all industrial production data are not available.

In discussing the structure of Yemen's industry, we cannot use data on the share of each branch in total industrial production, output, employment, exports, imports, etc. because such data are not available. We can, however, indicate the number of the enterprises in every industrial branch and their present activities.

The following industrial enterprises exist at present:

A textile factory in the town of Bagil, which is not in operation;

An aluminium factory manufacturing household appliances in the city of Taiz which uses imported raw materials; it was built after the revolution and is privately owned;

A small tannery in the city of Hodeida which processes raw leather in a primitive way for internal needs;

Two carpenters' workshops which use imported timber, one in the city of Sana' and the other in the city of Hodeida;

A small factory for mosaic tiles in the city of Sana'; this factory is very important for the building and construction industry; its expansion would be possible upon the production of cement locally;

A big salt-mine in the town of Salef, north of Hodeida, which is a government enterprise and working for export;

Small private flour mills driven by Diesel engines or animal power; they are very primitive and insufficient to meet the needs of the population;

Many quarries for cutting stones required for building.

The increased import of goods has encouraged the development of some handicrafts and caused the decline of others because producers and consumers find imported goods and materials cheaper.

Among the new handicrafts which have started to develop quickly are tailoring, smithing, tin-smithing, goldsmithing, technical workshops and shoe repairing. Old handicrafts which have declined are those that produce local clothing.

The development of those industries and handicrafts was spontaneous because there was no industrial development plan or any stabilization of the economic life of the country. The Government did not have enough experience in these matters and was therefore unable to follow the right direction of development after the revolution. It continued to make use of old agreements and concluded new ones with many friendly countries regarding a number of projects. Co-ordination in implementing these projects is still lacking.

For these reasons, no production relationship exists between established enterprises and handicrafts. Other reasons for this is the lack of a mining industry, on the basis of which a manufacturing industry and handicrafts can be established.

There are no foreign-owned factories in the country, but the United Arab Republic has a 49 per cent participation in the salt mine.

The geographical distribution of manufacturing enterprises is not based on government policy regarding regional planning or location of raw materials. It is dependent upon the wishes of the owners and on private feasibility studies carried on prior to the establishment of the enterprises concerned. The owners were concerned with profits from their enterprises in the present, without paying much attention to future expansion. Some of these enterprises will lag behind those which are to be built in accordance with the new plans.

Methods of industrial financing differ. All established enterprises now in operation, with the exception of the salt mine, are small and privately owned. They are financed from private capital without any government participation. Under the agreements with other countries, the implementation of new projects will be carried out by the Government, the Yemen Bank for Reconstruction and Development, or other big companies. Most of the projects will be financed by means of long-term foreign credit. Some will be built by the bank, in which the Government has a 51 per cent share, or by other companies wishing to do so. Using foreign credit and assistance, Yemen will be able to develop its industry, as it lacks the resources to increase its industrial production on its own. Loans will normally be repaid out of the proceeds of the established enterprise or the export of local raw materials. At the same time, Yemen is trying to develop measures to encourage the investment of local capital in the industrial development of the country. These are the only methods which it can use to finance its industrial development.

The country's foreign trade has been increasing very rapidly during the last three years. The slow rate of increase in industrial production and primitive land cultivation cannot satisfy the needs of a rapidly growing population. All these factors have resulted in a tremendous increase in imports.

Imports play a very important role in Yemen's economic life because most of its food, clothing, household goods, machines and materials used in the manufacturing industry have to be imported from abroad. At the same time, exports have remained almost stationary.

Agricultural products account for about 88.3 per cent of Yemeni exports. This means that Yemen exports mainly raw materials, in which the share of labour is less than in industrial products, and imports mainly manufactured goods. Thus it imports goods involving a good deal of labour, and has to pay for foreign labour while the number of unemployed is large at home. Yemen's foreign trade, therefore, is not balanced and the development of industrial production must therefore be accelerated, using foreign loans and assistance to create enterprises to satisfy the country's needs and to produce goods for export to neighbouring countries, as a start. The process will of course be a long one, but this should be the line to be followed in development.

