A Study of Developing Secondary Industry

In the Arab World Based on Joint-Venture

Between Kuwait and Morocco

A Thesis Submitted for The Degree of Doctor of Philosophy

By

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ABSTRACT

The availability of surplus capital from the oil producing Arab Gulf States has allowed joint ventures to become an economic reality and important Arab World phenomenon.

Using appropriate methodology, projections have been made of population growth, petrochemical production levels and per capita income with a view to determining the market for textiles in the Arab States. Shirt production has been chosen as an area for the pilot development of projects based on textiles. Factors influencing the choice include the relatively small capital requirement, the use of sophisticated technology in a labour intensive industry, the possible diversions into similar areas and the use of raw materials produced in the Arab World. The project envisages the creation of an inter-Arab joint venture between Kuwait, the provider of capital, and Morocco, the production base.

A computer model has been designed to produce one million shirts of various types per annum. The model embraces cash flows, rates of return, break even points, pay back periods and average utilised capacity. The model allows a variety of different situations to be analysed in terms of varying input parameters. The flexibility is such that it may be made the basis for many similarly oriented projects.

Constraints were identified - particularly those associated with obtaining Venture Capital. The problem of regional enterprise development within the Pan-Arab World was examined, and past lack of success of such enterprises identified with over idealistic objectives.

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INTRODUCTION

The whole Arab region seems to be at a turning point in its economic development and progress. It is certain that industrialisation would remain at the core of the development strategies of various countries in the region. For the oil countries, industrialisation could provide the basic means for absorbing a larger part of the oil revenues in productive investment, considering the limited potential of most of them. This would eventually transform the present oil economies into Petro-industrial economies. Analogously, in the agricultural countries industrialisation could ensure a fuller utilization of labour in entire economy. The agricultural and industrial sectors could be made mutually supporting, by the creation of some industries based on agricultural inputs, and others supplying the agricultural sector with certain essential inputs such as fertilisers, insecticides and machinery. Such inputs could help in preventing agricultural development from becoming too costly in domestic or foreign exchange terms. This would eventually transform the agricultural economies into agro-industrial economies.

It must be recognised, however, that the achievement of the fundamental objectives hinges to a large extent on the ability of the Arab countries to face the problems and constraints which beset their development. These problems, which are common to many countries in the developing world, embrace both the demand and supply aspects. (1)

On the demand aspects, despite the fact that the Arab Countries vary considerably in economic size, their domestic markets are considered too small to sustain large-scale industries. It is generally presumed that the size of a country imposes certain constraints on the pattern of the growth, and subsequently on the nature and degree to which such growth can be self-sustaining. Consequently, in the absence of export outlets the process of economic transformation sought in the Arab countries is expected to reach an "impasse", though sooner in the smaller than in the larger countries. For instance, Egypt has a much wider potential for development on the basis of its domestic market than any other Arab country, though this potential can be realised only if income per capita increases notably.

Within the confines of a small market the efficiency of investments tend to be je pardised. If for technological reasons a certain industrial plant cannot be downscaled to the size of the domestic market, it will have to operate below capacity and thus there will be misallocation of resources.

More specifically, in some industries there is apt to be a minimum-efficient-scale below which operation would be costly. At the risk of generalisation one can say that investment productivity, especially in industry, is likely to be below if based on a small market.

On the supply aspect, the emphasis on the problems besetting development differs as between oil and non-oil countries. While the oil countries experience no financial constraints, they face serious shortages of labour at all levels, and this is being aggravated by their ambitious development plans. Although, these countries are allocating sizable portions of their public expenditures to education and vocational training, this is not likely to ease the problem in the short - or medium - run. In the meantime, migrational movements within the Arab region are proving to be of some help, but not without raising sharply the general level of wages.

With respect to the non-oil countries, the lack of capital funds, which arises basically from the low level of domestic savings, is a major limiting factor in the process of economic development. Undoubtedly, the Arab countries could enhance considerably their development potential, through promoting regional specialization and mobility of factors of production. These can be attained in a circulatory way (2): the inflow of capital to the non-oil economies would allow these countries to increase their rates of investment in human resources and productive capacities, and hence increase the regional avilability of skills for the oil economies. Indeed, the oil economies provide an interesting model of development which is based on an unlimited supply of capital, since the monetary capital surpluses facilitate the process of development without sacrificing present consumption standards. This means that through raising capital-output and capital-labour ratios it would be possible to shift the dependence of the economy from the production of crude oil to high technology, capital-intensive industrial production. And yet, this seems difficult to achieve within an unchanged social framework, since the capital absorptive capacity is not only limited by the degree of skills available but also the smallness of the indigenous labour force.

It cannot be denied that there is a wide cognisance among the Arab Countries of the desirability of intra - regional coordination of development efforts. In fact, in most development plans, regional economic cooperation and integration is stated as a declared objective. Historically, the Arab countries were among the first to recognise in the post World War II period, the merits of regional economic cooperation and integration, and their efforts have aroused academic interest for some time, but their achievements in this field have been rather disappointing. Although political differences loomed large in disrupting their integrative efforts, it is firmly believed that the econ mic factors combined with lack of emphasis on the proper approach to integration, were also of great significane. The basic idea in this respect, is that economic integration is not merely a question of reducing or eliminating discriminatory measures. It calls for a positive action based on a regional investment policy which coordinates investment programmes in productive sector, to reap the benefits of specialisation and scale in an enlarged market.

The industrial sector in the Arab countries lends itself much more to the concept of integration at the present stage of development. (3) Firstly, industrialisation plays a central role in the process of economic transformation in view of its dynamic qualities, and accordingly industrial integration will spill over into other sectors and help more in gathering momentum in the overall integration process. Secondly, most of the Arab countries have already devoted sizable portions of their resources for developing their physical and social infrastructure, and have reached now a state where they need to expand

and diversify their productive sectors. It is amply evident that the industrial sector is assigned a leading role in the development process. Unlike the preceding stage of development, the new stage will require more formal regional co-operation and integration. Thirdly, it is rapidly becoming apparent that the emerging patterns of industrial investment are not in the long-term interests of the Arab countries. In the case of oil countries, there is much duplication in industrial investment in view of these countries' similar resource bases. This, together with the geographical grouping of industries, is apt to increase greatly the danger of ruinous competition between these countries in export market, whether within the region or outside it. At the same time, and perhaps most importantly at this stage of development, the patterns of investment are not conducive to a rational exploitation of finite resources in the region and tend to keep the econ mies concerned open to external influences. On the other hand, industrial development in the non-oil countries is taking place largely within national compartments, and this is not only producing similar industrial patterns but also lowering the ceiling for industrial development and preventing the use of certain modern technologies. Again here, the result has been the spread of some of the scarce domestic resources (Capital and skills) thinly among numerous small and relatively inefficient enterprises. It is therefore more consistent to have integration start in an area in which the participants have a vested interest. From the above analysis, the industrial sector can be considered a priority area for integration among the Arab countries.

The point that needs to be stressed in this work is that the constraints on development are blatantly acute in most Arab countries when considered individually, but they are considerably reduced when we consider the Arab states as a whole, due to their diverse factors of production. This highlights the utmost importance of Arab economic integration. There is a mutual interest in establishing cooperation between the major oil states, especially those lacking manpower and agricultural land, which will have abundant financial resources in the next 20 years, and the non-oil states which have abundant manpower and agricultural land but lack financial resources.

The lack of financial revenues is the greates obstacle to development in the devel ping countries. Oil exports represent a great opportunity for the Arab countries as a whole, to remove this financial constraint through Arab co-operation in general. The establishment of Joint Venture in particular is an important approach that is believed to be extremely beneficial for both oil and non-oil Arab states. It is very much so as the opportunity currently at hand is unlikely to recur, and its duration is very limited.

As an instrument for economic integration among Arab countries, this work is about to explore the possibility of developing a Joint-Ventre Enterprise.

CHAPTER ONE

INTER-ARAB JOINT VENTURE ENTERPRISES AS A MEANS TO ECONOMIC DEVELOPMENT

Recently, the concept of the joint venture has been a topic for discussion among Arab experts in the fields of economics, social sciences and law. The economic policies pursued by Arab countries through joint economic institutions, have stressed national planning in the form of Arab joint projects, as a vital means of organising and devel ping co-ordinated action in all spheres of interest, not merely the econ mic. All joint Arab economic institutions, whether operating at Arab World or regional level give constitutional priority to the establishment of joint ventures, to the extent that the success or failure of these various institutions has come to be judged by the number of joint ventures with which they are associated.

Dependence on the joint venture to achieve economic and social development, extends beyond purely Arab joint ventures to include co-operative arrangements with non-Arab parties. These Arab - non Arab joint ventures have been most evident in the financial sector (Banks and Investment Companies) and in more recent years in industry, especially in downstream oil industries. Liberal trade policies were introduced in an attempt to achieve the economic integration which was called for in the Arab League Economic Charter at that time. Consequently the concept became the most acceptable formula for co-operation between the Arab countries, especially as oil revenues increased dramatically. Joint ventures soon proved they could spearhead the move to create a broad productive base, to allow maximum circulation of Arab capital and optimum utilisation of the Arab World's natural, human and financial resources.

Arab governments, through various joint ventures and economic institutions, began to prepare the environment in which such projects could succeed. The Arab Economic Unity Council issued a number of agreements (4) covering the free movement of Arab capital between Arab States; an investment arbitration agreement to deal with disputes arising between Arab investors and the authorities in countries hosting projects; agreements on dual taxation and tax evasion, etc. To guarantee investors against non-commercial risks, the Inter-Arab Investment Guarantee Corporation was set up, while the eleventh Arab Summit Conference held in Amman in November 1980 produced a unified agreement on the investment of Arab capital in Arab countries. The charter of many joint Arab economic organisations specially call for the creation and financing of joint ventures. The charter of the Kuwait based Arab Fund for Social and Economic Development for example, calls for financing of joint investment projects through soft term loans, either to governments, public or private sector corporations, with preference to be given to Arab entities and especially Arab joint projects. The ninth article of the constitution of the Arab Economic Unity Council, calls for co-ordination of economic development and the devising of programmes for joint Arab development projects. The constitutions of the Arab Industrial Development Organisation and the

Organisation of Arab Petroleum Exporting Countries carry similar clauses, while the charter of the Gulf Co-operating council requires that the member states within the framework of co-operative action, should give special consideration to the creation and support of joint ventures among themselves in the fields of of industry, agriculture and services whether within public, private or mixed capital, in order to achieve economic integration, co-ordinated production and joint development on a sound economic basis.

Fourteen specialist Arab federations which were set up in the seventies to develop professional, administrative and commercial exchange between the Arab countries, and to assist members in solving a variety of problems, also found themselves constitutionally bound to the concept of joint ventures.

This part aims to formulate a workable concept of joint ventures as a means to effective economic co-operation among Arab countries. Also, to highlight some of the problems and obstacles that face the Arab experience in joint venture, and to explore methods that could be used to identity and execute potential joint venture projects, which would provide opportunities for the gainful employment of the available resources among Arab countries.

1.1 What is a Joint Venture?

The Arab and Arab/foreign joint ventures include agriculture, strategic industries (such as oil, gas and minerals,) manufacturing industries, leather, wood, chemicals, transport industries, construction, communications, finance, insurance, investment and engineering consultancy.

The geographical framework of these ventures varies enormously. Some operate from single sites in one host country whether Arab or foreign. Some have been set up with Arab government or private sector capital, and others, for example, financial institutions involve Arab capital with non Arab capital in ventures which invariably continue to be non-Arab in status whatever the scale of Arab capital involved. This type of venture is aimed at putting to work some of the Arab World's surplus capital in Arab or Third World countries within a non-Arab framework.

The number of organisations and consortia which have given birth to Arab joint projects have multiplied (5). Some have been set up by specialised inter-Arab authorities, others by two or more governments as multi-party ventures, while yet others have been set up at the initiative of non-government inter-Arab economic organisations such as the Arab Federation of Chambers of Commerce, Agriculture and Industry. Some projects have been initiated by conferences of Arab investors and businessmen. The legal status of these joint ventures varies widely to include international agreements, quasi international agreements, national companies established by sovereign decree, affiliates of international organisations requiring no endorsement by national governments, etc. Joint ventures take the form of holding companies, contracting companies, production companies or any combination of the three. The capital may come from government sources alone, from government and private sources or from the private sector alone.

It is only in the past decade with the availability of surplus capital from the oil producing countries that the spread of joint ventures has become an economic reality and an important phenomenon in the economic structure of the Arab World. Yet there is still no precise definition of what constitutes a joint venture. To some it is simply a project in which two or more states co-operate to produce comm dities or services, by contributing a share of the means of production such as capital, executive personnel, labour or technical expertise. Others consider that the joint venture whatever its form and purpose, is a mechanism for establishing mutually beneficial economic relations between two or more states (6). The United Nations Industrial Development Organisation (UNIDO) considers that a joint venture represents a form of co-operation between two or more parties in an investment activity whatever its legal or administrative structure, whose sphere of activity may be limited to one country or extended to more than one country.

Given the drive to achieve economic development in Arab countries using the available means of production, it is essential that any understanding of the joint venture concept should be linked to the development aims of the Arab world as a whole. It is not acceptable for the joint venture to be understood as a mere investment activity regardless of the wider implications of Arab development strategy.

Thus, the Arab joint venture is one set up in an Arab country in the context of Arab local or regional markets, with the aim of building strong economic relations of production between Arab countries, regardless of the source of the venture capital or the nationality of the project's participants. In other words what identifies an Arab joint venture from other joint ventures is not a question of ownership, but a question of the role that venture will play in building production and service networks within the Arab World.

The strategic aspect of the joint venture was adopted at the Arab Summit Conference held in Amman in 1980 (7). The strategic charter adopted by this summit went on to declare that joint ventures should be deliberately set up in the places where they could achieve maximum results in terms of economic integration through horizontal and vertical development to increase the rate of economic growth in the Arab countries. The charter stressed that preference should be shown for Arab joint projects which are productive and which assist the process of Arab economic integration. Such projects should be given priority over foreign projects in Arab countries whether in terms of financing or marketing, in accordance with the principles laid down by the Arab Economic Unity Council.

1.2 Arab Experience in Joint Ventures

There are many joint ventures that have been created to use surplus Arab capital to build inter-Arab economic relations on the one hand and to strengthen economic relations between the Arab World and other Third World Countries on the other. Thus, a combination of joint ventures and direct investment in projects have been set up, related to various aspects such as infrastructure, finance, production and service operations.

Joint ventures have been promoted by various bodies in the Arab World. These bodies and their related joint projects will be considered.

1.2.1 Joint Ventures by Institutional Bodies

1.2.1.1 The League of Arab States

The charter of the League of Arab States set up in 1948, declares that one of the aims of the League is the full co-operation of its member states in economic and financial affairs. Article seven of the treaty of Joint Defence and Economic Co-operation calls for contractual co-operation between member states to mutually develop their economies, their resources and to facilitate the exchange of products between them. The Arab League Economic Council was set up in 1953 to be the organisational framework for this co-operation.

Thirty years ago the main idea behind Arab economic policy was the adoption of free trade as a means of achieving economic co-operation. Between 1953 and 1954 the Economic Council arranged two agreements between member states the first of which dealt with freedom of trade exchange and transit of goods. The second covered settlement of debts and transfer of capital. Thus the initial emphasis was on flow of goods and capital, at a time when productive output was extremely limited and capital was scare. In other words, the decisions of the Economic Council were barely relevant to the economic situation in the Arab World at that time. There was little point in calling for free trade exchange when the member states had nothing to trade with. Realisation dawned and the emphasis shifted to efforts to create a productive base in order to build up a range of commodities for exchange within the Arab World. The new direction led to the formation of a joint project financing cooperation and such ventures as the Arab Shipping Company and the Dead Sea Minerals Exploration Company.

The first practical step in the Arab joint ventures came with the establishment of the Arab Potash Company Ltd. on January 25, 1956. The decision followed quickly to set up the Arab World Airlines Company, and the Arab Shipping Company to increase the Arab share of the freight transport business, the Arab Oil Tanker, and the Jeddah based Arab Fishing Company announced in 1976. Of course, not all the projects launched by the Arab League Economic Council were put into action. Many of these ideas such as the Arab World Airlines project, the Arab Oil Tanker Company, and an Arab Oil Research Institute, were left on the shelf or modified because of prevailing circumstances. But there was no doubt that the main thrust of the Council's policies had changed from free trade to the need to expand and increase production. In 1978, the Council called for joint Arab ventures to be set up on a co-ordinated planned basis to avoid duplication of investment and effort.

The political and economic situation in the Arab World between 1967 - 1973 led to the another policy shift by the Economic Council, this time the main idea being investment in development through specialised funds. The Arab Fund for Social and Economic Development came into existence in 1973 and the Banque Arabe pour Development en Afrique began investing in non-Arab African countries in 1975.

Since it is accepted that the first priority in the Arab World is to create a productive basis as a prelude to trade exchange, it is vital to stress that the expansion of production must be carried out in accordance with a balanced programme of development for the entire Arab region. As yet most joint projects in the Arab World have been set up in the interests of trade exchange or industrial base development for the specific parties involved, and thus while achieving some success from the local point of view they have not in general realised the great hopes invested in them (6).

In an effort to complete the organisational structure of joint economic activity, the Arab Social and Economic Council and the council of the League of Arab States decided to establish nineteen organisations, most of them of an economic nature.

One of the most important actions taken was the issuing of the Arab Economic Unity Agreement in 1957. The agreement called for the free movement of personnel and capital and for co-ordination in all policy matters related to industry, agriculture and transport. The agreement called for co-operation in economic development and a programme for joint ventures, and because of its comprehensive nature it became the first genuine framework for Arab economic co-operation.

1.2.1.2 The Arab Economic Unit council (AEUC)

In mid-1973 in the absence of an Arab World Development Strategy, the AEUC decided to adopt two methods of operation; namely to establish joint ventures in new industries, which would not compete with existing projects, and to set up specialised federations to assist in the development of existing industries.

In co-operation with the Arab Industrial Development Organisation the Council has set up a total of fourteen specialised industrial federations including, chemical fertilisers, iron and steel, cement, paper, food industries and engineering. In addition to this sectorial approach to existing industries, the AEUC embarked on the other branch of its strategy in 1974 with the launch of two joint ventures:

The Arab Mining Company (authorized capital Kuwaiti Dinar (KD) 120 million.

The Arab Livestock Development Company KD 50 million.

The two companies, based in Amman and Damascus respectively, began work in 1975. In that same year, the Arab Company for Drug Industries and Medical Appliances (ACDIMA) was formed as a holding company (capital KD 60 million). This company transferred its headquarters from Cairo to Amman in 1979 following the suspension of Egypt's membership of the Arab League. The Arab Industrial Investment Company formed as a holding company in 1978 grew out of a bilateral joint venture between Iraq and Egypt under Baghdad protocol. The AEUC suggested that other Arab countries become involved in the company to expand its production of motor vehicles, tractors etc. The new company was set up in Baghdad with capital of 150 million Iraqi Dinars with Iraq, Jordan, Kuwait, Syria and Saudi Arabia as shareholders (6).

In 1979 the AEUC proposed two joint ventures, the Arab Postage Stamp Printing Company and the Arab International Land Transport Company; both projects are still being studied by member states and await approval.

The shift in emphasis of the AEUC from trade to production again demonstrated the fact that free trade systems are not sufficient to create structural changes in the Arab economy so long as the production remains in its first stage of development. An advanced industrial base is a vital prerequisite for trade policies as Arab institutions have noted in their efforts to encourage production oriented co-operation.

At the same time as the AEUC was setting up a range of joint ventures, other specialised inter - Arab organisations were involved in similar activities. The organisation of Arab Petroleum Exporting Countries (OAPEC) set up in 1968 to act as a medium for co-operation between members in developing their oil industries, was also promoting joint ventures to introduce a new range of commodities to the Arab productive base.

1.2.1.3 The Organisation of Arab Petroleum Exporting Countries (OAPEC)

OAPEC exists to promote the co-operation of its members in economic activities related to the oil industry. The aim is to develop the Arab oil industry from dependence on crude oil export alone, by using the pooled resources of member states to set up joint oil industry ventures. Five such ventures have been created to date:

1) The Arab Maritime Petroleum Transport Company (AMPTC) established in Kuwait in 1973 to undertake all aspects of shipping oil industry products.

2) The Arab Petroleum Investment Corporation (APIC) set up in Amman in 1976 to finance oil industry projects with priority to

Arab joint ventures.

3) The Arab Ship Repair Yard (ASRY) which began work at its dry - dock facility in Bahrain in 1977.

4) The Arab Petroleum Services Company (APS) which began work at the end of 1978. Based in Tripoli, Libya, the company is authorised to form subsidiaries involved in various aspects of petroleum industry services.

5) The Arab Company for Engineering Consulting (ACEC) was the first joint ventures set up by OAPEC in the consultancy field. It undertakes feasibility studies, engineering reports, design, and management of projects related to oil, gas and petrochemical industries. The company is based in Dubai and began work in July 1981.

1.2.1.4 The Gulf Organisation for Industrial Consulting

The Gulf Organisation for Industrial Consulting (GOIC) was set up by the Arab Gulf States in 1976 with the specific remit of proposing joint ventures, and providing the necessary research and technical studies to ensure the viability of the projects. GOIC's first project to enter into production was the Gulf Aluminium Rolling Mill Company in Bahrain. The project was carried out as an important step towards integrating the aluminium industry in the region. Six of the seven Arab Gulf States (excluding the UAE) have taken shares in the project and each state is allowed to offer up to 49% of its shareholding to its private sector provided that no individual investor is allowed to acquire more than 10% of the shares issued (8).

Studies prepared to date include a sheet glass factory to be set up in Iraq, a glass fibre factory under construction by Gulf Private Sector investors in Jubail, Saudi Arabia and a petroleum coke project suggested for installation in Abu Dhabi as an inter-government venture.

1.2.2 Joint Ventures by Non-Institutional Bodies

In addition to joint ventures set up by regional or Arab World Organisation under the general framework of Arab economic unity agreements, other activities have taken place on bilateral or other international bases (9).

1.2.2.1 Inter-Government Projects

1) The Arab Investment Company (TAIC)

This company was established in Riyahdh in 1974 by Saudi Arabia, Kuwait, Sudan, Qatar, Abu Dhabi and Bahrain. Later on, other Arab countries have joined this company namely, Syria, Iraq, Jordan, Tunisia, Morocco, Libya, Oman and the Republic of Yemen Arab. The capital currently stands at $300 million of which $290 million is paid up.

2) The Arab Petroleum Pipeline Company (SUMED)

The company was formed in 1976 to construct pipelines to carry petroleum from the Gulf of Suez to the Mediterranean Sea, and to set up and operate all the necessary terminal facilities, pumping stations etc. There are several Arab countries participating in the formation of this company: Egypt, Qatar, Saudi Arabia and United Arab Emirates.

3) The Arab Authority for Agricultural Investment and Development

This company was set up to use the surplus capital of Arab oil producing countries to develop agriculture in fertile countries lacking the financial resources to develop food production. Shareholders include Algeria, Sudan, Iraq, Saudi Arabia, Syria, Egypt, Kuwait, Morocco, UAE, Qatar, Somalia and Mauritania. The board of directors agreed in April 1980 to the formation of four companies to produce food in Sudan namely:

- The Arab Sudanese Poultry Company
  (SL 35 million)

- The Arab Sudanese Dairy Industries Co.
  (SL 45 million)

- The Vegetable Production and Export Project

(SL 45 million)

- The Arab Sudanese Starch and Glucose Company
  (SL 25 million)

4) The Arab Insurance Group (ARIG)

This Group has been formed by Kuwait, Libya, and United Arab Emirates with authorised capital of $ 3 billion in April 1980.

1.2.2.2 Joint Projects with Regional Shareholders

1) The Gulf International Bank (GIB)

The decision to form GIB was announced in 1975. Its purpose was to use part of the oil revenues of the seven Arab Gulf States for commercial and banking activities outside the participating countries.

2) The Gulf Petrochemical Industries Company (GPIC)

GPIC began as a bilateral venture between Bahrain and Kuwait, but the present company was formed when Saudi Arabia became a partner in 1980. GPIC has its headquarters in Bahrain and it is authorised to established projects for the manufacture of ammonia and methanol from natural gas, and develop other intermediate petrochemical industries. GPIC operates two plants in Bahrain, one with an output of 1000 tonnes a day of methanol and the other producing a similar quantity of ammonia. The company's authorised capital is 60 million Bahraini Dinars, and the shares are held by Bahrain National Oil Company (BANOCO), Kuwait Petrochemical Industry (KPIC), and the Saudi Basic Industries Company (SABIC).

3) The United Arab Shipping Company (UASC)

This company formed in January 1976 from the nucleus of the former Kuwait Shipping Company. The UASC is owned by six of the seven Arab Gulf States (excluding Oman) and is active in all aspects of shipping between the Gulf and major international trading centres.

1.2.2.3 Bilaternal Joint Ventures at Government Level

In recent years many bilateral joint ventures have been set up by Arab governments covering a wide spectrum of activities too numerous to mention in detail here (10). A few examples are :

1) The Emirates - Sudanese Investment Company Ltd.

This company formed in 1976 with capital of 20 million Sudanese pounds shared equally between the two countries, invests in agriculture, livestock, transport, industry and other areas of the Sudanese economy. This holding company has set up five subsidiaries:

- The UAE-Red Sea Investment Co. Ltd.
  ($ 15 million)

- (The UAE-Khartoum Investment Co. Ltd.
  ($ 7.5 million)

- The UAE-Khartoum Investment Co. Ltd.
  ($ 15 million)

- The UAE-White Nile Investment Co. Ltd.
  ($ 7.5 million)

- The UAE-Sudan Air Transport Service Co.
  (SL 1 million)

2) The Kuwait - Egyptian Investment Company (KEIC)

One of the most important subsidiaries of this holding company set up in 1974 is a leather shoe factory in Egypt. KEIC is based in Cairo with an authorised capital of $ 25 million. The Kuwait government is represented by the Kuwait Trading Contracting and Foreign Investment Company, while the Egyptian government is represented by the Fund for Investment Deposits and Insurance.

1.2.3 Joint Ventures By Mixed Sector

One of the newer phenomena in the pattern of joint ventures in the Arab World is the mixed sector project in which an Arab government joins with an inter-Arab organisation and private sector investors to form a new project. One of the best examples of this kind of project is the Gulf Pharmaceuticals Company, a 100 million UAE Dirham Company based in Ras al Khaimah UAE, which produces a fast growing range of medicines and drugs for medical and veterinary uses. The parties involved in this project are the government of Ras al Khaimah, the Iraqi General State Enterprise for Drugs Industries and Medical Appliances (ACDIMA), as well as a large holding the Gulf Pharmaceutical Company being restricted to Gulf nationals (9).

Gulf Pharaceuticals Company was the first of this type of venture to be set up in the industrial field on such a scale. On the wider Arab front a similar venture has appeared in the banking sector with Union des Banques Arabes et Francaises (UBAF) formed in 1970. UBAF is 60% owned by 26 Arab financial institutions, while three French banks hold 40% of the shares. Other such ventures in the banking sector include the Arab International Bank formed in 1973 by the government of Egypt (28.76%), Libya (28.76%), the UAE (28.76%), Oman (4.78%) and Qatar (4.78%), and private Arab investors (4.16%). Similarly, the Arab African International, Algeria, Jordan and Qatar, with various institutions and individuals in 1964.

1.2.4 Joint Ventures by Non-Governmental Institutions

The General Federation of Arab Chambers of Commerce, Agriculture and Industry is one of the oldest and most important non-government organisations involved in economic development and joint projects. The aims of these organisations have often appealed for better use of Arab financial, natural and human resources within the region as well as for better use to be made of available facilities such as the Inter - Arab Investment Guarantee Corporation. The Federation has expressed a strong belief in the importance of joint projects as a way of distributing capital and profits, as well as of developing the structure of production towards spontaneous growth and regional self-reliance to meet the growing demand for commodities and services as the level of income and standards of living continues to rise.

The Federation has stressed the need to select projects which have the highest potential for markets inside and outside the region making best use of the available means of production while offering new opportunities for upstream and downstream developments. Projects must also be of course profitable in their own right for the benefit of shareholders. Putting all these words into practice the executive of the Federation at a meeting in Dubai in 1979 called for the formation of the following:

1) The Arabian General Investment Company (AGICO)

AGICO was established by decree of the ruler of Dubai on April 25, 1979 with authorised capital of UAE Dirham (7 million). The company aims to promote projects in the full range of economic activities from agriculture and industry through services and financial dealings. The heads of the chamber of commerce, agriculture and industry and their members hold many of the shares, while the reminder were offered for general subscription to Arab governments, institutions and individuals as well as to mixed Arab - foreign ventures provided that the venture is at least 50% Arab owned.

2) A Confederation of Arab Businessmen and Investors

In April 1982 the city of Taif in Saudi Arabis was the venue for the first ever conference of Arab Businessmen and Investors called together by the Secretariat of the Arab League in association with the Inter-Arab Investment Guarantee Corporation and the Federation of Arab Chamers of Commerce, Agriculture and Industry. The conference called for the creation of the Arab Agricultural Investment Company as a vehicle for investment in land reclamation and cultivation, supply of infrastructure in terms of irrigation, storage, packaging, distribution etc. and the promotion of food processing industries and related industries such as fodder production.

Finally, Appendices 1, 2, 3, 4., 5, 6, 7 and 8 summarise the Arab experience and show the distribution structure of the Arab-Arab and Arab-Foreign ventures that are in existence both inside and outside the Arab World.

1.3 The Importance of Inter - Arab Joint Ventures

From the nationalistic view-point of developing countries, it has traditionally been argued that the equity participation of foreign partners in local projects is not generally desirable, but should be encouraged only when a given project cannot be carried out properly on an exclusively national basis. The following examples demonstrate the benefits of adopting international equity joint venture as a form of business organisation : (11)

1) Where the nature of the project necessitates its execution through a joint venture.

2) Where the cost of the venture can only be met by bringing in complementary finance from a foreign partner.

3) Where the project implementation is dependent on a degree of know-how (including managerial and marketing expertise) which cannot be obtained except through association with a foreign partner.

4) Where such association is an important means for the distribution of exceptionally high risks inherent in the project.

Otherwise, a presumption seems to prevail in favour of the national equity ownership of projects. Consequently, preference in obtaining external financing for development projects is given, in principle, to borrowing from foreign sources (if it is to be obtained on reasonable terms) rather than to inviting their equity participation.

The most general factor explaining the importance of establishing inter - Arab joint ventures is the complementary nature of resources and interests between the parties to such ventures or more accurately, their increasing awareness of its existence. In the context of Arab states this factor is emphasized by the following considerations :

1) One of the basic contemporary divisions in the Arab World is that which classifies its states into two groups: one accumulating large liquid assets in excess of its present absorptive capacity, and the other suffering from acute shortage in financial resources while having, in most cases, a greater absorptive capacity than that of the first group. States of the first group are seeking investment opportunities abroad while those in the second group are offering such opportunities to outside financiers. The joint venture formula presents itself under these circumstances as a happy solution, especially as stronger political ties continue to develop between the two groups and a better investment climate emerges in the Arab capital importing states.

2) Economies of scale may, in certain industries or projects, necessitate the adoption of the joint venture formula for the implementation of Arab projects in need of a huge equity capital or

an extensive market. National units in industries such as the petrochemical and the car industries have often proved to be economically not feasible without extensive governmental protection and support. Larger inter - Arab ventures in such fields could, on the other hand, acquire the necessary elements of economic viability on a purely commercial basis. Such large ventures also aspire to deal with western multinationals from a position of strength and may even eventually replace them in the region much more readily than the present national units could.

3) Through association with partners from oil rich countries, local partners in the Arab capital - importing countries, with foreign cash in hand, are likely to find more attentive ears in multinational corporations whose involvement in the project as suppliers of technology and/or advanced management, or even as shareholders, could perhaps be secured in a shorter time and on better terms.

The interest of such multinationals to enter into trilateral joint ventures involving also capital - importing and capital - exporting Arab countries, is obviously easier to excite than in the case where the Arab partners are offering only the investment opportunity or the cash.

4) The objective of Arab economic integration has proved to be unattainable through trade liberalization measures only, in view of the limited production capabilities of each Arab country and the competitive nature of their products. Along with such measures, and

perhaps prior to their full adoption, the volume and quality of the production of goods and services in each Arab country should therefore be such as to allow for meaningful trade among these countries.

One means of achieving such changes in the pattern and scale of production capacities in the region, is the creation of joint ventures with greater resources than those available at present to national enterprises.

1.4 Problems and Obstacles in The Joint Ventures

There are general obstacles in the promotion and establishment of joint ventures which may be confronted in any effort to embark upon the creation of joint venture enterprises: (12)

1) Laws and regulations regarding foreign investment in a host country may be restrictive and potential investors may find their tasks immensely difficult. Even though there may be excellent opportunities for joint investment and availability of capital, technology and skilled labour, the venture may not materialize due to legal, administrative and cumbersome bureaucratic regulations.

2) Tariffs and exchange control regulations in a host country may also work against the efforts towards promotion of joint ventures. In the absence of the necessary incentives to foreign investment (tax, subsidies etc.), some countries may find it hard to attract foreign investment.

3) At times, fear of government changes or frequency of policy alterations by the host country may deter potential investment in an enterprise. Regional, political and economic uncertainties may also adversely affect the establishment of joint ventures. Obviously, countries which are prone to frequent political turmoils are less attractive in this regard. Similarly, due to several reasons, a host government may not be able to meet its commitments regarding the establishment and operation of joint ventures. This may cause delays in the initiation or completion of the project or may even bring the project to a standstill.

4) Apart from the above mentioned difficulties, there may be some other technical reasons for the retardation of progress towards the promotion of joint ventures. This may relate to various important aspects of project identification, feasibility study and non-availability of technical and professional staff.

There are other problems confronted by a large number of the existing Arab public joint ventures. They include the following (13).

1) The inability of the management in most Arab joint ventures to grasp modern management systems and its reliance on local staff that neither apply the principles of modern management, by which duties are defined, nor assess the performance of projects in terms of their success in achieving goals.

2) The absence of clearly stated management principles governing the choice of managerial leadership for Arab public joint ventures. Instead, managers are chosen on the basis of nominations by the shareholder countries, based on personal trust, job promotion, and prior experience of officials in national government work, which may bear no relationship to Arab joint economic action or even, in some cases , to the nature of work in the enterprises concerned.

3) The absence of regular outside assessment of the performance of Arab public joint ventures, with the exception of a limited number of the enterprises which did hire foreign consulting firms to evaluate their performances objectively.

4) Delays in completing the administrative and financial prerequisites (including job descriptions and definition of the responsibilities and powers of the different departments and sections) and in formulating staff regulations, the financial system and all other work systems and regulations.

5) The rapid turnover of high-level executives representing the member states on the board of directors and in top management, the appointment from time to time of new executives that have no background of the business concerned, constituting an impediment to its operation and a constraint on its achievements.

6) The shortage of skilled technical personnel especially in industrial activities, as they have only recently been introduced in

the Arab countries.

7) Overlapping between enterprises in individual countries and Arab joint ventures, because in many Arab States there has been a tendency to establish private local enterprises comparable to Arab joint ventures. This leads to competition between local enterprises and Arab joint ventures, especially on the foreign market in the case of large export-oriented enterprises.

8) Delay in paying capital contributions and in paying up shares, with a consequent delay in the holding of the constituent shareholders' assembly and in the start-up of corporate activities. As a result, many Arab public joint ventures face this obstacle when they are initially established, so that it is often necessary to reduce the capital subscription rate at the cost of availability of the necessary liquidity.

1.5 Workable Proposal for Inter-Arab Joint Ventures

As most inter-Arab ventures are still in their formative stage or at best in their initial period of operation, it is obviously premature to pass final judgements on their operational policies or on their impact on Arab economic integration. Relevant experience, though limited, has, however, yielded certain key indicators for the understanding of the present spread of inter-Arab joint ventures in the manner explained before. It also helps in discovering the elements of success or failure in each particular venture: (5).

1.5.1 Decisive Factors of Success

1.5.1.1 In the Formation of The Venture

1) The availability of a generally favourable political atmosphere among the partners in the venture: the importance of this factor is explained by the prevailing governmental character of Arab ventures as well as by the prominent role played by governments in the orientation of business in all Arab countries. It could also be explained by the exceptional risks borne by the expatriate partner in doing business in a country on bad terms with his own, especially when both countries belong to the rapidly changing developing world. The sensitivity of the establishment of inter-Arab joint ventures to political developments in the area has, in fact, been so great that it may be considered the single most important factor in the sudden rise in the number of Arab joint ventures in recent years.

2) The identification of a clear economic interest for all prospective partners in the implementation of the project: the lack of such a common interest has been a serious hindrance in the adoption of ventures which were suggested as pan-Arab multilateral projects but could perhaps have been adopted only in a more limited scope. While Arab States hesitated, for instance, in the implementation of a pan-Arab airlines project, North Yemen established its first airline as a joint venture with Egypt-Air. (This joint venture was terminated, however,

when it proved to be economically detrimental to the Egyptian partner). One of the basic functions of the project's sponsor is therefore to identify the complementary interests between prospective partners and to help them in ascertaining the possible friction points and the practical ways in which they are to be resolved. This factor emphasizes the importance of working simultaneously on the establishment of regional, sub-regional and bilateral ventures depending on the range of complementary interests that could be identified between potential partners.