In order to obtain good results from economic and social development, it is necessary to have an adequate and organized transport system and sufficient electric power for lighting as well as to meet the requirements of the manufacturing sector. The available road network is not adequate for the future development of the manufacturing sector envisaged in the proposed projects. It is possible to obtain transport services between Hodeida and Sana' and between Sana', Taiz and Mocha, where there are comparatively good highways.

The first prerequisite for industrial development is the availability of a big power network which will be able to supply the enterprises with enough energy. At present there are some electric power stations which provide the cities and towns with energy for lighting. Their capacities are too small to be used for industrial purposes. The capacity of the electric power station in the city of Sana' will be increased by an additional 1,800 kw, but will remain insufficient. Diesel generators are in operation at these electric power stations, with the result that the cost of electric power is too high.

In order to ensure electric power for manufacturing enterprises, it is necessary to build a network of electric power stations utilizing steam boilers.

Industrial programmes and major projects

So far, Yemen has not had an official programme or plan for the economic and social development of the country. Realizing the necessity of planned development in all aspects of the country's economic and social life, the Government has called upon some foreign experts to handle these questions. By formulating a development plan (for two or five years), we shall have completed the main task in the development field for the near future and shall have the possibility of implementing the projects planned.

In order to develop an industrial sector in the country, it is necessary to develop all branches of the economy to ensure the supply of the raw materials,

transport services, energy, sales, water etc. required by industry.

For textiles, food preserving, milling, leather and other industries using raw materials, it is necessary to carry out certain measures for the development of agricultural production.

We list below projects which have been submitted by other countries.

(*a*) The Soviet Union has proposed the establishment of a big plantation in Wadi Surdut with an area of 10,000 hectares. The USSR will provide a loan for the project, which will cost about 16 million rubles. The main crop will be cotton. Experimental work has yielded very good results. It will be the biggest modern farm in the country and will provide cotton and other crops for internal needs and for export. The project will take the form of a State farm, which will give the Government a possibility to play an important role in developing agriculture.

(*b*) The German Federal Republic offered a loan of 10 million marks for an agricultural farm in Marawa. Negotiations were stopped after diplomatic relations had been severed. Besides the suggested loan, the German Federal Republic established three experimental farms with equipment and building in Sana', Taiz and Hodeida. The Germans introduced new kinds of trees, fruit-bearing trees, vegetables and chemical fertilizers. Farmers started to buy and transplant the products of the farms, but these activities ceased after diplomatic relations had been severed. The cost of these experimental farms is roughly estimated at about 25 million marks.

(*c*) Under a previously signed credit agreement with Yugoslavia, the latter offered a project for a cotton plantation in Tihama with an area of 1,500 hectares. The cost is $2,337,000. The project was discussed by Yugoslavian representatives and by the Yemen Bank for Reconstruction and Development, but they did not come to an agreement regarding the cost of the plantation.

(*d*) An agreement was signed with Bulgaria providing for a cotton plantation in the area of Tihama. So far, however, no discussion of actual terms has taken place.

(*e*) The German Democratic Republic will spend 5 million marks in the form of a loan on two agricultural projects. One of them will be in the highlands of the country and the other will be in the area of Tihama. The main crops of these two farms will be cotton, grain and lucerne.

The implementation of these projects in the field of agricultural development will increase output, which will provide the raw materials needed by the manufacturing sector and will serve as an example to be imitated in cultivating the land.

Projects aimed at improving transport services for industrial development have been offered by friendly countries, and some of them are under construction.

Assistance has been granted by the United States of America for the construction of a 226 mile road between Mocha and Sana' and the 35-mile road between Taiz and Raheda. The Mocha-Sana' road has been completed and the Taiz-Raheda road will be completed in March 1966. These roads connect the main cities and towns of the country.