3) The presence of an interested sponsor for the project which follows a workable approach in presenting it to prospective partners and receives their serious consideration: the role of the "right sponsor", which quite often goes beyond that of a midwife to become an organic member of the joint venture, explains why certain ventures were stillborn under given circumstances but came to life later-on when they received the attention of an active sponsor. The Arab Oil Tankers Company is a case at hand. The project initiated in 1963 under the League of Arab States could materialize only ten years later under the auspices of a better suited sponsor, OAPEC. The spread of joint Arab investment companies and Arab development funds in recent years could also mark an important step towards the creation of a growing number of inter-Arab ventures. The

credibility of the sponsor in such cases is obviously enhanced by its potential role in the financing of the project, whether as a partner, lender or guarantor.

4) The availability of readily accessible channels for the mutual choice of partners: the process of such a choice has proved to be of crucial importance of the quick formation of the venture concerned especially when it is to be established between non-governmental entitles i.e., when it is not merely a matter for each government to nominate a local agency to participate on its behalf in the joint enterprise. At present the selection of prospective partners is all the more difficult due to the lack of adequate published data on Arab business concerns (unlike the case, for instance, when dealing with overseas multinational corporations) as well as the lack of a developed financial market on the regional level.

5) The undertaking of detailed pre-investment studies to prove the technical and economic viability of the venture: these types of studies are lacking in most of the Arab ventures that have been agreed upon but did not come into operation. In addition to their function in the definition and justification of the project involved, the studies in question play an important psychological role in generating serious consideration of the venture by prospective partners and could also be useful in securing financing for it from outsider sources. Understandably, however, not all ventures require this kind of

detailed study. It is indeed the ventures which require a minimum of studies and whose success depends basically on good management, such as financial and banking institutions, that figure prominently among the newly established Arab joint ventures.

6) The adoption of a workable form for the creation of the joint enterprise: the form of the "international public corporation" adopted for most Arab multilateral public ventures was certainly a delaying factor in their implementation. A corporation of this type could only be established by virtue of an international agreement subject to the ratification or acceptance of all Member States in accordance with their constitutional requirements. It endows the joint corporation with privileges and immunities which usually liberate it from the provisions of any local law conflicting with its constituent instrument and require for their validity legislative action in all member States. Such time-consuming requirements are spared, when the venture is established as a national company under the laws of the host country. A company of this type could still enjoy a special status simply by the enactment of legislation to this effect in the host country only.

7) The proper drafting of constitutive legal documents. A defective agreement which fails to tackle the basic issues of concern to the partners, or conversely, attempts to protect

against every contingency falling, as a result, into a rigid and overlay detailed coverage, could have a discouraging effect on the actual implementation of the project. This point should not be over-stated, however, as in the context of Arab projects, lawyers usually play a minor role in the decision-making process related to the creation of new Arab ventures. Some of the ventures presently in operation suffer from serious drafting shortcomings in their constitutive instruments which could reflect badly on their operations.

1.5.1.2 In the Operational Stage of the Venture:

Experience of the few Arab joint ventures now in operation suggests that success in the formation of the venture does not readily lead to its successful operation. The latter depends in particular on such factors as the following:(14)

1) The establishment of a management structure for the venture which takes due consideration of its transnational character: this is particularly crucial for inter-governmental ventures especially the multilateral ventures which operate independently from a pre-established legal framework. The need for separation between ownership of the venture and its management is even more relevant in such ventures than in the typical public-sector national enterprise. Such a separation is not merely a safeguard for insulating the venture from political considerations but also helps in avoiding the conflicts inherent in any multinational association. Constitutive

instruments of multilateral Arab ventures are therefore right in tackling the details of the organisation of each venture to ensure for its management as much independence from the partners' intervention as possible. The degree of governmental control and, when applicable, of the control of the sponsoring organization seems, however, to have exceeded, in some actual cases, the inevitable minimum. A bilateral venture involving a public entity in the host country may also raise delicate organizational questions. For this reason, domestic law on foreign investments in some Arab countries considers any joint venture with a public-sector local company as a private entity free from all rules applicable to the public sector in the host country.

On the other hand, legislation in many capital-importing Arab countries exempts approved joint ventures from the requirement of local majority ownership. In cases where the expatriate partner is a minority shareholder, the agreement establishing the venture seldom provides for special guarantees in favour of that partner in excess of local law requirements. Nor do the agreements establishing Arab ventures attempt, on the whole, to devise solutions for deadlocks in the decision-making process in the more common bilateral ventures based on a 50/50 ownership. Such a lacuna could of course create serious constraints on the project's management especially in the absence of a generally applicable domestic law. In the typical case, partners in such ventures are merely represented on an equal basis in the venture's board of directors where the chairman is chosen from among the representatives of one partner and the managing director from the representatives of the other.

2) The adoption of proper arrangements to facilitate the project's access to sources of finance. Partners from capital-importing Arab countries often request funding from expatriate partners through such devices as providing loan capital to the venture. Initially, unsuccessful attempts were made by local partners to obtain from the prospective expatriate partners loans to finance part of the formers' contribution in the venture itself. The idea seems, however, to be gaining ground in negotiations on the establishment of some new inter-State Arab ventures. Understandably, such arrangements are of an exceptional nature due to the opposition of expatriate partners, especially private investors, to their adoption.

A joint venture in need of loan financing may find itself in a worse position than that of a national venture, especially when borrowing from international development institutions which often insist on obtaining a governmental guarantee and may, at any rate, be reluctant to contract with an entity subject exclusively to an international legal regime. Although the host government may readily agree to provide the guarantee requested by the lending agency, its refusal to act as the sole guarantor of the venture is also understandable. The inter-State Arab Maritime Company reports, perhaps with some exaggeration, that the lack of governmental guarantees was the main reason for the failure of its attempt to receive financial assistance from the Arab Fund for Economic and Social Development. Some of the OAPEC-sponsored projects may, on the other hand, borrow on the strength of collective or individual guarantee of their member States by virtue of explicit provisions to this effect in their constituent instruments. Under the circumstances, they could probably find it easier to obtain loans directly from their member countries.

3) Agreement on providing the venture with facilities necessary for its economic and financial viability, such as the basic infrastructure facilities, the supply of raw materials, the most suitable technology, access to local markets and access to research, when applicable. Of these obvious factors, agreement on marketing arrangements often raise delicate questions as to the extent of free access to the markets of the countries of the partners. A joint enterprise usually receives national treatment in the marketing of its products in the host country (unless of course it is meant to produce exclusively or mainly for export to foreign markets). It may be necessary, however, in certain instances to open the markets of all member countries to such products or to impose no restrictions on the venture's right to export. Imposing additional administrative

barriers or tariff restrictions on the venture's access to local or foreign markets could easily put it at a disadvantage which may be economically disastrous.

4) The choice of efficient management and staff capable of operating in a transnational environment. The importance of this factor is self-evident. It is worth mentioning, in view of the special difficulties faced by most new Arab ventures in the recruitment of its managerial and professional staff from member countries. Such difficulties are accentuated by two factors. Most Arab countries, especially those exporting capital, suffer from serious shortages in well-trained man-power. Yet even where such manpower is available, it usually lacks the experience of working in an international business environment under a different orientation from that of local business. In many cases senior officers of the joint venture come from the higher echelons of the civil service of member States without any prior business background. As a result most Arab joint ventures are operating in a pattern not dissimilar to that followed by the exclusively national enterprises in the host countries and seldom aspire to wider perspectives commensurate with their transnational character. The exclusive employment of local labour in the host country allows the venture, on the other hand, to avoid the fractions inherent in multinational staffing which could otherwise cause several problems especially in labour-intensive projects.

1.5.2 Impact on Arab Economic Integration

With a few exceptions, Arab joint ventures are being formed with little or no conscious concern for regional or sub-regional economic integration. In most cases, the common objective of the partners in the venture does not go beyond the direct financial return expected by them. Although this in itself may be a guide to proper resource allocation within the region, the truth remains that, by and large, Arab joint ventures have not been carried out in implementation of a pre-existing comprehensive plan designed to faciliate Arab economic integration through a more rational division of labour on the Arab level. Nor are they tied to a regional scheme of trade preferences or to a general policy for the liberalization of the movement of factors of production in all or part of the Arab region. Such objectives are certainly sought by agencies like the Arab Council of Economic Unity and, to a lesser extent, the OAPEC, in the joint ventures sponsored by them. They could also be traced in the trilateral ventures agreed upon, but hardly implemented, in the framework of the Union of Arab Republics (Egypt/Libya/Syria) as well as in some of the the Arab bilateral ventures especially, those agreed upon between Egypt on the one hand, and Iraq or the Sudan on the other hand. The fact that such projects are not yet in operation, emphasizes however, the small impact which joint ventures as a whole have had on Arab economic integration.

This does not mean that the present spread of Arab joint ventures will not eventually have noticeable effects on the movement towards regional integration. Even though such joint ventures are primarily financial institutions whose short term impact on Arab economic integration would be minimal, they should, in time, have a positive effect on the financing of productive inter-Arab projects and on the expansion of inter-Arab trade. The adoption of favourable national and regional policies in this respect would not doubt accelerate such a process.

1.5.3 Strengthening and Stimulating the Establishment of Inter-Arab Joint Ventures

The above analysis makes it clear that the establishment of an increasing number of Arab joint ventures and the strengthening of an increasing number of Arab joint ventures and of their role in Arab economic integration, depend on the adoption of further positive steps in the following areas in particular: (15)

1.5.3.1 Sponsorship of New Ventures

Cutting across most of the cases and most of the issues that have been examined, one could easily discern, in greater or lesser degree, what may be described as sponsorship problems in the establishment of Arab joint ventures. Reliance on the spontaneous initiative of interested parties is certainly inadequate in the absence of a developed financial market. On the other hand, many of the institutions which have assumed the responsibility of establishing inter-Arab projects lacked the financial resources to support their proposals and followed, in most cases, a bureaucratic and passive approach.

The relative success of such sectorial sponsors as OAPEC suggests a potentially useful role in this respect for the Arab Federation of Producers of Iron and Steel (Algiers), the Arab Food and Agriculture Organization (Khartoum), the Arab Centre for Industrial Development (Baghdad) and the newly established Arab Federation of Fertilizer Producers (Kuwait). Such organizations can only identify projects and, at best, carry out the preliminary pre-investment studies and present them to potentially interested parties. The fact that such organizations themselves have very limited resources and virtually no working relationship with Arab or other financial institutions greatly undermines the extent of their role as catalysts in the implementation of joint ventures. It is therefore their responsibility as it is the responsibility of Arab development finance institutions, both national and regional, to try to bridge that gap. The latter institutions, whose day-to-day operations have prevented them from taking the initiative in sponsoring new Arab projects, seem to have little confidence in the technical ability of other inter-Arab agencies to perform this task. Naturally, such ability could be improved through financial assistance from the funding institutions. The latter institutions may also employ their own consultants to do the technical work and subsequently propose the financial packaging for each project specifying, as an incentive, their own role in financing the project. The more business-like the sponsor's approach is, the greater the possibility for the actual formation of the venture.

Regional financial institutions such as the Arab Fund and the Inter-Arab Guarantee cooperation are bound by explicit provisions in their own statutes to give priority in their operations to inter-Arab joint ventures. The ceiling for the coverage offered by the latter corporation to investment in joint projects is also twice that which may be offered for unilateral investment. The Arab Bank for Economic Development in Africa is also requested by its constituent agreement to give preference to inter-African and Arab-African projects. All such regional institutions are still, however, in their initial stage of operations. There is practically no coordination among them or between them and the national aid institutions in financing joint Arab projects. All such agencies could, therefore, independently, or better still, in a joint effort among them play a significant role in five important cases.

1) The preparation and publication of investment information needed for the planning and evaluation of Arab joint ventures, including evaluation of Arab joint ventures, information on the existing joint ventures and those under discussion. Available data on these matters are still scarce.

2) The creation of forums and channels for stimulating contacts between interested investors and among existing national ventures, both private and public, in co-operation, perhaps, with the Arab Federation of Chambers of Commerce and the national Chambers of Commerce in the main capital-exporting and capital-importing Arab countries.

3) The identification of specific projects particularly suited for implementation through Arab joint ventures. This task could, of course, be carried out in co-operation with other specialized inter-Arab organizations.

4) The presentation of the project to prospective partners after co-ordinating conflicting interests through an equitable distribution of cost and benefits.

5) The financing of such ventures on such terms and conditions as could encourage participation by prospective partners who often need this type of leverage to accept the additional risks of a transnational project.

Arab financial institutions are the natural candidates for performing these tasks. To be able to perform them effectively, the present institutions will need, above all, to improve their technical capabilities beyond their present modest level. This would certainly be a more advisable course of action than the creation of new non-financial institutions designed specifically to promote inter-Arab joint ventures.

1.5.3.2 Form of The Ventures

Arab joint ventures have so far been established in one of the following legal forms:

1) The form of a partnership or company of a type recognized under the local law of one of the partners, or even of a third party. This ordinary local-law form is usually followed when all partners are private investors.

2) The form of a national company with a special status recognized under the law of the host country by virtue of special legislation in respect of that particular venture, of a creation type of venture or of joint ventures in general.

3) The form of a national company with a special status recognized by virtue of an international agreement between the States or parties, directly or indirectly, to the venture.

4) The form of an international cooperation proper created by virtue of an international convention as a national company not subject to any particular domestic law. In some instances such a company may even resemble an international organization in its internal structure.

The latter form was adopted in almost all multilateral public Arab ventures. It could be criticized, for the lengthy procedures required for the entry into force of the convention establishing the venture which usually involves legislative action in every member State. It may also raise complicated legal issues with respect to the applicable rules in matters not provided for in the constitutive convention. Political considerations are more readily invoked in the creation of ventures of this form both at the time of negotiation of the convention and a the time of its ratification in every member State. (16).

It is preferable, therefore, to adopt for joint public ventures, whenever this is practical, the form of a national company established directly by the public agencies, or corporations of interested States through the enactment, in the host country only, of a legislation to be issued in accordance with the terms of the agreement between such partners. In such a case, the venture is likely to be formed in a much shorter period and will be subject to a previously known legal system while enjoying the special status provided in the agreement will not require for its entry into force ratification procedures in each of the countries of the partners. Such countries could also safeguard their interests in case of an unfavourable amendment of the law establishing the joint company through appropriate clauses in the constitutive agreement concluded between them.

New forms for the establishment of Arab joint ventures could also be devised to meet growing business needs. One possible formula is the establishment of a system for the creation of "Arab Companies" on lines similar to those proposed for the "European company". Such an Arab company would be formed by existing national companies or agencies in different Arab States and would have a recognized legal personality and the right of establishment in all such States. The establishment of such a company requires, however, the conclusion of a general inter-State convention on the legal regime of Arab Companies and on some form of international registration for them, for instance at the Council of Arab Economic Unity.

Another possible formula is that of a company established directly by t e resolution of a competent regional organization subject to the exclusive control of that organization. In this instance an inter-Arab organization would have the power to create the company under its own system and to invite the participation of public and/or private investors from member countries in its share-capital. The organization itself may even participate in the company's capital.

The adoption of the above-mentioned new forms could eventually facilitate the establishment of inter-Arab ventures. It assumes agreement by interested States on the detailed framework for the creation and operation of ventures of each type. Such an agreement, it should be added, may not be possible in the absence of a greater measure of inter-governmental economic cooperation in the Arab region than that available at present.

1.5.3.3 Financing of the Venture

National investment companies in capital-exporting countries are still, despite some recent encouraging signs, hesitant in playing an active role in the promotion of inter-Arab joint ventures. With the exception of some Kuwaiti companies such as Gulf International, KFTCIC, AFARCO, KIC and the Real Estate Investment Group, the bulk of Arab investment companies are still content with the underwriting of bond issues and similar brokerage activities with little concern for the more challenging task of direct investment in Arab and other developing countries through venture capital operations and the like. Such companies remain, however, the best candidates for playing an important catalytic role in the formation of new private joint ventures without risking, in the process, too much capital of their own. Their contribution is particularly needed in arranging the financial packaging suitable for such ventures. The constraints on expanding their role in this respect are primarily due to their limited experience and to the greater risks involved in such operations compared with their present activities. Such constraints could be gradually alleviated through developing strong working relationships with agencies such as the Inter-Arab Investment Guarantee Corporation and several development finance institutions in the Arab region.

Regional development finance institutions have expressed theoretical preference in financing Arab joint ventures, but as previously mentioned have done little to achieve this end. In its relatively long experience, the Kuwait Fund was an active sponsor in the formation of one multilateral Arab venture, the Investment Guarantee Corporation, and, to some extent, one bilateral Kuwaiti-Sudanese venture. It also played a major role in drafting the constituent documents of the Arab Bank for Economic Development in Africa and the Solidarity Fund for Economic and Social Development in Non-Aligned Countries. The Arab Fund is still, on the other hand, in the process of providing its first loan to a joint venture, the Algerian-Moroccan Cement Company. It is also working, at present, on the creation of an inter-Arab organisation for agricultural development in the Sudan. The Abu-Dhabi Fund, which is explicitly authorized to go into equity participation, has recently participated in the equity of a tourism company in Tunisia and is also a shareholder in one of the Arab-European banks. Such has been the role of Arab external development finance institutions with respect the Arab joint ventures.(17)

A much greater role could certainly be assumed by such institutions in the financing of inter-Arab ventures both through loan financing and equity participation. To faciliate their lending operations they could enter into prior arrangements with the governments concerned to secure the guarantee of such governments of the loans provided to joint ventures whenever such a guarantee is a necessary requirements for extending the loan. A broad interpretation of the constituent instruments of such institutions could also enable them to include in their operations participation in the equity of Arab joint ventures. Such a participation could, at any rate, be one form of the investment of a portion, albeit small, of their liquid assets. The Islamic Development Bank, which would be involved mostly in equity participation as it is barred fr m receiving interest on loans, should also be particularly instrumental in promoting joint ventures among its member countries.

The creation of new financial institutions exclusively for the financing of Arab joint ventures may not be called for in view of the present proliferation of Arab financial institutions. Present instituions could be encouraged, however, to establish special funds for joint venture operations especially as many of them are already required, by virtue of their constituent instruments, to give priority to the financing of such ventures.

1.5.3.4 Legal Framework

Constituent instruments of joint ventures should be carefully drafted to reflect with accuracy the intended relationship between the contracting parties and the legal status of the enterprise. It does not follow that an attempt should be made at this stage to elaborate a general model form of the constituent instrument of Arab joint ventures. The particular features of such ventures can greatly vary from case to case while proper drafting should suit the requirements of each instance. Certainly, it will be useful for future draftsmen to have a comprehensive list of the issues that should be tackled in each particular field where the interests and operational requirements of the parties establishing the venture may be similar. Different lists could therefore be prepared for sectors such as maritime and air transport: fisheries; real estate development; industrial projects, etc. Model forms could even be developed for the constituent agreements of joint ventures in each of these sectors. At present, no such standardization is followed in the Arab region except for routine reasons in the agreements prepared by the same sponsoring agency. Some Arab countries, like Egypt, require foreign investors to enter into joint ventures with local investors in accordance with a model form prepared by the government. In the case of Egypt this text is quite similar to that applicable to local shareholding companies and fails to take cognizance of the peculiarities of each type of venture. On the other hand, a convention for the treatment of inter-Arab investments is already effective among the Arab country members of the Council of Arab Economic Unity and goes as far as banning all forms of expropriation and nationalization. Bilateral treaties abound in this respect, while most local investment codes in capital-importing Arab countries provide adequate guarantees and exemptions to foreign investments especially those originating in other Arab countries. As a result a new international agreement on the treatment of imported Arab capital is not required. Further steps could be taken in extending additional incentives to inter-Arab ventures especially those which help Arab economic integration. Such incentives may realistically be adopted in national legislation within a general and flexible framework to be agreed upon at the regional or sub-regional level. Arab Governments may thus agree on giving Arab joint ventures the same treatment as local investments. Furthermore, they may grant such ventures preferential treatment under their laws in the areas where such treatment is justified. A regional agreement on the legal treatment of joint ventures especially in terms of taxation, labour regulations and management structure could provide a useful system to many of the Arab public joint ventures which operate at present in a legal vacuum outside the provisions of their constituent instruments. The absence of such an agreement should not, however, be considered a serious limitation on the spread of Arab joint ventures.

1.5.3.5 Management Training in Arab Capital-Exporting Countries

As holders of huge net liquid assets, oil-exporting Arab countries are increasingly involved in investments abroad. A major constraint on expanding their direct investment operations, as against lending operations, is the lack of adequate indigenous management to cope with such an extensive task. This is also a serious limitation on the success of existing inter-Arab ventures and indeed of some of the local ventures as well. There is therefore a basic need to develop in these countries a sophisticated class of business managers who could be responsible for the administration of their investments abroad which are likely to account in future for a great part of their national income. The availability of an increased number of qualified and experienced personnel is bound to affect the investment decisions of such countries and to encourage their involvement in direct investments abroad. The implementation of ambitious business management programs for the training of economists, engineers and lawyers in such Arab countries seems, therefore, to be a decisive factor in the expansion and success of joint ventures between them and other countries in the area.

1.5.3.6 Coordinated National Policies

Agreement between States on the establishment of a particular joint venture whose cost and benefits could more or less be ascertained in advance, is certainly a much easier task than their agreement on politically loaded measures such as joint trade policies or coordinated economic plans. It is not realistic, therefore, to tie the establishment of new Arab joint ventures to the agreement of Arab States on joint or coordinated trade and planning policies. Each country could, however, develop its national trade policy as well as its policy towards foreign investments in such a manner as to favour the establishment on its territory of joint ventures in the fields where it feels that it has some economic advantage. Institutions like the Council of Arab Economic Unity could work on the establishment of links between the measures adopted in such national policies and the regional trade preferences scheme it is supervising at present. Only minor results could be realistically expected from such endeavours at present. The Council may, nevertheless, play an important role in advising member governments of the projects which are likely to serve the objective of economic integration and deserve, as a result, special attention in their national policies and legislation. Projects which increase the productive capabilities of Arab countries, which facilitate the means of transportation and communication among them, and which diversify their products and improve their quality, provide themselves the first and foremost practical remedy for expanding inter-Arab trade.

In view of the magnitude and the multiplicity of the problems associated with the success of Arab economic cooperation and integration, it is important to concentrate on a workable concept regarding the promotion and establishment of joint ventures between Arab countries. The nature of several problems related to the promotion and establishment of joint ventures is not only complex but there are certain aspects about which there are no easy solutions. Although it is ideal to have a government change its monetary and fiscal policy for the purpose of making it highly conducive to the promotion and success of joint ventures, in practice, the likelihood of it being actually done is remote. Similarly, governments change tariffs, countries impose quotas, nations exercise their rights to take over enterprises. This being so, the focus ought to be on something that can be achieved in the real sense and within the existing political, social and economic constraints.

The proposed concept sums up the following necessary steps towards development of inter-Arab joint ventures. These steps are:

1) Identification of mutual needs and distribution of benefits to contracting partners. Once this has been done, it would be necessary to bring the interested parties together for the purpose of establishing required enterprises.

2) The creation of a mechanism to identify potential projects and attract inter-Arab investment. In this context, regional

organisations need to be established to undertake feasibility studies to bring the project idea to a level which could create sufficient interest to the potential investors.

3) The identification of the scope and coverage of feasibility studies to justify the viability of a joint venture.

4) The identification of a mechanism for the settlement of disputes regarding stocks, assets, profits, etc. These issues should be clearly spelt out in the initial agreement on the establishment of a joint venture. An appropriate and practical mechanism for handling various disputes which may arise from time to time needs to be well-defined.

The absence of any form of the above mechanisms among the participants may retard the progress towards achieving satisfactory development of joint ventures among Arab States.

CHAPTER TWO

THE PROBLEM

In the Arab world, crude oil and its associated gas are the most abundant natural resources. The extraction sector remains the most active for industrial development.

The increase in oil price, in 1973 and afterwards, has encouraged Arab oil producing countries to develop petrochemical industries as the fav urable candidates for industrial development in the area. This is supp rted by the following factors:

1. The annual growth rate of petrochemical industries is expected to be more than 5% which is stronger than the other major industries.

2. The availability of adequate financial resources to support large scale industrial projects.

3. The availability of a wide range of hydrocarbon feedstocks for a long time at competitive prices.

4. The petrochemical industry has breadth of possible directions which are highly flexible and easily adaptable to conditions in the world market.

In the light of the above factors Arab oil producing states have entered the petrochemical world. By middle of 1985, the total plants (existing, under construction and planned) were 76 with total capacity reaching about 12 million metric tons. The structure of this capacity shows imbalance in the production streams and geographical distribution of the products among Arab states. Most of the base, intermediate and final products are export oriented.

Considering the current situation of international markets, it seems unwise for the Arab states to continue producing petrochemicals for export only. Rather, the Arab states must themselves process the basic petrochemicals into intermediate and final products. This consequently would transform the present oil economies into petro-industrial econ mies. However, this has been and still is the biggest problem facing the economic development of the Arab world.

In this context, the development of a synthetic fibre industry represents an example for the transforming process of the Arab economy. It is a petro-industrial project as its inputs come from petrochemicals (DTM/PTA and other synthetic raw materials), and its output of synthetic fibre (polyester, acrylic and nylon) is used in textile industry, clothing and household fibres.

Since some Arab states have supplies of synthetic fibre raw materials (oil Arab states) but only small market for final products, while other states (non-oil states) have large market but no raw materials, the development of this industry calls for coordinated efforts on the joint venture basis. The development of a thriving synthetic-fibre textile and the associated clothing industry would bring prosperity to the non-oil producing Arab states ensuring greater political stability in the region.

A detailed study of the existing literature shows that very little work has been done in this area of research. Most of it has been done by non-Arab experts neglecting the practical problems that face this industry. This research would throw some light on these problems.

CHAPTER THREE

OUTLOOK OF THE ARAB PETROCHEMICAL INDUSTRY

The scope of synthetic fibre raw materials within the profile of Arab petrochemicals.

3.1 Introduction

With respect to the cental theme of this work, the development of synthetic fibre industry (polyester/acrylic) in the Arab world, it is imp rtant to examine the raw materials required for its production in the region. Since the raw materials of synthetic fibre are derived from the petrochemical industry, it is therefore equally important to consider this industry in the Arab region and examine the possibility of it being a reliable source for feedstock inputs.

The work in this chapter will examine the profile of the petrochemical production and investment in general in the Arab world in terms of type of products, quantity produced and geographical distribution for both production and investment. Therefore, the scope of the synthetic fibre can be further considered within the framework of production and consumption for which the Arab market may have a potential demand during the medium and long term.

3.2 Profile of the Arab petrochemical industry

OAPEC member states (Organization of Arab Petroleum Exporting Countries) were convinced of the need for a diversified economic base which would reduce their reliance on the oil and gas extraction industry. This has consequently led to the establishment of basic petrochemical industries in various members of the OAPEC states (18).

During the last ten years, OAPEC member of states have managed to set up 76 petrochemical plants, of which 23 are for basic, 19 for intermediate, and 34 for final products, Table (3-1), (Appendices 1-9). The figures sh wn in this table have been collected by the author on visits to some of OAPEC states*. A survey study was conducted regarding various issues of Arab petrochemical industry. A list of questionnaires was designed for this purpose and handed to the concerned department of OAPEC states (appendix 10).

Despite the natural and acquired advantages for the Arab petrochemical industry, it appears that the development of this industry has remained, by and large, highly fragmented. It has neither developed sufficient technical production chains, nor

* Visits have been made to Qatar, Saudi Arabia, United Arab Emirates, Bahrain in addition to the author's working place Kuwait. Officials from States have also been contacted.

strengthened structural cohesiveness. The figures in the appendices, however, reveal imbalance structure in the production streams and in the geographical distribution. For basic petrochemicals, methanol and ethylene constitute almost 88.6% of the total basic products: m st of the methanol is exported. Ethylene Glycol (EG), styrene, ethylene dichloride (EDC) and monovinyl chloride (MVC) are dominating the scene of intermediate products and constitute about 96.3% of the total production. Finally, the production of low density polyethylene (LDPE), high density polyethylene (HDPE) and MTPE constitute 61.2% of the total production. Most of the base, intermediate and final products are for export purposes. Amongst OAPEC states, Saudi Arabia is dominant in the production and export scene.

With regard to synthetic fibre raw materials such as Dimethyl Terphthalate (DMT), Benzene and Pure Terphthalate Acid PTA, Arab production of these products is inadequate, as Benzene forms 2% of the total basic production, DMT forms 3.2% of the total intermediate and no PTA is produced.

The development of downstream industries such as the synthetic fibre industry will generate demand for the synthetic fibre raw materials. Consequently, this industry will have a chance to be developed in the Arab world.

3.3 Arab Investment In Petrochemical Industries

As has been mentioned before, the petrochemical industry in fact is regarded as a new industry for the Arab world as it only started in the beginning of the 1970's with fertilizer production. Consequently, the investment in this industry is new. The amount of money invested for the past years therefore need to be considered in order to know its directions, sources and contribution to the economy of the Arab world. It is important to mention that there is a lack of information about the actual cost of petrochemical projects in the Arab world which is similar for other industrial sectors. However, through questionnaire, direct contacts, annual reports and budgets, published material and national economic plans, the investment figures obtained reflect a fair picture of Arab investment in petrochemicals.

3.3.1 Size of Arab Capital Invested in Petrochemicals

The petrochemical industry is characteristic of a capital - intensive industry, that is to say, it requires a large investment to establish the infrastructure, especially for basic and intermediate products. This is due to the large-scale of the projects and the highly advanced technology used. For Arab countries, inflation location factors and expensive foreign labour make the total cost very high.

By analysing the information regarding capital investment which is provided by questionnaire and published sources (19), (20), (21), Arab States have invested approximately $20590 billion in the petrochemical industry by end of 1985, Table (3-2). Basic products form about 51.8% of the total, due to ready availability of cheap natural gas in the Arab producing countries. Intermediate and final products form 21.6% and 26.6% respectively. This again shows the imbalance in the structure of the production streams of the petrochemical industry in the Arab world.

3.3.2 The Structural Distribution of Arab Investment for Petrochemicals

With respect to structural distribution of investment in the Arab world, it is found that five petrochemical products dominate; Ethylene, Methanol, Ammonia, Ethylene Glycol and Low Density Polythylene and form about 76% of the total invested capital, Table (3-3). Ethylene takes the top share of the investment and forms 23%, followed by Ammonia 19%, LDPE 16%, EG 13% and Methanol 5%, while the remaining products (15 in number) form 24%. The major compounds are Polyvinyl Chloride (PVC) 3.9%, HDPE 3.6%, MVC 2.9%, Ethanol 2.4% and Styene 2%. This however reveals the imbalance in the distribution of the investment fund assigned to petrochemical projects; the investment in synthetic fibres, paints and detergents have been neglected.

3.3.3 The Geographical Distribution of Petrochemical Investment

Regarding the geographical distribution of investment in petrochemicals between Arab States, it is found that this investment is carried out in eight oil producing states and in only one non-oil producing state, that is Morocco, Table (3-4). This table shows that Saudi Arabia takes the lead and forms 70.4% of the total invested capital in these states.

The investment capital being ploughed into petrochemical products as shown in Table (3-4) reveals the imbalance in the geographical distribution between Arab States. Most of the investment capital is placed in the oil-producing states, i.e. 94% of the total, while the other states (Sudan, Egypt, Syria, Morocco and Sumalia) have only 6% of the total money invested in the petrochemical industry.

3.3.4 Sources of Investment Capital In Petrochemicals

There are three basic sources for the investment funding of the petrochemical industry over the past fifteen years. These are shown in Table (3-5): (22), (23), (24), (25).

1. Local (national) sources.

2. Inter-Arab joint ventures.

3. Arab to foreign joint ventures.

The Arab to foreign joint venture is the dominating approach to finance petrochemical projects, forming 57% of the total money invested in this industry. This obviously shows the major reliance on multi-national corporations to finance and build the industry in the Arab World. Saudi Arabia represents an example by using this approach through Saudi Arabia Basic Industries Corporation (SABIC). Local financial sources are second with about 40.4%. This however shows the tendency of some Arab States to fully own the industry. Kuwait is an example of the use of this approach. The third source is to finance petrochemical projects by using inter-Arab joint venture approach which forms only 2.5%, thus revealing the poor financial cooperation between Arab countries as whole, and the oil producing ones in particular.

3.3.5 Conclusions and Remarks

This work has highlighted the results of the survey undertaken on petrochemical industry in the Arab world. The following points are of interest:

1. Domination of Olefins in the product mix.

2. Heavy emphasis on the production of Ethane-based basic petrochemicals namely Ethylene and Methanol.

3. Deficiency in production of petrochemicals used in synthetic fibre, detergent and paint industries.

4. Clear indication for the need to develop the downstream processing petrochemical industries such as plastics, textiles, detergents and paints.

Expansion of the Arab petrochemcial industry should therefore proceed along two lines. One: moving vertically down the production chains from bulk to intermediate to final products, and plugging-in the production gaps in this scheme. Two: giving emphasis to the development of a parallel production chains in order to correct the existing imbalances in the production of olefins and aromatics, so as to remove the handicap on the competitiveness and flexibility of the Arab petrochemical products.

While much can not perhaps be done for integrating the existing petrochemical projects, except for developing those downstream industries that may generate demand on their output, it is considered plausible to strive for:

1. Regional rationalization production.

2. Increasing complementarities and linkages within product group.

3. Regionalization of the projects to joint ventures preferably on a sub-regional basis.

4. To avoiding selling, as far as possible, the feedstocks that can be used in manufacturing those products which ultimately compete with Arab output of petrochemicals.

TABLE (3-1)
PROFILE OF THE ARAB PETROCHEMICAL INDUSTRY*
as of mid 1985

BASIC		INTERMEDIATE		FINAL	
Number of projects	23	Number of projects	19	Number of projects	34
Design capacity	6575	Design capacity	2332	Design capacity	3304
	----		----		----
	tons		tons		tons
of which (%): -		of which (%):-		of which (%):-	
Ethylene	40.0	EDC	19.5	LDPE/LLDPE	34.4
Propylene	3.3	Ethylene glycol	25.7	HDPE	11.7
Butadiene	3.4	Styrene	26.6	PP	5.1
Butene-1	1.2	Formaldehyde	0.6	PVC	18.0
Benzene	2.0	DMT	3.2	PVAC	0.2
P-xylene	1.2	Monovinyl chloride	24.5	Polyol	0.1
Methanol	48.0			Polystyrene	2.9
				Melamune	0.6
				Styrene Butadiene	1.3
				Polybutadiene	0.3
				Polyester fibres	1.7
				Plasticisers	1.2
				OXO Alchols	1.5
				PBR	0.7
				Alkyl Benezene	4.2
				MTBE	15.1

* Inclusive of the existing, under-construction and planned capacities in eleven of the Arab countries.

SOURCE: Appendices 1-9

TABLE (3-2)
THE SIZE OF ARAB CAPITAL INVESTED
IN PETROCHEMICAL INDUSTRIES

Petrochemicals	US$ M	%
Basic Products	10658	51.8
Intermediate Products	4451	21.6
Final Products	5481	26.6
Total	20590	100

TABLE (3-3)
DISTRIBUTION OF INVESTMENTS ON PRODUCTS' LEVEL

Products	US $ M	Products	US $ M
Basic Petrochemicals		**Final Petrochemicals**	
1 - Olefins		1 - Plastics	
Ethylene	4736	Polyethelene LD	3403
Propylene	345	Polypropylene HD	624
Butadiene	115	Polypropylene	255
		Polyvinyl Chloride	822
Sub-Total	5196	Melamine	30
		Polyvinyl Acetate	-
2 - Alcohols		Polyester Fibres*	-
		E. Benzene	175
Methanol	1030	MIBE	172
Ethanol	492		
Sub-Total	1522	Total Final	5481
3 - Ammonia	3940	Grand Total	20590
Total basic	10658		
Intermediate Petrochemicals			
Ethylene Dichloride	744		
Ethylene Glycol	2677		
Styrene	431		
Monovinyl Chloride	599		
Total Intermediate	4451		

Notes - Not Available
* One Project for Polyester in Egypt with capacity of 25 thousand tons.

TABLE (3-4)
THE GEOGRAPHICAL DISTRIBUTION OF INVESTMENT CAPITAL
FOR THE PETROCHEMICAL PRODUCTS (EXCLUDING AMMONIA) AMONG ARAB STATES

Countries	Basic Products US $ M	Intermed-iate Products US $ M	Final Products US $ M	Total US $ M
Algeria	155	45	145	345
Bahrain	220	-	-	220
Egypt	-	124	120	244
Iraq	203	80	1138	1421
Libya	1289	58	668	2015
Qatar	342	-	171	513
Saudi Arabia	4509	4144	3062	11715
Kuwait	-	-	135	135
Morocco	-	-	42	42
Total	6718	4451	5481	16650

TABLE (3-5)
THE SOURCES OF INVESTMENT FUNDS IN PETROCHEMICAL INDUSTRIES
FOR ARAB WORLD

Sources	US $ M	%
Local (National Source)	8322	40.4
Inter-Arab Joint Ventures	545	2.6
Arab to Foreign Joint Ventures	11723	57.0
Total	20590	100%

CHAPTER FOUR

WORLD MARKET FOR TEXTILE FIBRES

4.1 World Market Characteristics of Textiles

During the period of 1973-85, the world production of all major textiles has increased on average by about 2.3% per year from 26.5 million tons to 34.8 million tons, (26). This growth trend in fibre production is slightly above the world population growth rate.