A loan of 30 million rubles has been offered by the Soviet Union for the construction of the road between Hodeida and Taiz; this road is under construction. Upon completion it will bridge the gap in the transport of goods from the Hodeida sea port to Taiz.

Two loans have been offered by the People's Republic of China for constructing the road between Hodeida and Sana'; construction is under way.

A loan of 2 million marks has been offered by the German Democratic Republic for communications.

Yugoslavia has offered a project for the construction of a steam-turbine plant at Hodeida at a cost of $1,130,000 with a capacity of 113,000 kWh daily. It will satisfy the needs of Hodeida, Hodeida sea port, the new factories, the cotton plantation in Tihama and the towns of Marawa, Bagil etc. for electric energy. The capacity of the generators will be 9,000 kW and will be in two units. Calculations indicate that the cost of 1 kWh will be about 4 bugshas at the outset. The project envisages the possible linking of the electric power stations in Hodeida, Sana' and Taiz in a power ring which would supply the areas between them with electricity. The project has never been negotiated, and no agreement has been signed.

For the development of industry, it is necessary to have enough water for industrial use. For this reason we have to establish an adequate water supply in the big towns to meet the needs of the population and industrial enterprises. There are not many water supply projects; nevertheless, the Government is paying much attention to such projects, and the people themselves have shown willingness to participate in the implementation of prospective projects. The only water system in Yemen is the project built by the United States of America in the city of Taiz with a capacity of 1 million gallons per day. Its final cost will be $4,200,000, granted by the United States.

The main industrial projects under consideration are listed below.

(*a*) A loan of 10 million rubles has been offered by the Soviet Union for the construction of a large cement factory in the town of Bagil. It will be a state enterprise, which will satisfy the country's needs for cement and will lead to an expansion in the construction and building activity and a lowering of costs.

(*b*) A loan of 7 million rubles has been offered by the Soviet Union for the construction of a large-scale fish-cannery and fishery in the city of Hodeida. The Soviet Union will supply six ships. The capacity of the factory will be about 5 million cans per year and the enterprise will belong to the State.

(*c*) A loan has been offered by the People's Republic of China for the construction of a large-scale textile factory in the city of Sana', to be completed by the end of 1966. The capacity of the factory will be 6,100,000 metres of cotton clothes per year. The factory will include 360 looms and 10,000 spindles. It will be equipped with its own electric power station with a capacity of 2,300 kw. The factory will belong to the State and is expected to provide employment for some 1,300 persons.

(*d*) A loan of $598,926 has been offered by Yugoslavia for the construction of a large-scale tannery. The capacity of the factory will be 2,000 kg of salted hides per eight-hour working day and 1,500 kg of dry skins (sheep and goat) per eight-hour working day.

The loan is for eight years; however, no agreement has yet been reached.

In addition to the afore-mentioned projects for the development of the different branches of the economy, many agreements have been signed between Yemen and other countries for the investigation of the mineral deposits of the country.

(*a*) A loan of 2,000,000 rubles has been offered by the Soviet Union for the investigation of the mineral deposits of the country. To that end, a group of Soviet experts is studying the geological structure of the land.

(*b*) Under an agreement with the Romanian Government, a team of experts visited the country in the summer of 1965 and investigated the possibilities of petroleum drilling in the area of Tihama. The Government is awaiting their report.

During the discussion of these projects, many problems were encountered regarding their operation, prices, establishment and effectiveness for the country's economy. The main problems relate to supplying industrial enterprises with raw materials and their relations with foreign trade companies.

Industrial policies

The Government's industrial policy consists of measures for the development of the industrial sector of the economy. The reason why the Government has signed several agreements with other countries is that it wishes to develop the industrial sector in the country. Local investment in large-scale enterprises is lacking. The Government's industrial policy is not based on a long-term programme for development, but on suggested agreements and projects.