In the decade 1973-83, the world population has increased in various regions at different rates. The average growth rate of world population was about 2.2.%, Table (4-1) (27). For the period 1983-1995, the world population is expected to rise about 2% per year from 5142 million to 6379 million.

With respect to Gross Domestic Product (GDP), the world average growth rate was about 4.4% for the period 1973-84. The next decade is expected to be the same, more or less, in terms of income growth in various regions.

With the steady population and income growth during the next decade, the growth in population (and hence in consumption) of textiles is likely to grow steadily. Applying the same 2.3% annual rate of growth as mentioned above in the period 1973-85, the total production of all fibres is expected to rise from 34.8 million tons in 1985 to 43.7 million tons by 1995, (27).

In the period 1979-85, there has occurred a considerable structural change in the composition of world textile production. In 1979, cotton accounted for about 35.3% of total fibre production; this share increased to 50.4% in 1985. The overall share of all natural fibres, however, rose from 53% in 1979 to 55% in 1985 as man-made fibre yielded some ground, Table (3-2)(26). During this period, the international price of oil was very high and naturally the cost of feedstock for the production of man-made fibre became relatively unfavourable. This must have been a contributory factor adversely affecting the demand for man-made fibre. Since the oil price has declined considerably, one can expect that the man-made fibre will gain some competitive edge. Therefore, it is anticipated that the ratio of 45:55 for man-made to natural textile fibre as observed in 1985 will remain unchanged in 1995.

4.2 World Consumption of Synthetic Textiles

The consumption of synthetic textiles has nevertheless been growing in absolute terms over the last two decades mainly because of technological innovation in their production techniques and improvement in quality. Within the group of man-made textiles, synthetic fibre production increased its share, while that of cellulosic fibre has fallen, (28). Among the synthetic fibres, polyester has increased its share from about 48.3% in 1979 to 52.4%

in 1985, but nylon and aramid has declined from 30.9% to 27.1% for the same period. The share of acrylic fibre remained more or less constant at about 19.3% and other fibres at 1.2%, Table (4-3)(29).

It was estimated that by 1990, the world production of synthetic fibre expect would reach approximately 16.8 million tons. Of this, polyester fibre and yarn is likely to account for about 9.3 million tons and acrylic fibre 3.3 million tons, Table (4-4)(29). Assuming that 80% of the capacity will be utilised, the anticipated production will reach about 7.5 million tons of polyester and 2.7 million tons of acrylic fibre (without new capacity being created).

It is observed that some geographical shifts are underway in the world production capacities for synthetic fibres. In view of regional consumption needs and the national policies for import substitution, various regions/countries of the developing world have been creating capacities for synthetic fibre. The developed countries (Europe, North America, Japan and other industrial countries) produced 94% of all synthetic fibres in 1970, but their combined share came down to 70% in 1985. The share of developing countries in the world total production has accordingly increased from an insignificant amount to 30% over the same period and is expected to rise further to 36%, (29) (see Table 4-4). In USA and Europe, some capacities were shut down due to high energy costs in the past. However, with the fall of the oil price, this decline may be stablised to some extent.

As shown in Table (4-5)(29), the developed world will have about 57% of world capacity of polyester fibre by 1990, while developing countries will have about 43%. The world acrylic production has increased from about one million tons in 1970 to 2.4 million tons in 1985. The share of the developed world came down from 96% to about 76% over the same period. The world production of acrylic is expected to rise further to about 3.2 million tons by 1990, Table (4-6)(30).

4.3 World Trade in Textiles

Developing countries appear to have maintained their export level of textiles to the developed world at about 49% during the period 1970-80, Table (4-7)(31). However, Africa has increased its export of textiles to the developed world from 23.4% of its total production in 1970 to over 60% in 1980. Thus, unlike the export of many other manufacturers, the developing countries provide a strong competition to the developed world in the field of textiles. This is important for this research to create capacity for the production of polyester/acrylic fibre/yarn in the Arab world.

TABLE (4-1)

WORLD POPULATION AND GDP

	Annual Growth Rates %		Population (Million)		
Country-Group	1973-83		1983	1990	1995
	Population	GDP			
Low-income	2.0	7.1	2342	2663	2940
Middle-income	2.4	4.9	1166	1374	1547
Upper-middle income	2.3	4.9	501	587	658
High-income oil exporters	5.1	5.2	18	24	31
Industrial	0.7	2.4	729	752	779
East European (Non-market)	0.8	2	386	407	424
			5142	5807	6379

Source: World Bank, World Development Report, 1985.

GDP growth rates are based on 1973 constant prices.

Population for 1995 is projected on the basis of 1973-83 growth rate.

TABLE (4-2)

WORLD PRODUCTION CAPACITY OF CERTAIN TEXTILE FIBRES

(1000 METRIC TONS AND PERCENT)

Type of Fibre	1979	1980	1981	1982	1983	1984	1985
Cellulosic Fibers							
Yarn + Monofilaments	1176	1161	1104	1023	1040	1029	1025
Staple+TOW	2195	2081	2100	1922	1898	2045	2074
Total Cellulosic	3371	3272	3204	2945	3029	3094	2999
Monocellulosic Fibers except Olefin							
Yarn + Monofilaments	4889	4732	4809	4480	4581	5210	5526
Staple + TOW	5712	5744	6018	5667	6269	6688	6989
Total Noncell above	10601	10476	10827	10147	11120	11898	12515
Total Man-Made Above	13972	13718	14031	13092	14149	14992	15514
% of World Total	47	47	45	45	47	42	45
Natural Fibers							
Raw Cotton	10480	13991	15296	14639	14217	19060	17540
Raw Wool	1576	1607	1626	1629	1641	1682	1676
Raw Silk	55	56	57	55	55	55	56
Total Natural Above	15711	15654	16979	16323	15913	20797	19272
% of World Total	53	53	55	55	53	55	55
World Total Above	29683	29372	31010	29415	30062	35789	34780
World Total %	100	100	100	100	100	100	100

Source: Textile Economics Inc. USA Textile Organisation

Man-Made Fibres: Textile glass fibre and Olefin production are not included

Table 4-3 World noncellulosic Fibre Production and Producing Capacity By Fibre except Olefin

FIBER & AREA	1979 Y	1979 S	1979 TOTAL	1980 Y	1980 S	1980 TOTAL	1981 Y	1981 S	1981 TOTAL	1982 Y	1982 S	1982 TOTAL
ACRYLIC+MODACRYLIC												
West Europe	•	795	795	•	737	737	•	807	807	0	725	725
East Europe	0	213	213	0	217	217	0	211	211	0	213	213
U.S.A	0	345	345	0	355	355	0	313	313	0	283	283
Other Americas	0	108	108	0	114	114	0	106	106	0	121	121
Japan	4	355	359	3	350	353	1	347	348	3	344	347
Other A A & O	0	249	249	0	284	284	0	305	305	0	369	369
TOTAL	4	2065	2069	3	2057	2060	1	2089	2090	3	2055	2058
NYLON+ARAMID[a]												
West Europe	571	148	719	521	128	649	521	129	650	465	107	572
East Europe	414	31	445	461	55	516	454	79	533	457	82	539
U.S.A	808	426	1234	740	330	1070	717	341	1058	563	311	874
Other Americas	205	23	228	208	23	231	181	20	201	182	21	203
Japan	296	17	313	300	18	318	282	19	301	264	19	283
Other A A & O	332	3	335	365	2	367	393	3	396	379	4	383
TOTAL	2626	648	3274	2595	556	3151	2548	591	3139	2310	544	2854
POLYESTER												
West Europe	407	445	852	359	407	766	378	449	827	393	428	821
East Europe	118	308	426	135	321	456	132	334	466	152	347	499
U.S.A	779	1117	1896	663	1146	1809	712	1182	1894	550	887	1437
Other Americas	214	164	378	223	166	389	210	163	373	186	158	344
Japan	314	318	632	305	321	626	310	321	631	314	314	628
Other A A & O	386	556	942	409	672	1081	479	795	1274	536	840	1376
TOTAL	2218	2908	5126	2094	3033	5127	2221	3244	5465	2131	2974	5105
OTHER FIBERS[b] EXCEPT OLEFIN												
West Europe	5	11	16	6	11	17	6	7	13	6	9	15
East Europe	5	7	12	•	4	4	1	3	4	1	3	4
U.S.A	8	1	9	9	•	9	10	1	11	8	1	9
Other Americas	1	0	1	1	0	1	1	0	1	1	0	1
Japan	17	42	59	18	43	61	14	33	47	13	31	44
Other A A & O	5	30	35	6	40	46	7	50	57	7	50	57
TOTAL	41	91	132	40	98	138	39	94	133	36	94	130
TOTAL FIBERS ABOVE												
West Europe	983	1399	2382	808	1283	2169	905	1392	2297	864	1269	2133
East Europe	537	559	1096	596	597	1193	587	627	1214	610	645	1255
U.S.A	1595	1889	3484	1412	1831	3243	1439	1837	3276	1121	1482	2603
Other Americas	420	295	715	432	303	735	392	289	681	309	300	669
Japan	631	732	1363	626	732	1358	607	720	1327	594	708	1302
Other A A & O	723	838	1561	780	998	1778	879	1153	2032	922	1263	2185
WORLD TOTAL	4889	5712	10601	4732	5744	10476	4809	6018	10827	4480	5667	10147

FIBER & AREA	1983 Y	1983 S	1983 TOTAL	1984 Y	1984 S	1984 TOTAL	1985 Y	1985 S	1985 TOTAL	PRODUCING CAPACITY 1986 Y	1986 S	1986 TOTAL	PRODUCING CAPACITY 1987 Y	1987 S	1987 TOTAL
ACRYLIC+MODACRYLIC															
West Europe	0	834	834	1	865	866	1	922	923	1	1021	1022	1	1021	1022
East Europe	0	222	222	0	232	232	0	254	254	0	342	342	0	378	378
U.S.A	0	304	304	0	304	304	0	286	286	0	264	264	0	278	278
Other Americas	0	130	130	0	140	140	0	143	143	0	198	198	0	213	213
Japan	2	355	357	2	367	369	2	380	382	6	425	431	6	425	431
Other A A & O	0	380	380	0	398	398	0	423	423	0	581	581	0	581	581
TOTAL	2	2225	2227	3	2306	2309	3	2408	2411	7	2831	2838	7	2896	2903
NYLON+ARAMID[a]															
West Europe	486	117	603	496	133	629	522	142	664	641	190	831	641	190	831
East Europe	485	87	572	512	93	605	529	95	624	638	109	747	644	109	753
U.S.A	677	420	1097	715	379	1094	687	375	1062	806	486	1292	833	507	1340
Other Americas	180	22	202	209	22	231	224	16	240	350	42	392	350	42	392
Japan	271	18	289	288	19	307	291	24	315	327	29	356	327	29	356
Other A A & O	398	5	403	452	6	458	485	7	492	677	13	690	747	13	760
TOTAL	2497	849	3184	2672	852	3324	2734	859	3397	3439	869	4308	3542	890	4432
POLYESTER															
West Europe	387	454	841	435	487	922	454	495	949	555	600	1155	555	600	1155
East Europe	171	373	544	194	390	584	205	427	632	322	631	953	323	647	970
U.S.A	617	991	1608	544	994	1538	599	917	1516	666	1210	1876	645	1234	1879
Other Americas	202	189	391	225	222	447	228	228	456	355	288	643	355	288	643
Japan	310	320	630	327	320	647	329	323	652	438	356	794	438	356	794
Other A A & O	637	949	1586	778	1205	1983	934	1419	2353	1337	1989	3326	1478	2159	3637
TOTAL	2324	3276	5600	2503	3618	6121	2749	3809	6558	3673	5074	8747	3794	5284	9078
OTHER FIBERS[b] EXCEPT OLEFIN															
West Europe	6	9	15	6	9	15	6	9	15	8	12	20	8	12	20
East Europe	•	3	3	1	4	5	1	4	5	1	9	10	1	9	10
U.S.A	•	•	•	•	•	•	•	•	•	14	0	14	14	0	14
Other Americas	1	0	1	1	0	1	1	0	1	2	0	2	1	0	1
Japan	14	28	42	17	29	46	18	30	48	32	103	135	32	103	135
Other A A & O	7	59	66	7	70	77	10	70	80	15	37	52	15	37	52
TOTAL	28	99	127	32	112	144	36	113	149	72	161	233	71	161	232
TOTAL FIBERS ABOVE															
West Europe	879	1414	2293	938	1494	2432	983	1568	2551	1205	1823	3028	1205	1823	3028
East Europe	656	685	1341	707	719	1420	735	780	1515	961	1091	2052	968	1143	2111
U.S.A	1294	1715	3009	1259	1677	2936	1286	1578	2864	1486	1950	3436	1492	2019	3511
Other Americas	383	341	724	435	384	819	453	387	840	707	528	1235	706	543	1249
Japan	597	721	1318	634	735	1369	640	757	1397	803	913	1716	803	913	1716
Other A A & O	1042	1393	2435	1237	1679	2916	1429	1919	3348	2029	2620	4649	2240	2790	5030
WORLD TOTAL	4851	6269	11120	5210	6688	11898	5526	6989	12515	7191	8935	16126	7414	9231	16645

Y means yarn+monofilaments. S means staple+tow+fiberfill. The regional totals here are the same as those on pages 104 - 107

a. U.S.A. nylon producing capacity data do not include aramid.

b. Other fibers are alginate, azlon, spandex or elastomer, saran, TFE-fluorocarbon, vinal and vinyon. U.S.A production data do not include spandex in 1983 through 1985

Source: Reproduced from : Textile Organon, June 1986, Table 5.

Table 4-4 World Synthetic Fibres Production By Geographical Regions Olefin Excluded (1000 M Tons)

		WEST EUROPE	EAST EUROPE	USA + CANADA	JAPAN	OTHER INDUSTRIAL	TOTAL DEVELOPED	NEWLY INDUSTRIALIZED COUNTRIES						WORLD TOTAL	OTHER DEVELOPING COUNTRIES
								TAIWAN	SOUTH KOREA	MEXICO	BRAZIL	ARGENTINA	TOTAL		
1970	TOTAL	1487	355	1574	970	46	4412	41	43	47	44	35	210	4703	58
	ACRYLIC	397	74	229	261	2	[illegible]	3	13	9	2	3	30	1003	10
	POLYESTER	460	91	605	310	11	1557	16	6	14	9	10	45	1642	30
	NYLON	597	181	859	310	78	1775	21	15	22	24	22	103	1837	18
1973	TOTAL	2315	612	2735	1246	83	6971	128	114	105	103	59	511	[illegible]	245
	ACRYLIC	652	130	346	338	4	1476	14	26	14	14	8	74	1501	71
	POLYESTER	816	193	1348	478	20	2056	60	40	60	[illegible]	10	[illegible]	[illegible]	124
	NYLON	808	254	1035	340	39	2476	38	30	31	42	35	176	2702	50
1975	TOTAL	1870	821	2541	1021	60	8313	235	265	155	126	46	827	9404	[illegible]
	ACRYLIC	539	163	247	241	5	[illegible]	35	92	23	13	6	163	1398	34
	POLYESTER	602	200	1392	415	21	[illegible]	136	114	92	57	14	413	[illegible]	161
	NYLON	630	355	901	279	34	[illegible]	64	57	71	45	24	223	[illegible]	[illegible]
1980	TOTAL	2157	1191	3364	1357	92	[illegible]	558	534	240	231	30	[illegible]	[illegible]	643
	ACRYLIC	719	225	362	352	7	1665	99	133	57	22	4	[illegible]	2045	52
	POLYESTER	759	457	1084	825	48	3753	350	277	130	122	6	[illegible]	[illegible]	461
	NYLON	828	407	1127	312	37	2591	109	120	51	82	19	391	3102	130
1985	TOTAL	2310	1620	3881	1493	97	9401	720	577	409	256	68	[illegible]	[illegible]	[illegible]
	ACRYLIC	705	305	410	390	6	1096	120	140	110	72	15	407	2630	[illegible]
	POLYESTER	835	720	2210	700	55	4520	> 485	> 310	230	135	18	1148	[illegible]	[illegible]
	NYLON	690	575	1246	208	30	2035	148	127	69	99	33	473	[illegible]	[illegible]
1990	TOTAL	2460	2150	4390	1620	88	10706	[illegible]	606	550	321	76	2400	[illegible]	[illegible]
	ACRYLIC	850	410	450	425	8	2141	140	140	160	40	15	495	3310	674
	POLYESTER	860	1060	2550	770	60	5300	560	300	319	160	21	1450	[illegible]	[illegible]
	NYLON	750	655	1370	290	20	[illegible]	169	148	79	113	[illegible]	545	[illegible]	370

GENERAL REMARKS : Totals include "other synthetic fibres" with the exception of olefins.

Source: Reproduced Textile Organon

Table 4-5 Polyester Producton and Capacity (1000 Tons)

	WEST EUROPE	EAST EUROPE	USA & CANADA	Japan	OTHER INDUSTR	TOTAL DEVELOPED	NEWLY INDUSTRIALIZED COUN: TAIWAN	SOUTH KOREA	MEXICO	BRAZIL	[illegible]	TOTAL	TOTAL WORLD	OTHER DEVELOPING COUNTRIES
1970 TOTAL PRODUCTION	460	91	685	310	11	1557	16	6	14	9	10	55	1642	30
TOTAL CAPACITY	561	118	852	330	13	1874	19	7	16	10	11	63	1977	40
%	82	77	80	94	85	83	84	86	88	90	91	87	83	75
STAPLE PRODUCTION	272	68	464	182	5	941	13	6	9	8	7	43	1104	20
STAPLE CAPACITY	307	78	540	190	5	1128	13	7	9	9	7	45	1120	25
%	72	87	85	96	100	83	100	86	100	89	100	95	84	80
YARN PRODUCTION	238	23	221	128	6	618	3	0	5	1	3	12	538	10
YARN CAPACITY	254	40	304	140	8	748	6	0	7	1	4	18	772	15
%	94	58	73	91	75	83	50	-	71	100	75	67	82	67
1973 TOTAL PRODUCTION	816	193	1348	478	20	2055	60	10	60	25	18	173	[illegible]	124
TOTAL CAPACITY	967	201	1450	490	22	3130	66	11	67	26	19	189	3455	135
%	84	96	93	90	91	91	91	91	90	96	95	92	91	92
STAPLE PRODUCTION	390	126	725	256	5	1502	14	7	19	22	9	71	1639	64
STAPLE CAPACITY	455	133	796	260	7	1651	16	8	22	25	10	82	1892	69
%	86	95	91	98	71	91	87	78	86	88	90	87	11	[illegible]
YARN PRODUCTION	426	67	623	222	15	1353	46	3	41	3	9	102	1513	58
YARN CAPACITY	512	68	654	230	15	1479	50	2	45	2	9	130	1553	66
%	83	98	95	96	100	91	92	100	91	100	100	94	91	80
1975 TOTAL PRODUCTION	602	280	1792	415	21	2790	136	114	92	57	14	[illegible]	[illegible]	163
TOTAL CAPACITY	1005	312	1015	554	28	3794	159	142	114	69	25	[illegible]	[illegible]	180
%	63	90	77	75	75	74	86	80	81	83	56	81	73	91
STAPLE PRODUCTION	321	204	700	216	0	1457	51	49	20	20	12	160	1725	100
STAPLE CAPACITY	524	212	943	303	10	1992	54	72	31	35	19	213	2315	110
%	61	96	75	71	80	73	94	69	65	80	63	79	75	91
YARN PRODUCTION	361	76	684	199	13	1333	85	65	64	29	2	245	1641	63
YARN CAPACITY	561	100	872	251	10	1812	105	70	81	34	6	256	2160	70
%	64	76	70	79	72	71	81	93	79	85	33	81	[illegible]	[illegible]
1980 TOTAL PRODUCTION	759	457	1864	625	40	3754	390	277	130	122	0	885	[illegible]	[illegible]
TOTAL CAPACITY	1152	595	2311	752	55	4865	424	325	174	129	21	1073	[illegible]	[illegible]
%	66	77	81	83	87	77	87	85	75	95	29	82	78	[illegible]
STAPLE PRODUCTION	410	321	1175	370	20	2240	194	140	42	64	4	441	[illegible]	[illegible]
STAPLE CAPACITY	614	411	1272	355	22	2674	215	155	52	[illegible]	12	490	[illegible]	[illegible]
%	67	78	92	90	91	84	90	90	81	100	33	89	85	[illegible]
YARN PRODUCTION	349	130	689	305	20	1508	156	137	88	50	2	441	[illegible]	136
YARN CAPACITY	538	104	1039	397	33	2191	209	170	122	65	9	575	[illegible]	[illegible]
%	65	74	66	77	85	69	75	81	72	87	22	77	[illegible]	78

(Contd..)