To encourage foreign and domestic companies to invest their capital in the country, the Government has prepared decrees on investment of foreign capital and on economic development, but neither are yet in force.

Government control over foreign trade is exercised through its customs policy, which is in the hands of the Ministry of Economy and through the regulation of the establishment of foreign trade companies.

The Ministry of Economy is responsible for the country's industrial development as well as for the development of all branches of the economy.

A development committee is to be formed in the Ministry of Economy in accordance with the decree on economic development. The committee is to be responsible for evaluating exemption requests and taking the necessary decisions for approving such requests; for obtaining the consent of the Executive Council for approved exemptions and informing the interested parties of such decisions, and for registering the organizations entitled to the benefits provided by law.

In 1965, a technical bureau was organized, consisting of some Yemeni and three foreign experts in the Ministry of Economy. The bureau deals with questions relating to statistics, planning and financing. It also investigates the economic situation and suggests measures for resolving problems of implementation.

External assistance

In addition to the above-mentioned projects, the country has received substantial assistance from abroad, directed towards the establishment of schools and hospitals and the supply of medicines, foods, etc. Such assistance includes the following:

(a) *United States of America*

(i) A shipment of 50,000 metric tons of wheat and wheat flour valued at $10,352,000 during the period 1950-June 1965;

(ii) 182 scholarships for 315 man-years of training in Lebanon during the same period;

(iii) 248 man-years for administration and road and water experts and technicians during the same period;

(b) *Soviet Union*

(i) A large hospital equipped with doctors and 100 beds;

(ii) A clinic equipped to handle 100 patients per day;

(iii) Three schools for 2,000 students;

(iv) Several scholarships for education and training in the Soviet Union;

(c) *People's Republic of China*

A large school (technical) in the city of Sana';

(d) *United Arab Republic*

£4,600,000 in the form of loans and assistance;

(e) *Hungary*

(i) $300,000 for medicines, pharmaceutical products, tents, clothes, hospital equipment, school equipment and furniture;

(ii) Establishment of a hospital;

(iii) 45 scholarships for studying and training in Hungary;

(iv) A loan in kind of $1,000,000;

(f) *Romania*

(i) A team for studying Yemen's agricultural, educational and health conditions;

(ii) Establishment of a technical school in Sana';

(iii) An expert in health affairs;

(iv) 25 scholarships for Yemeni students in higher education;

(g) *Bulgaria*

(i) $400,000 as requested by the Yemen Government;

(ii) Establishment of a school in Sana';

(iii) Ten scholarships for study in Bulgaria;

(iv) Five Bulgarian experts for two years in the fields of statistics, planning, finance, agriculture, and foreign trade;

(h) *Kuwait*

(i) Eight schools, one hospital and four clinics to the cost of £404,309 during the first stage;

(ii) Teachers' school, chest hospital, 3 clinics and 12 schools to the cost of £948,199 for the second stage, which is under construction;

(i) *India*

100 water pumps for agricultural purposes.