Table 4-5 Contd).

	WEST EUROPE	EAST EUROPE	USA & CANADA	JAPAN	OTHER INDUSTR	TOTAL DEVELOPED	NEWLY INDUSTRIALISED COUNTRIES: TAIWAN	SOUTH KOREA	MEXICO	BRAZIL	ARGENT.	TOTAL	TOTAL WORLD	OTHER DEVELOPING COUNTRIES
1985 TOTAL PRODUCTION	835	720	2210	700	55	4520	> 455	> 310	230	135	18	1148	7000	1332
PLANNED CAPACITY	1104	761	2318	718	73	4974	484	336	254	149	21	1244	7250	1032
%	76	95	95	97	75	91	94	92	91	91	86	92	97	129
STAPLE PRODUCTION	405	510	1260	340	30	2625	> 250	> 140	70	75	10	545	4277	1077
PLANNED CAPACITY	821	524	1327	342	36	2050	257	148	81	82	12	580	4156	726
%	78	97	95	99	83	1095	97	95	86	91	83	94	103	148
YARN PRODUCTION	[illegible]	210	950	360	29	1060	205	170	160	60	8	603	2723	260
PLANNED CAPACITY	[illegible]	237	991	376	37	2124	227	188	173	67	9	664	3094	306
%	72	89	96	96	60	88	90	90	92	90	89	91	88	85
1990 TOTAL PRODUCTION	860	1060	2550	770	60	5300	560	300	319	168	23	1450	9310	2560
TOTAL CAPACITY	960	1275	2750	840	65	5090	630	420	360	185	25	1620	10110	2000
%	90	83	93	92	92	90	89	90	89	91	92	90	90	91
STAPLE PRODUCTION	510	740	1570	350	30	3160	330	175	109	95	16	725	5070	1905
STAPLE CAPACITY	560	887	1843	379	33	3510	370	195	120	109	16	810	6170	2150
%	90	83	93	92	91	90	89	90	91	87	100	90	91	92
YARN PRODUCTION	350	320	1070	420	30	2140	230	205	210	73	7	725	3440	575
YARN CAPACITY	392	300	1107	461	32	2300	260	225	240	78	9	810	3840	650
%	89.3	82	92	91	94	90	88	91	88	90	78	90	90	89

Source: Reproduced from Textile Organon

Table 4-6 World Acrylic Production and Capacity

	WEST EUROPE	EAST EUROPE	USA & CANADA	JAPAN	OTHER INDUSTRIAL	TOTAL DEVELOPED	NEWLY INDUSTRIALIZED COUNTRIES: TAIWAN	SOUTH KOREA	MEXICO	BRAZIL	ARGENT.	TOTAL	WORLD	OTHER DEVELOPING COUNTRIES
1970 TOTAL PRODUCTION	397	74	229	261	2	943	3	13	9	2	3	30	1003	10
TOTAL CAPACITY	489	94	327	290	3	1203	4	14	10	3	4	35	1249	11
%	81	79	70	90	67	[illegible]	75	93	90	67	75	86	80	91
1973 TOTAL PRODUCTION	652	138	346	336	4	1476	14	26	14	14	6	74	1581	31
TOTAL CAPACITY	667	153	361	307	5	1551	15	27	15	15	7	79	1674	42
%	98	90	96	92	80	95	93	96	93	93	86	94	94	74
1975 TOTAL PRODUCTION	539	163	247	241	5	1195	35	92	23	13	6	169	1398	34
TOTAL CAPACITY	838	200	385	372	6	1811	44	97	35	15	7	193	2032	38
%	64	81	64	65	83	66	79	100	66	87	86	88	69	89
1980 TOTAL PRODUCTION	719	225	362	352	7	1665	99	139	59	22	9	320	2045	52
TOTAL CAPACITY	1101	258	304	406	8	2157	116	145	88	22	15	305	2627	84
%	65	87	94	87	88	77	85	46	67	100	60	85	78	62
1985 TOTAL PRODUCTION PLANNED	785	305	410	390	6	1896	120	140	110	22	15	407	2503 (a) 2610 (b)	19 (a) 327 (b)
TOTAL CAPACITY	989	339	455	400	8	2197	131	145	120	28	15	439	[illegible] (a) 2911 (b)	171 (a) 397 (b)
%	79	90	90	96	75	86	92	97	92	79	100	93		
1990 TOTAL PRODUCTION	850	410	450	425	6	2141	140	140	160	40	15	495	[illegible] (a) 3310 (b)	314 (a) 674 (b)
TOTAL CAPACITY	945	455	500	472	7	2179	155	155	179	44	17	550	3330 (a) 3650 (b)	400 (a) 760 (b)
%	90	90	90	90	80	90	90	90	89	91	88	90		

(a) WOOL PRODUCTION INCREASE : PAC PRICE LESS COMPETITIVE

(b) WOOL PRODUCTION STABLE : FASTER GROWTH OF PAC IN ASIA

Source: Saudi Consulting House

Table 4-7 Direction of World Trade in Textiles

Exports from \ Exports to		World	Developed Market Economies	Developing Countries	E.E.C.	U.S.A.	JAPAN	Developing Countries of Africa	Developing Countries of Asia
World	1970	100.0	67.7	24.0	35.5	9.5	1.5	6.2	14.6
	1975	100.0	65.9	24.7	39.1	4.6	2.9	6.0	15.1
	1980	100.0	64.3	27.6	40.1	4.5	3.6	5.6	18.3
Developed Market Economies	1970	100.0	75.0	20.9	41.2	0.6	4.3	5.1	12.2
	1975	100.0	73.1	20.4	46.1	3.5	1.4	5.4	11.9
	1980	100.0	72.3	21.5	40.4	3.2	1.4	5.2	13.0
Developing Countries	1970	100.0	48.6	39.5	16.9	18.3	2.0	10.7	22.8
	1975	100.0	40.7	40.4	20.3	10.7	7.5	7.6	27.7
	1980	100.0	40.8	42.2	23.2	8.9	6.7	6.1	31.0
AFRICA	1970	100.0	23.4	30.3	14.9	4.0	-	22.9	6.9
	1975	100.0	28.4	25.6	23.1	1.5	0.2	21.1	4.5
	1980	100.0	60.6	20.2	47.2	5.9	0.7	15.7	4.2
ASIA	1970	100.0	50.6	40.3	17.4	17.0	3.2	10.5	27.0
	1975	100.0	48.5	43.4	10.7	9.9	9.1	7.0	34.5
	1980	100.0	47.4	43.8	21.5	8.2	7.7	6.2	35.9

SOURCES: International Trade in Textiles - UNCTAD Report, 1984 Geneva.
UNCTAD _ Handbook of Trade and Development Statistics, 1985.

CHAPTER FIVE

ARAB MARKET FOR TEXTILE FIBRES

5.1 Introduction

This chapter will analyse various aspects of the Arab market in textiles such as production, consumption and trade. Due to interlinkages, the study will classify the Arab market into four categories: market for textile wearing cloth; market for man-made fibre, market for synthetic fibre; and market for polyester and arcylic fibre. The present condition of each market mentioned will be analysed to show the current picture of all types of textiles in the Arab world.

It is well known that pre-capital income and population are the most important factor affecting the consumption demand for textiles. Therefore, these two factors need also to be analysed. Forecasting will be made for the behaviour of these two factors for the years 1990, 1995 and 2000 in the Arab world. Accordingly, textile demand of all types will be projected for the same period. The purpose of this detailed analysis is to estimate the final demand of polyester and acrylic. Consequently the capacity of the proposed project for intermediate products will be fixed to meet the needs of the Arab world.

5.2 The Arab Market characteristics of Textiles

It is recognised that the main use of textiles is for wearing apparel. Other uses are for household purposes like carpets and home furnishing. There are some industrial uses of textiles like bags, bottles etc. In terms of raw material content, the textiles are produced from cotton, wool and man-made fibres. The cotton and woollen textiles may be pure or mixed with man-made types. Similarly, others may be from 100% man-made fibres or from blended yarn of natural and man-made raw materials.

The consumption and production data relating to textiles are of poor quality in the Arab world. For many individual countries, the data-recording is rather unsystematic. The consumption, production and trade figures often lump all kinds of textiles together. Occasionally, these are recorded in volume, and then in value terms. It is therefore quite difficult to obtain uniform data. Moreover, one has to consult a number of sources and apply judgement to arrive at meaningful statistics.

Textile consumption increased very quickly in the Arab States during the 1970's, due to a large increase in per-capital income and population which are important variables determining the demand for textiles. It is necessary therefore to start with examination of these two variables in the Arab States in order to estimate their consumption of textiles now and in the future.

5.3 Population Trend in The Arab World

There are twenty one states which form the Arab world. Out of them nine are in West and East Africa, while the remaining twelve states are in West Asia. The total population of the Arab world was estimated at about 180.45 million in 1983, Table (5-1)(32). As shown in this table, Egypt is the largest with about 45.79 million people. The next two largest countries are Algeria 20.50 million and Sudan 20.43 million. In terms of population, Qatar is the smallest with 280,000 people in 1983. The individual population sizes and their annual growth during the period 1970-83 are also shown in this table.

One of the important characteristics which is observed in Table (5-1) is the high annual growth rates of population (6.6%) in the oil exporting states during 1970-83. This has been due to a large inflow of expatriates into the high-income oil exporting states to meet their manpower requirements for the development of socioeconomic infrastructures. The growth rate of population varies among states in this group, for example, it goes up to 15.5% in the United Arab Emirates. Since the oil income has fallen considerably, it is likely that the number of expatriates will shrink rapidly in most of the middle Eastern Gulf States and therefore the annual growth rate will settle down to more normal level. It is important to mention that the growth rate of population due to birth is on average 2.8% in states of this group.

Based on actual population figures of Arab States for the period 1974-85 shown in Table (5-2),(33), Arab population has been forecast for each country for the future period of 1990, 1995 and 2000, Table (5-3). According to the projected figures, the total population of the Arab world is expected to reach about 206 million in 1990, 230 million in 1995, and then 254 million by the year 2000. These figures show a growth rate of roughly 2% per year from 1985.

5.4 The Per-Capital Income In the Arab World

Per-capital income is another factor affecting the consumption demand for textiles. The Arab States are considerably different from one another in terms of per-capital income. In 1983, the highest income per person was $22,870 in the UAE and the lowest was $250 in Somalia.

For the purpose of income analysis, Arab States are grouped into four income categories: high, upper middle, lower middle and low, Table (5-4)(32). As can be seen in this table, all the oil exporting states except Algeria and Iraq are in high income group with per-capita income in 1983 ranging from $6250 in Oman to $22,870 in UAE. The upper-middle income states which include Algeria and Iraq had an average a per-capital income of $1933 in 1983. The lowest in this group was $1640 in Jordan and the highest was $4074 in Lebanon. The next lower income group which includes the two large states (Egypt and Morocco) had an average per-capital income of $744 in 1983. Tunisia was the richest in this group with $1290 per-capita. Sudan, Somalia and Dijibouti from the lowest income group with an average income of $371 per head.

The Gross Domestic Products (GDP) are assumed to grow at varying rates during the next decade or so, (30). In the high-income states and due to oil price decrease, oil income has fallen. The growth rates assumed for this group are : (-)5% per year for the period 1983-1990, then a modest rate of 2% per year will take place from 1990 onward. In the upper-middle income group, it is assumed that Jordan and Syria will have 5% GDP growth rate per year until 1990 and then 4.5%. Algeria, Iraq and Lebanon are assumed to have stagnant growth in GDP until 1990, and then a modest growth rate of 2% per year. The lower-middle group is assumed to grow by 4.5% annually until 1990, and then by 4%. Finally, the growth rates of GDP assumed to be 4% for low-income group until 1990 and then 3.5% per year, Table (5-5).

According to the assumed growth rates in Table (5-5), the GDP for the entire Arab world has been projected for the years 1990, 1995 and 2000, Table (5-6). As shown in this table, the total GDP will fall from $401906.3 million in 1983 to approximately $365280.0 million in 1990. The main reason for this decline in the combined GDP of the Arab world states is the sharp decrease of income in the oil exporting group. The combined GDP of non-oil producing countries will continue to rise at varying rates. By 1995, the total GDP of all Arab States will reach $407317.9 million which is $5411.6 million higher than the 1983 level in real terms. By the year 2000, the aggregate GDP of all Arab States will reach $467412.5 million in terms of the 1979-80 constant prices.

By utilising the projected population figures in Table (5-3) with the projected GDP figures (Table 5-6) for the period 1985-2000, the per-capita income figures are worked out for each Arab State individually for 1985, 1990 and 2000 and shown in Table (5-7). Over the period 1983-2000, the average per-capital income in the oil exporting high-income states will fall from $12,448 in 1983 to $7081 in 2000. For the other Arab States, the average per-capital income is likely to rise from $1058 in 1983 to $1196 in 2000. The average per-capital income for the Arab world as a whole, will go down from $2038 in 1985 to $1840 in 2000.

5.5 Textiles Market in The Arab World

5.5.1 Clothing Textiles in the Arab World

5.5.1.1 Recent Consumption of clothing Textiles

The total consumption figures of textile for clothing in the Arab World are shown in Table (5-8) for the period of 1975, 1979 and 1985 (34). By analysing the figures in this table and consultation with some officials, it is found that these statistics are often recorded in a confused manner, such as number of pairs, pieces and meters. Since all dresses and garments are made of fabric, and fabric data are more systematically available, this is therefore used as a proxy for final consumption of clothing textiles. The fibres to fabric conversion ratio is 1:0.87 as shown (35):

- One unit of cotton fibre yields roughly 0.85 unit fabric

- One unit of man-made fibre yields roughly 0.90 unit fabric

- Hence, the conversion of fibre to fabric ratio = 1:0.87

By using the fibre to fabric ratio 1:0.87, based on figures in table (5-8), the total consumption of textile for clothing (fabric equivalent) for the Arab world is calculated for the years 1975, 1979 and 1985, Table (5-9). As shown in this table, the total consumption of all types of textiles in the Arab world for the period 1975-79, increase at a very fast rate of about 6.2% from 591.4k tons in 1975 to 850.1k tons in 1979. The main reasons for such a rapid growth in consumption was due to a large increase in per-capita income, particularly in the upper-income group. During the period 1979-85, the consumption of textiles in the Arab world has been increasing at a much lower rate than before, from 850.1k tons to 952.85k tons. The annual average rate of growth in this period was 2.3%.

The total consumption of textiles for the Arab world as a whole and for individual states is shown in Table (5-10)(35). The total consumption of textiles reached about 925.85k tons in 1985.

By utilising the total consumption of textile figures of 1985, as shown Table (5-10), with the total population of the same year, as shown in Table (5-2), the average per-capita consumption is worked out to be 5 kg. in 1985, Table (5-11). As shown in this table, Arab States are considerably different from one another in terms of per-person consumption of textiles, the highest is 14.4 kg. in UAE and the lowest in 0.7 kg in Somalia.

5.5.1.2 Projected Consumption Demand for Textiles

There are various factors like people's tastes, habits, social norms, climate, age, distribution of population etc. All these minor factors are likely to account for a small variation in demand for textile consumption. The determining factors are the population and per-capita income. Having considered these two factors before, the per-capita consumption of textiles can be projected. Multiple Regression Method by Computer has been used to analyse the relationship between time series, per-capita income and population to estimate their effects on the consumption of textile for the period 1974-85. Since population and per-capita income have already been forecast for the years 1990, 1995, and 2000, Table (5-3) and (5-7), the total consumption of textiles is projected for the mentioned years and for all the Arab States Table (5-12) and (5-13).

5.5.2 Man-Made Fibre Market in The Arab World

5.5.2.1 Current Consumption Trend of Man-Made Fibres

The consumption share of man-made (cellulosic and synthetic) fabrics of the total consumption of textile for clothing was on average about 38.6% in 1975 in the Arab world, Table (5-14)(36). However, this varied considerably from one group of States to another. For instance, the share of this type of man-made fibre was very large, about 63% in the high-income Arab States. In the next income group of states, the average share was about 42%. It further went down to 21% in the next lower income group of States. The share of man-made fibre in the Arab world as a whole increased from about 38.6% in 1975 to 50% in 1985.

Hence, by utilising the consumption figures of textile for the Arab world in Table (5-10) with the figures of man-made share in Table (5-14), the total consumption of man made is calculated for the year 1975 and the years from 1979 to 1985, Table (5-15). As shown in this table, the consumption of man-made fibre in the Arab world as a whole has increased from 227.97k tons in 1975 to 478.85k tons in 1985.

5.5.2.2 Projected Consumption Demand for Man-Made Fibre

The share of man-made fibre in total clothing textiles is expected to rise from an average of 50% in 1985 (Table 5-14) to

52%, 54% and 56% for the years 1990, 1995 and 2000, Table (5-16) (34), for the Arab world as whole. This share varies between Arab States; it rises from 76% in 1985 to 81% in 2000 for the high-income group of states. The share will rise from 31% to 39% for the lower middle income group. Finally, this share will increase from 34% in 1985 to 37% in 2000 for the lower-income group of states.

Hence, by utilising the figures of the projected consumption of textiles in Table (5-12) with the expected share of man-made fibre in Table (5-16), the total consumption demand for man-made fibre is calculated for the years 1990, 1995 and 2000, Table (5-17). As shown in this table, the consumption of man-made fibre will rise from 478.83k tons in 1985 to 581.27k tons in 1990, to 746.46k tons in 1995 to 933.37k tons by the year of 2000 for the Arab States together.

5.5.3 Synthetic Fibre Market in The Arab World

It is well known that man-made textile is divided into two broad categories: synthetic and regenerated cellulosic fibres. Table (5-18) shows the share of synthetic fibre in the total man-made fibre consumption of the Arab world in 1980 (37). The data in this table reveal that the share of synthetic fibre was about 80% in the high-income group of states, while it was about 76% and 60% for the upper middle income and lower-middle group of states respectively. In Sudan which belongs to the lower-income group, the share of synthetic fibre was 80% and this applies on the other states in this group.

By applying the group share ratios in Table (5-18) to the project consumption of man-made fibres in Table (5-17), the future consumption demand of synthetic textiles is worked out for the Arab world for the years 1990, 1995 and 2000, Table (5-19) and (5-20). As shown in these tables, the total synthetic fibre consumption demand will increase from 355.2k tons in 1985 to 449.38k tons in 1990, to 576.8k tons in 1995 and to 718.74k in 2000.

5.5.4 Polyester/Acrylic Market in the Arab World

It is recognized that of all the synthetic fibre needed, the share of polyester fibre is estimated to be about 65%, while acrylic counts for 20% and the remaining 15% for others (38).

On the basis of the above share ratios, and by applying them to the figures of projected synthetic fibre consumption demand in Table (5-19), the future demand for polyester and acrylic fibres is calculated for the Arab world for the years 1990, 1995 and 2000, Table (5-21)(5-22). As shown in these tables, the demand for polyester fibre will rise from 230.89k tons in 1985 to 292.18k in the year of 2000, while acrylic will rise from 74.62k tons in 1985 to 89.87k tons in 1990, 115.36k tons in 1995 and to 143.75k tons in 2000 for the total Arab world.

In order to put the projected consumption demand figures of polyester and acrylic into the local processing capacity of the Arab world, these figures should be increased by converting them according to fabric to fibre ratio 0.87:1 Table (5-23)(5-24). As shown in these tables the fibre equivalent of polyester that needs to be processed (as raw materials) increased from 327.89k tons in 1990 to 422.96k tons in 1995 and then to 526.75k tons in 2000. Acrylic increased from 100.91k to 129.10k tons in 1995 and then to 162.07k tons by the year of 2000.

5.6 Production of Textiles in the Arab World

5.6.1 Production of Clothing Textiles

The consumption of clothing textiles in the Arab world is met from both local production and import. Of the estimated consumption of 952.85k tons of textile (fabric equivalent) in 1985 (Table 4-9), various Arab States together supplied about 580k tons, or about 60.8% of the total need from domestic fabrication (37). The mill capacity utilised in the Arab world to produce fabric in 1980/1985 is shown in Table (5-25). Of course a substantial part of the domestic manufacturing, particularly of man-made was from the imported raw materials, while the raw material for cotton textiles were mostly from within Arab world (Egypt and Sudan).

It is noted that of the several Arab States in Table (5-25), Egypt continues to be the dominating producer for about a half of the entire local supply. Other important producing countries in the

Arab world are Morocco, Algeria, Tunisia, Libya, Syria and Iraq. The oil producing Arab Gulf states have very small capacity for processing textiles.

5.6.2 Production of Man-Made Fibre

The total production of clothing textiles was about 536.4k tons in 1980 in the Arab world. Out of the total, cotton textile accounted for about 68%, wool for about 7% and the remaining 25% was from man-made textile. In 1975, the total production of man-made textiles fabrics was about 76.7k tons or about 34% of the total textiles Table (5-26)(39). By 1979, the share of the local production decreased to 30% of the total man-made textile fabric consumption. By 1985, although the Arab world production increased considerably to 169.7k tons, it accounted for about 35.5% of the total of man-made textile fabric.

5.6.3 Synthetic Fibre Supply

As already stated, the share of synthetic (non-cellulosic) is dominant among all man-made textiles consumed in the Arab world, and recently, this share has been growing. Table (5-27)(39), shows the quantities of all synthetic fibre/yarn imported into major Arab states over the period 1980-83.

Import statistics do not clearly show the classification of various synthetic fibre/yarn. By assumption polyester fibre/yarn accounts for about 65% and acrylic fibre for 20% of the total synthetics consumption. Table (5-28) shows the estimated import values of these two intermediate products.

Through the import analysis, it is found that in 1984 the total quantity of imported polyester fibre/yarn in selected Arab countries was about 77950 tons, while that of acrylic fibre was 34380 tons, Table (5-29). The amount imported in the remaining Arab states is likely to be quite small, about 7000 tons of polyester and 3000 tons of acrylic fibre.

In addition to imports, there is a local production of polyester fibre from primary petrochemical materials in Egypt which therefore increase the Arab world consumption of polyester by 25000 tons (40). Thus the total market scope for Arab world manufacturing of polyester is at present about 84950 tons (77950 + 7000), while for acrylic, it is about 37380 tons (34380 + 3000). The market size is expected to increase in the near future because of:

a) the increase in the share of synthetic textile in total consumption, and

b) probable increase in domestic capacity to produce the necessary raw materials and finished products.

5.7 Remarks and Conclusion

In this chapter, the Arab market of all types of clothing textiles has been considered in terms of its trends in the past and present time. In addition, the consumption demand for textiles has been forecast for the future, using per-capita income and population as the main determining factors for this consumption.

The projection of the consumption demand for textile has been based on fabric calculation by converting the fibre to fabric as fabric data is more systematically available in the Arab world. The ratio used for this conversion is (1:0.87) fibre to fabric.

The results of the projections made for population, per-capita income and the consumption demand for all types of clothing textiles for the years 1990, 1995 and 2000 for the whole Arab world are as follows: Table 5-30.

TABLE (5-1)
RECENT GROWTH TRENDS IN POPULATION IN ARAB COUNTRIES

	Countries	Population Mid 1983 Millon	Population Growth Rate 1970-1983
	High-Income	18.52	
1	Bahrain	0.40	5.7
2	Oman	1.13	4.3
3	Libya	3.35	4.1
4	Saudi Arabia	10.48	4.8
5	Kuwait	1.67	6.3
6	UAE	1.21	15.5
7	Qatar	0.28	5.4
	Upper-Middle Income	51.00	6.6%
1	Jordan	3.58	2.5
2	Syria	9.61	3.5
3	Algeria	20.50	3.1
4	Iraq	14.66	3.5
5	Lebanon	2.65	0.5
	Lower-Middle Income	84.83	2.62%
1	Mauritania	1.77	2.3
2	Yemen PDR	2.16	2.2
3	Yemen AR	6.27	3.0
4	Egypt	45.79	2.5
5	Morocco	21.95	2.6
6	Tunisia	6.89	2.3
	Lower-Income	26.1	2.5%
1	Somalia	5.23	2.8
2	Sudan	20.43	3.2
3	Djibouti	0.44	6.6
			4.2
	Grand Total 21	180.45	4.0%

Source: IDB: Annual Report / World Bank, Development Report 1985.

Table 5-2 Ara World Populat on for the Period 1974-1985
Population in 1000)

		P	O	P	U	L	A	T	I	O	N	
Arab Countries	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
High-Income												
Bahrain	255	260	265	272	2	295	320	310	390	420	420	420
Oman	750	773	785	790	830	870	910	990	1000	1130	1100	1200
Libya	2240	2442	25 0	26 0	2	2900	3000	3100	3300	3350	3230	3550
Saudi Arabia	8008	8296	96 0	9650	8200	8690	90 0	9300	10000	10480	10500	11190
Kuwait	930	980	11	110	12 0	1300	14 0	1500	1600	1670	1600	1770
UAE	458	656	670	730	82	940	1000	1100	1100	1210	1300	1280
Qatar	190	02	205	2 9	210	250	260	270	270	280	300	380
										18540		19790
Upper-middle												
Jordan	2620	2709	2800	2900	3000	3100	3200	3400	3580	3300	3300	3760
Syria	7717	7409	7700	7800	8100	8600	9000	9300	9500	9610	9700	10200
Algeria	15175	15747	16200	17000	176 0	18000	189 0	19600	19900	20500	20900	21750
Iraq	10770	11120	11500	11800	12200	12600	13100	13600	14200	14660	14900	15520
Lebanon	3065	3164	3200	29 0	3	2700	2700	2700	2600	2650	2700	2680
Lower-middle												
Mauritania	1290	1322	1400	1500	1500	1600	1500	1600	1770	1770	1770	1785
Yemen PDR	1632	1677	1700	1700	1800	1900	1900	2000	2000	2160	2160	2260
Yemen AR	6379	6471	6600	5000	5600	5700	7000	7300	7500	6270	7700	6650
Egypt	36350	37096	38100	37800	39900	38900	39800	43300	44300	45790	46200	48110
Morocco	16291	16680	17200	18300	18900	19500	20200	20900	20300	21950	21600	23060
Tunisia	5640	5590	5700	5900	6000	6200	6400	6500	6700	6890	7000	7210
Lower-Income												
Somalia	3100	3180	3300	3700	3700	3800	3900	4400	4500	5230	5200	5540
Sudan	17528	15550	15900	16900	17400	17900	18700	19200	20200	20430	20800	21800
Dijibouti	250	280	290	310	350	370	390	410	430	440	600	700
Grand Total	140700	149600	152100	156400	159100	162900	167300	171200	176400	180450	185500	190570

Source : Unified Arabic Report; Arab League 1985, Tunisia.

TABLE (5-3)
PROJECTED ARAB POPULATION
(POPULATION IN 1000)

Arab Countries	1990	1995	2000
High Income			
Bahrain	511	599	687
Oman	1363	1571	1779
Libya	4093	4657	5221
Saudi Arabia	11846	13006	14166
Kuwait	2165	2555	2945
UAE	1723	2097	2470
Qatar	399	469	538
Sub-total	22100	24954	27808
Upper-middle			
Jordan	4063	4511	4959
Syria	11430	12719	14010
Algeria	24697	24670	30641
Iraq	17590	19777	21964
Lebanon	2300	2350	2500
Sub-total	60080	67027	74074
Lower-middle			
Mauritania	776	1001	1225
Yemen PDR	2491	2772	3052
Yemen AR	2126	2735	3344
Egypt	52890	58412	63933
Morocco	25940	29012	32083
Tunisia	7926	8695	9464
Sub-total	92149	102627	113106
Lower-income			
Somalia	6506	7637	8769
Sudan	23983	26582	29181
Dijibouti	747	908	1068
Sub-total	31236	35127	39018
Grand-total	205565	229735	254006

TABLE (5-4)
RECENT GROWTH TRENDS IN GROSS DOMESTIC PRODUCT
IN ARAB STATES

	Countries	GNP Per-capita US$ 1983	GDP Growth Rate % 1970-1983	Total GDP million $ 1983
	High-income	12448		230539.6
1	Bahrain	8100	5.9	3240.0
2	Oman	6250	5.8	7062.5
3	Libya	8480	2.4	28408.0
4	Saudi Arabia	12230	9.8	128170.4
5	Kuwait	17880	2.2	29859.6
6	UAE	22870	8.1	27672.7
7	Qatar	21880	7.2	6126.4
	Upper-middle income	1933		98598.8
1	Jordan	1640	9.3	5871.2
2	Syria	1760	8.8	16913.6
3	Algeria	2320	6.6	47560.0
4	Iraq	1277	5.3	17458.0*
5	Lebanon	4074	5.1	10796.0
	Lower-middle income	744		63077.2
1	Mauritania	480	2.0	849.6
2	Yemen PDR	520	3.6	1123.2
3	Yemen AR	550	5.8	3448.5
4	Egypt	700	8.4	32053.0
5	Morocco	760	5.0	16682.0
6	Tunisia	1290	7.0	8888.1
	Lower-income	377		9690.7
1	Somalia	250	3.8	1307.5
2	Sudan	400	6.3	8172.0
3	Djibouti	480	2.2	211.2
	Grand Total 21	2232		401906.3

Source: IDB: Annual Report/World Bank, Development Report 1985.

Note: The GDP Figures are on the basis of 1979-80 Constant price.

TABLE (5-5)
GROWTH RATES ASSUMED FOR THE PROJECTION OF GDP

Countries	1983-1990	1990-2000
High-Income Group	-5% Per Year	2% Per Year
Upper-Middle-Income Group		
Jordan-Syria	5%	4.5%
Iraq-Lebanon-Algeria	Stagnant	2%
Lower-Middle-Income Group	4.5%	4%
Low-Income Group	4%	3.5%

Source: Saudi Consulting House 1985

TABLE (5-6)
PROJECTED GDP OF THE ARAB STATES US$ MILLION IN 1979/80
CONSTANT PRICES

Arab Countries	1983 (1)	1985	1990	1995	2000
High-Income					
Bahrain	3240.0	2924.1	2263.1	2498.7	3363.0
Oman	7062.5	6373.9	4933.2	5446.7	6013.6
Libya	28408.0	25638.2	19843.0	21908.7	24188.6
Saudi Arabia	128170.4	115673.8	89527.0	98846.8	109133.4
Kuwait	29859.6	26948.3	20856.9	23028.1	25424.6
UAE	27672.7	24974.6	19329.4	21341.6	23562.5
Qatar	6126.4	5529.1	4279.0	4724.4	5216.1
Sub-total	230539.6	208062	161031.5	177795	196901.8
Upper-middle					
J rdan	5871.2	6373.0	7493.4	9338.3	11637.3
Syria	16913.6	18647.2	21586.8	26901.5	33524.3
Algeria	47560.0	47560.0	47560.0	52511.0	57975.6
Iraq	17458.0	17458.0	17458.0	19275.4	21281.3
Lebanon	10796.0	10796.0	10796.0	11919.9	13160.3
Sub-total	98598.8	100934.2	104894.2	119946.1	137578.8
Lower-middle					
Mauritania	849.6	927.8	1058.8	1288.0	1599.9
Yemen PDR	1123.2	1226.5	1399.7	1702.7	2071.4
Yemen AR	3448.5	3765.8	4297.5	5227.9	6359.9
Egypt	32053.0	35001.9	39944.4	48592.4	59113.7
Morocco	16682.0	18216.7	20789.1	25289.9	30765.8
Tunsia	888.1	9705.8	11076.4	13474.4	16392.0
Sub-total	63077.2	68844.5	78565.9	95575.3	116302.7
Low-income					
Somalia	1307.5	1414.5	1590.6	1889.2	2243.7
Sudan	8172.0	8838.8	9941.2	11807.2	14023.1
Djibouti	211.2	228.4	256.9	305.1	362.4
Sub-total	9690.7	10481.4	11788.7	14001.5	16629.2
Grand total	401906.3	388322.1	356280.4	407317.9	467412.5

(1) From Table (5-4)

TABLE (5-7)
PROJECTED PER-CAPITA INCOME FOR ARAB STATES
(US$ 1000)

Arab Countries	1990	1995	2000
High-income			
Bahrain	4429	4171	4895
Oman	3619	3467	3380
Libya	4848	4704	4633
Saudi Arabia	7558	7600	7704
Kuwait	9634	9013	8633
UAE	11218	10177	9539
Qatar	10724	10073	9695
Average	7286	7125	7081
Upper-middle			
Jordan	1844	2070	2347
Syria	1889	2115	2393
Algeria	1926	1898	1892
Iraq	992	975	969
Lebanon	4694	5072	5264
Average	1746	1790	1857
Lower-middle			
Mauritania	1359	1287	1306
Yemen PDR	562	614	679
Yemen AR	2021	1911	1902
Egypt	755	832	925
Morocco	801	872	959
Tunisia	1397	1550	1732
Average	853	931	1163
Lower-income			
Somalia	244	247	256
Sudan	415	444	481
Djibouti	344	363	339
Average	377	399	511
Grand Average			

TABLE (5-8)
TEXTILE CONSUMPTION (WEARING APPAREL) IN ARAB STATES
1975-1985

Country Group	Consumption of all textile types 1000 Tons		
	1975	1979	1985
1. High-income (oil exporting)	178.0	297.4	246.4
2. Upper-middle income group	198.6	261.6	410.0
3. Lower-middle income group	266.7	327.4	386.5
4. Low-income group	36.4	60.8	52.2
Total	679.7	947.2	1095.1

Source: Textile Research Office: Damascus 1985

TABLE (5-9)
PAST TREND IN TEXTILE CONSUMPTION IN ARAB COUNTRIES:
1974-1985* (Fabric Equivalent)

Country Group	Consumption Fabric Equivalent 1000 Tons			Growth Rate % Per year	
	1975	1979	1985	1975-79	1979-85
1. High-income (oil exporting)	154.9	258.7	214.4	4.4	0.6
2. Upper-middle income	172.8	253.7	356.7	10.4	2.8
3. Lower-middle income	232.0	284.8	336.3	3.5	3.9
4. Low-income	31.7	52.9	45.45	0.9	3.2
Grand Total	591.4	850.1	952.85	6.2	2.3

* Figures in this table are calculated by converting figures in table 5-8 using (1: 0.87) fibre to fabric ratio.(35)

Table 5-10 Textile Consumption (all types) in Arab Countries 1974-1985 Fabric Equ valent (1000 Tons)

Countries				Y		E	A	R	S			
	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
High-income												
Bahrain	3.2	3.6	4.1	4.8	5.1	5.9	4.1	4.3	4.4	4.4	5.9	5.1
Oman	4.0	4.0	4.9	5.8	6.2	6.9	9.5	10.6	11.5	12.2	13.6	12.3
Libya	35.0	35.7	36.9	30.7	28.7	24.1	36.2	36.5	38.2	40.7	37.2	34.9
Saudi Arabia	48.0	50.0	70.6	86.9	90.8	115.0	117.3	124.0	129.1	134.2	136.6	120.4
Kuwait	25.6	26.5	27.9	29.6	30.2	35.0	20.6	21.3	22.2	23.6	20.6	19.0
UAE	30.2	31.9	41.3	46.6	50.9	67.4	15.2	16.2	17.6	18.0	18.6	18.4
Qatar	3.0	3.2	3.6	3.8	3.9	4.4	3.8	3.9	4.0	4.1	4.2	4.3
Sub-Total	149.0	154.9	189.3	207.8	215.8	258.7	206.7	216.8	227.0	227.2	217.2	214.4
Upper-middle												
Jordan	12.9	13.4	12.6	15.7	17.2	19.8	16.3	17.6	19.2	21.5	22.6	22.3
Syria	41.2	42.5	43.6	42.8	48.2	56.5	56.3	59.9	62.1	65.3	67.3	67.6
Algeria	47.6	48.7	49.9	55.0	61.2	79.6	133.2	144.1	150.2	159.9	160.0	164.5
Iraq	50.6	52.1	55.2	58.3	59.9	75.7	78.3	79.7	80.1	85.4	86.3	81.7
Lebanon	15.9	16.1	16.6	17.4	18.2	22.1	17.0	16.8	18.3	24.8	23.7	20.6
Sub-total	168.2	172.8	177.9	189.2	204.7	253.7	301.1	318.1	329.9	353.9	359.9	356.7
Lower-middle												
Mauritani	1.9	1.9	2.2	2.9	4.2	6.0	3.1	3.9	4.1	4.8	5.6	4.1
Yemen PDR	1.0	1.0	1.2	1.4	1.5	2.2	4.4	5.1	5.7	6.4	6.9	5.45
Yemen AR	5.2	5.2	4.0	4.9	6.2	11.8	17.2	19.1	19.2	19.4	20.2	18.6
Egypt	131.9	141.4	149.9	152.6	161.2	172.5	129.4	155.2	160.5	175.6	181.7	175.3
Morocco	48.6	50.5	50.9	46.3	48.3	53.4	89.0	95.2	93.2	92.3	96.7	92.8
Tunisia	30.2	32.0	32.7	33.5	35.2	38.9	36.7	40.0	40.1	41.2	41.2	40.0
Sub-total	218.8	232.0	240.9	241.6	246.6	284.8	279.8	318.5	322.8	338.7	352.3	336.3
Low-income												
Somalia	2.6	2.8	3.7	4.9	7.3	11.5	2.6	3.6	3.7	3.6	4.0	3.75
Sudan	26.7	27.8	30.2	33.2	36.1	40.1	33.3	37.7	39.2	43.3	44.0	40.7
Djibouti	1.0	1.1	1.1	1.2	1.2	1.3	0.96	1.0	1.0	0.96	1.2	1.0
Sub-total	30.3	31.7	35.0	39.3	44.6	52.9	36.86	42.3	43.9	47.86	48.2	45.45
Grand total	566.3	591.4	643.1	677.5	711.7	850.1	824.46	895.7	923.6	967.66	977.6	952.85

Notes: 1 - For the years 1974 and 1975, the figures are obtained from Arab Organisation of Industrial Development.
2 - For the years from 1976 to 1985, figures are calculated according the growth rates in Table (5-9).