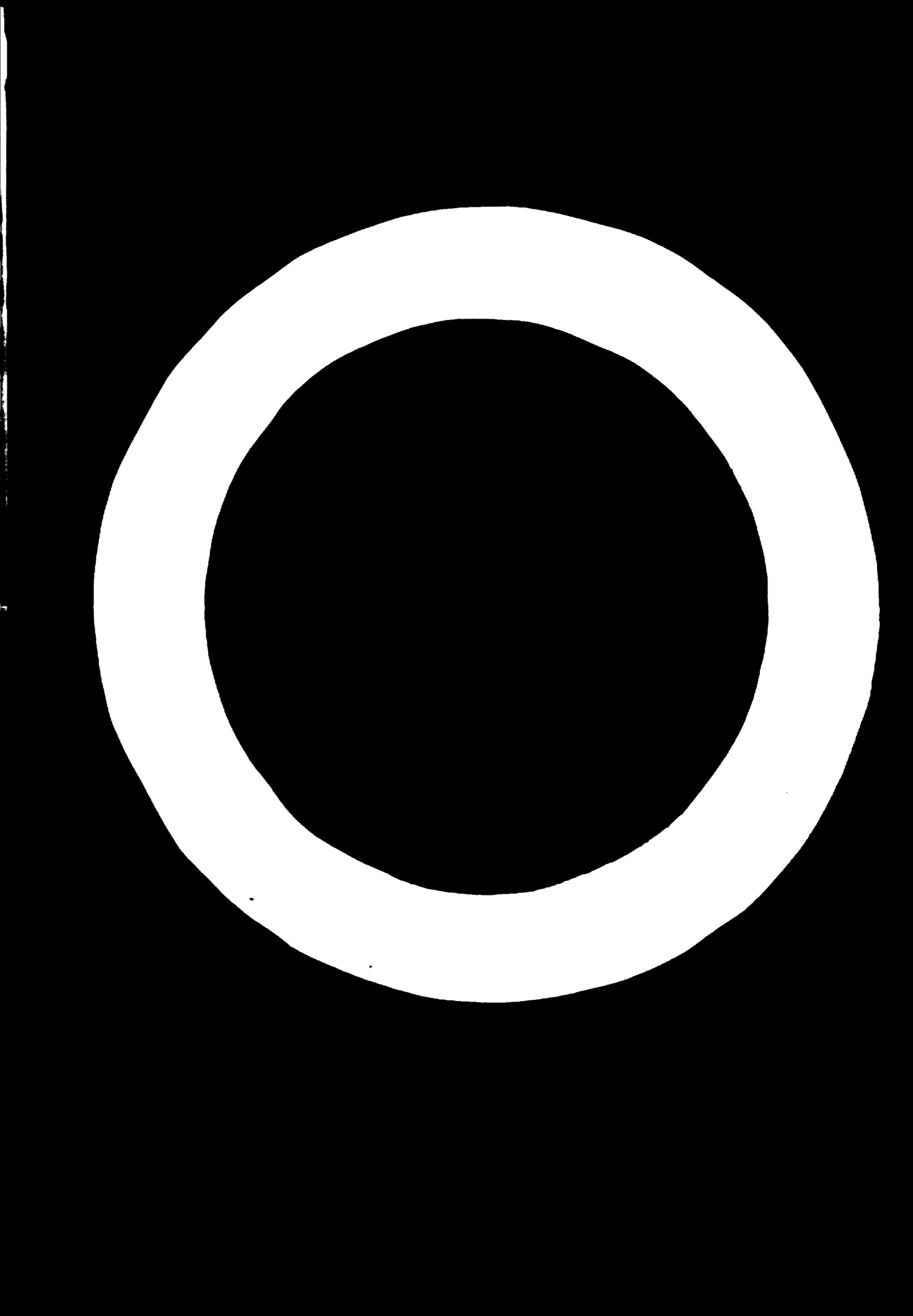
Many other countries, including Syria, Iraq and Algeria, help Yemen in different fields.

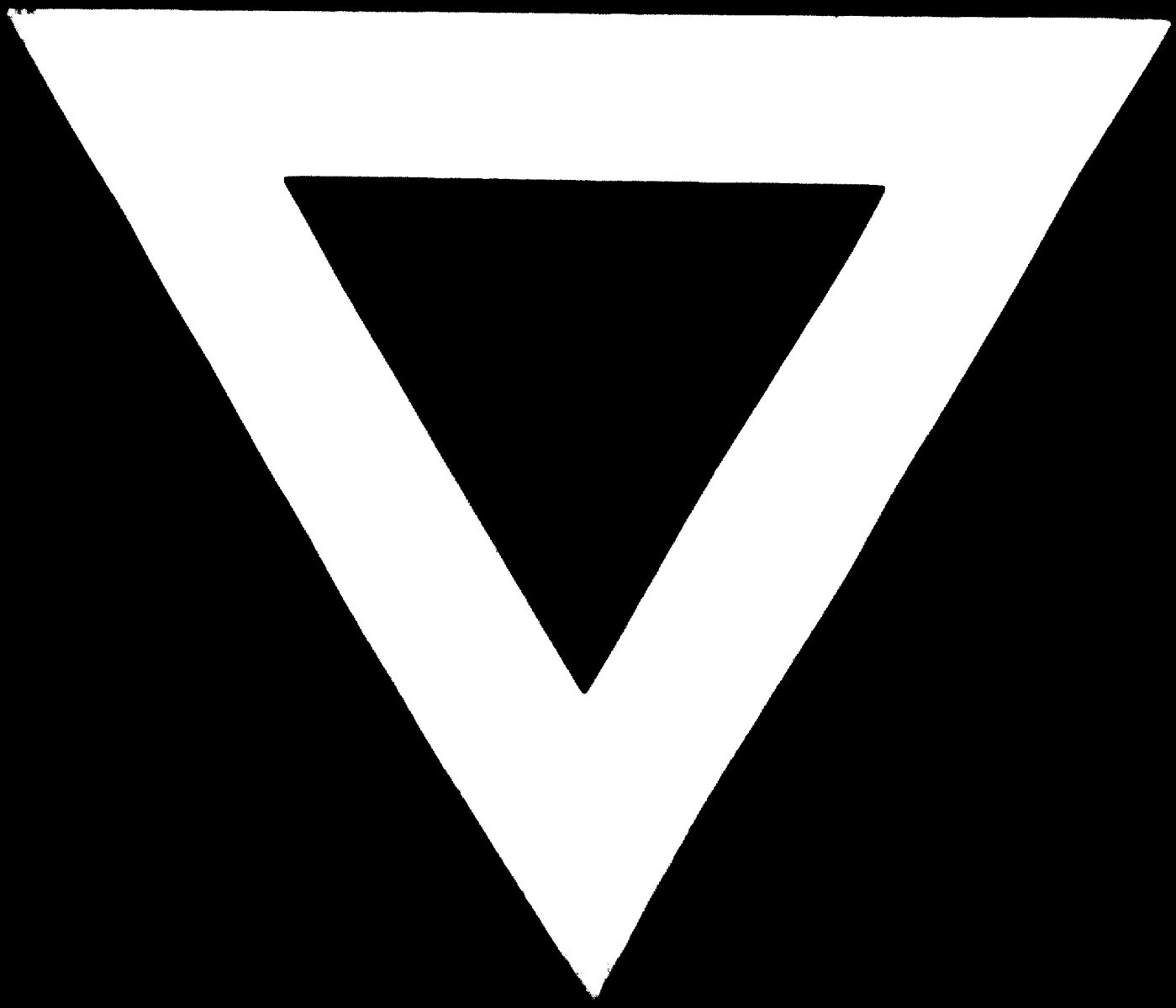
Conclusion

As a first step towards accelerating the country's rate of industrial development, a long-term programme for industrial development must be worked out. This

programme has to be the result of a scientific study of the conditions prevailing in the country, to be used during the next few years. This programme will have to indicate the direction of development in every branch of the country's economy, establish a balance among them and study the possibilities of local and international markets. All loans and assistance must be utilised in accordance with this programme, so that the Government will know in which fields it has to encourage the investment of foreign and local capital. In order to be able to control economic development, the Government must encourage the creation of large-scale state enterprises.

Conditions prevailing in the country are adequate for the development of a food industry (flour milling, vegetables and canneries) and for the creation of dams for preserving water which can be used for irrigation and generating hydroelectric power. Using all the potentialities of the country and foreign help, Yemen will be able to develop its economic and social life in the near future.





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