TABLE (5-11)
PER-CAPITA CONSUMPTION OF TEXTILE FIBRES IN 1985
FOR ARAB STATES

	1985	
Countries	Kg	%
High-income		
1 Bahrain	12.1	8.76
2 Oman	10.3	7.45
3 Libya	9.8	7.09
4 Saudi Arabia	10.7	7.74
5 Kuwait	10.7	7.74
6 OAE	14.4	10.42
7 Qatar	14.3	10.35
Upper-middle		
1 Jordan	6.1	4.41
2 Syria	6.6	4.78
3 Algeria	7.6	5.50
4 Iraq	5.3	3.84
5 Lebanon	7.8	5.64
Lower-middle		
1 Mauritania	2.2	1.59
2 Yemen PDR	2.4	1.74
3 Yemen AR	2.8	2.03
4 Egypt	3.6	2.60
5 Morocco	4.0	2.89
6 Tunisia	2.9	2.10
Low-income		
1 Somalia	0.7	0.51
2 Sudan	1.9	1.37
3 Djibouti	2.0	1.45
Total	5 kg per-son^{-1}	100

TABLE (5-12)
PROJECTED TOTAL CONSUMPTION DEMAND OF TEXTILE FIBRES FOR ARAB STATES INDIVIDUALLY FOR 1990, 1995 AND 2000
(1000 TONS)

Arab Countries	1990	1995	2000
High-income			
Bahrain	6.26	7.50	9.13
Oman	15.23	18.77	23.21
Libya	42.97	54.10	65.43
Saudi Arabia	145.66	178.38	218.41
Kuwait	23.17	28.42	34.80
UAE	22.66	34.57	30.21
Qatar	5.13	6.38	7.75
Sub-total	261.08	328.12	388.94
Upper-middle			
Jordan	27.65	33.28	40.06
Syria	82.74	102.34	126.25
Algeria	204.20	261.32	310.34
Iraq	101.01	123.96	152.27
Lebanon	22.74	24.81	27.07
Sub-total	438.34	545.71	655.99
Lower-middle			
Mauritania	4.93	5.94	7.18
Yemen PDR	6.55	7.92	9.54
Yemen AR	2.31	2.91	3.63
Egypt	208.47	251.25	305.15
Morocco	112.55	136.97	167.00
Tunisia	25.05	29.68	35.49
Sub-total	359.86	434.68	527.99
Lower-income			
Somalia	4.79	5.97	7.48
Sudan	52.56	66.35	84.44
Djibouti	1.19	1.51	1.90
Sub-total	58.54	73.83	93.82
Grand Total	1117.82	1382.34	1666.74

TABLE (5-13)
PROJECTED TOTAL CONSUMPTION DEMAND OF TEXTILE FIBRES
FOR THE ARAB WORLD AS A WHOLE
(1000 TONS)

Countries	1990	1995	2000
High-income group	261.08	328.12	388.94
Upper-middle	438.34	545.71	655.99
Lower-middle	356.86	434.68	527.99
Low-income	58.54	73.83	93.82
Total	1117.82	1382.24	1666.74

TABLE (5-14)
MAN-MADE FABRIC % SHARE IN TOTAL CLOTHING TEXTILE
FOR ARAB STATES (MAN-MADE FABRICS IN 1000 METRIC TONS)

	Arab Countries	Man-Made Fabric Share					
		% 1975	% 1979	% 1980	% 1981	% 1983	% 1985
	High-income						
1	Bahrain	48.9	71.9	73.0	75.0	80.0	81.0
2	Oman	50.0	42.0	65.0	67.0	70.0	73.0
3	Libya	49.4	35.3	45.0	47.0	50.0	52.0
4	Saudi Arabia	68.0	74.8	75.0	77.0	80.0	81.0
5	Kuwait	63.8	77.5	75.0	77.0	80.0	81.0
6	UAE	72.3	80.0	75.0	77.0	80.0	81.0
7	Qatar	72.0	80.4	81.0	77.0	82.0	82.0
	Sub-Average	63.0	72.0	69.0	72.0	78.0	76.0
	Upper-Middle						
1	Jordan	53.0	54.0	55.0	57.0	60.0	62.0
2	Syria	33.0	43.0	43.0	45.0	47.0	49.0
3	Algeria	48.8	49.1	50.0	52.0	55.0	57.0
4	Iraq	38.0	48.0	48.0	50.0	52.0	53.0
5	Lebanon	48.0	52.0	52.0	55.0	57.0	59.0
	Sub-Average	42.1	48.1	49.0	50.0	52.0	55.0
	Lower-Middle						
1	Mauritania	25.5	29.5	30.0	32.0	35.0	37.0
2	Yemen PDR	38.4	28.7	30.0	32.0	35.0	37.0
3	Yemen AR	45.0	56.0	57.0	60.0	65.0	67.0
4	Egypt	11.3	10.4	11.0	12.0	14.0	16.0
5	Morocco	29.8	33.7	34.0	35.0	37.0	39.0
6	Tunisia	45.0	50.7	52.0	53.0	55.0	57.0
	Sub-Average	21.0	22.7	27.0	27.0	29.0	31.0
	Low-income						
1	Somalia	25.1	55.0	55.0	57.0	60.0	61.0
2	Sudan	15.8	25.0	25.0	27.0	30.0	31.0
3	Djibouti	25.0	40.0	40.0	42.0	45.0	47.0
	Sub-Average	28.1	31.9	28.0	30.0	33.0	34.0
	Arab States Together	38.6	46.0	47.0	46.0	49.0	50.0

Source: Man-Made Fibre Research Office - Damascus 1984

TABLE (5-15)
CONSUMPTION OF MAN-MADE FABRIC IN ARAB STATES
(MAN-MADE FABRIC IN 1000 METRIC TONS)

	Arab States	1975	1979	1980	1981	1983	1985
	High-income						
1	Bahrain	1.76	4.24	2.99	3.23	3.52	4.2
2	Oman	2.00	2.90	6.18	7.10	8.54	9.0
3	Libya	17.02	8.51	16.29	17.16	20.35	18.2
4	Saudi Arabia	34.00	86.02	87.98	95.48	107.36	97.5
5	Kuwait	16.91	27.13	15.45	16.40	18.88	15.4
6	UAE	23.06	53.92	11.40	12.47	14.72	14.9
7	Qatar	2.30	3.54	3.08	3.19	3.36	3.6
	Sub-total	97.59	186.26	142.6	156.1	177.2	162.9
	Upper-Middle						
1	Jordan	7.10	10.75	8.97	10.03	12.90	13.8
2	Syria	14.03	24.44	24.21	25.34	30.69	33.2
3	Algeria	23.77	39.10	66.60	74.93	86.30	93.8
4	Iraq	20.06	36.33	37.58	39.15	41.44	43.3
5	Lebanon	7.73	11.48	8.84	9.24	14.14	12.6
	Sub-total	72.75	122.0	147.5	159.05	184.03	196.19
	Lower-Middle						
1	Mauritania	0.48	1.78	0.93	1.25	1.68	1.6
2	Yemen PDR	0.38	0.62	1.32	1.63	2.24	2.1
3	Yemen AR	2.34	0.62	9.80	11.46	12.61	12.5
4	Egypt	15.98	17.94	14.23	18.62	24.58	28.1
5	Morocco	15.05	18.00	30.26	33.32	34.15	36.2
6	Tunisia	14.40	19.71	19.08	21.20	22.11	22.8
	Sub-total	48.72	64.65	75.55	86.00	98.22	104.2
	Lower-income						
1	Somalia	0.70	6.32	1.43	2.05	2.16	2.30
2	Sudan	4.39	10.01	8.33	10.18	12.99	12.60
3	Djibouti	0.28	0.52	0.38	0.42	0.43	0.47
	Sub-total	8.91	16.88	10.32	12.69	15.80	15.45
	Grand Total	227.97	389.8	376.03	413.84	475.27	478.83

TABLE (5-16)
EXPECTED SHARE (%) OF MAN-MADE FABRIC IN TOTAL CLOTHING TEXTILES

	Arab Countries	1990 %	1995 %	2000 %
	High-income			
1	Bahrain	82.5	83.2	84
2	Oman	76.0	78	80
3	Libya	57.0	60	64
4	Saudi Arabia	82.9	83	84.2
5	Kuwait	82.9	83.6	84.2
6	UAE	82.9	83.6	84.2
7	Qatar	83.5	83.9	84.2
	Upper-Middle Income	78	79	81
1	Jordan	65	69	72
2	Syria	53	55	58
3	Algeria	60	63	65
4	Iraq	55	57	60
5	Lebanon	63	66	69
	Lower-Middle Income	58	61	63
1	Mauritani	41	45	50
2	Yemen PDR	41	45	50
3	Yemen AR	71	74	79
4	Egypt	19	21	25
5	Morocco	42	44	45
6	Tunisia	59	61	62
	Lower-Income	34	36	39
1	Somalia	63	65	66
2	Sudan	32.2	33	33.5
3	Djibouti	48	49	50
	Average	36	36	37
	Average for Arab States together	52	54	56

Source: Man-made fibre Research Office, Damuscus 1984

TABLE (5-17)
PROJECTED CONSUMPTION DEMAND FOR MAN-MADE FABRIC IN
TOTAL CLOTHING TEXTILE IN ARAB WORLD
(MAN-MADE FABRIC IN 1000 METRIC TONS)

	Arab Countries	1990	1995	2000
	High-income			
1	Bahrain	5.16	6.24	7.67
2	Oman	11.57	14.64	18.57
3	Libya	24.49	32.46	41.88
4	Saudi Arabia	120.75	149.13	183.90
5	Kuwait	19.21	23.76	29.30
6	UAE	18.79	28.90	25.44
7	Qatar	4.28	5.35	6.53
	Sub-total	203.64	259.21	315.04
	Upper-Middle			
1	Jordan	17.97	22.96	28.84
2	Syria	43.85	56.29	73.23
3	Algeria	122.52	164.63	201.72
4	Iraq	55.56	70.66	91.36
5	Lebanon	14.33	16.37	18.68
	Sub-total	254.24	332.88	413.27
	Lower-Middle			
1	Mauritani	2.02	2.76	3.59
2	Yemen PDR	2.69	3.56	4.77
3	Yemen AR	1.64	2.15	2.87
4	Egypt	39.61	52.76	76.29
5	Morocco	47.27	60.27	75.15
6	Tunisia	14.78	18.10	22.00
	Sub-total	122.35	156.48	205.92
	Low-income			
1	Somalia	3.02	3.88	4.94
2	Sudan	16.92	21.90	28.29
3	Djibouti	0.57	0.74	0.95
	Sub-total	21.07	26.58	34.71
	Grand-total	581.27	746.46	933.37

TABLE (5-18)
SHARE OF SYNTHETIC FIBRE IN THE TOTAL
MAN-MADE FIBRE CONSUMPTION IN 1980

Countries Group	Share of Synthetic Fibre % of Man-made Fibre
High-Income Group	
1 Oman	74.6
2 Libya	68.4
3 Saudi Arabia	77.0
4 Kuwait	96.1

	79.7
Upper-income	
1 Jordan	24.4
2 Syria	89.5
3 Algeria	96.3
4 Iraq	58.2

	75.8
Lower-middle	
1 Egypt	41.1
2 Morocco	63.8
3 Tunisia	75.4

	59.9
Low-income	
1 Sudan	85.0

Source: FAO: World Apparel Fibre Consumption, 1983

TABLE (5-19)
PROJECTED CONSUMPTION OF SYNTHETIC FABRIC IN ARAB STATES INDIVIDUALLY
(1000 METRIC TONS)

Arab Countries	1990	1995	2000
High-income			
1 Bahrain	4.08	4.99	6.14
2 Oman	9.26	11.72	14.86
3 Libya	19.60	25.97	33.50
4 Saudi Arabia	96.60	119.30	147.12
5 Kuwait	15.37	19.01	23.44
6 UAE	15.03	23.12	20.35
7 Qatar	3.42	4.28	5.22
Sub-total	165.31	207.37	252.03
Upper-middle income			
1 Jordan	13.66	17.45	21.92
2 Syria	33.33	42.78	55.65
3 Algeria	93.12	125.12	153.31
4 Iraq	42.23	53.70	69.43
5 Lebanon	10.90	12.44	14.20
Sub-total	193.22	252.99	314.10
Lower-middle income			
1 Mauritania	1.21	1.60	2.15
2 Yemen PDR	1.61	2.14	2.86
3 Yemen AR	0.99	1.29	1.72
4 Egypt	23.77	31.66	45.77
5 Morocco	28.36	36.16	45.09
6 Tunisia	8.87	10.86	13.20
Sub-total	73.41	93.89	123.55
Lower-income			
1 Somalia	2.57	3.30	4.20
2 Sudan	114.38	18.62	24.05
3 Djibouti	0.49	0.63	0.81
Sub-total	17.44	22.55	29.06
Grand-total	449.38	576.80	718.74

TABLE (5-20)
PROJECTED CONSUMPTION OF SYNTHETIC FABRIC IN ARAB WORLD IN TOTAL
(1000 TONS)

	Country Group	1985 (1)	1990	1995	2000
1	High-income	130.4	165.31	207.37	252.03
2	Upper-Middle-Income	149.1	193.22	252.99	314.10
3	Lower-Middle-Income	62.2	73.41	93.89	123.55
4	Lower-Income	13.1	17.44	22.55	29.06
	Grand Total	355.2	449.38	576.80	718.74

TABLE (5-21)
PROJECTED CONSUMPTION DEMAND FOR POLYESTER AND ACRYLIC FABRIC
IN EACH ARAB STATE
(1000 TONS)

Arab Countries	Polyester Fabric			Acrylic Fabric		
Arab Countries	1990	1995	2000	1990	1995	2000
High-income						
Bahrain	2.65	3.24	3.99	0.82	0.10	1.23
Oman	6.02	7.61	9.66	1.85	2.34	2.97
Libya	12.73	16.88	21.78	3.92	5.19	6.70
Saudi-Arabia	62.79	77.55	95.63	19.32	23.86	29.42
Kuwait	9.99	12.30	15.24	3.10	3.80	4.69
UAE	9.77	15.03	13.23	3.01	4.62	4.10
Qatar	2.23	2.78	3.40	0.68	0.88	1.04
Sub-total	107.45	134.79	163.82	33.06	41.47	50.41
Upper-middle						
Jordan	8.88	11.34	14.25	2.73	3.49	4.38
Syria	21.65	27.81	36.18	6.67	8.56	11.13
Algeria	60.52	81.33	99.65	18.62	25.02	30.66
Iraq	27.45	34.91	45.13	8.45	10.74	13.89
Lebanon	7.08	8.90	9.23	2.18	2.49	2.84
Sub-total	125.59	164.44	204.16	38.64	50.60	62.82
Lower-middle						
Mauritania	0.79	1.04	1.40	0.24	0.32	0.43
Yemen PDR	1.05	1.39	1.85	0.32	0.42	0.57
Yemen AR	0.64	0.84	1.12	0.20	0.26	0.34
Egypt	15.45	20.58	29.75	4.75	6.33	9.15
Morocco	18.44	23.51	29.31	5.67	7.23	9.02
Tunisia	5.76	7.06	8.58	1.77	2.17	2.64
Sub-total	47.72	61.03	80.31	14.68	18.78	24.71
Low-income						
Somalia	1.67	2.14	2.73	0.51	0.66	0.84
Sudan	9.35	12.10	15.63	2.88	3.72	4.81
Djibouti	0.32	0.41	0.53	0.10	0.13	0.16
Sub-total	11.34	14.65	18.89	3.49	4.51	5.81
Grand-total	292.10	374.91	467.18	89.87	115.36	143.75

TABLE (5-22)
PROJECTED CONSUMPTION DEMAND FOR POLYESTER AND ACRYLIC FABRIC IN THE ARAB
(FABRIC EQUIVALENT) IN TOTAL ARAB WORLD
(1000 TONS)

Country Group	Polyester Fabric				Acrylic Fabric			
	1985	1990	1995	2000	1985	1990	1995	2000
1 High-income	84.76	107.45	134.79	163.82	26.08	33.06	41.47	50.41
2 Upper-income	96.92	125.59	164.44	204.16	29.80	38.64	50.60	62.82
3 Lower-middle	40.69	47.72	61.03	80.31	12.52	14.68	18.78	24.71
4 Low-income	8.52	11.34	14.65	18.89	6.22	3.49	4.51	5.81
Grand total	230.89	292.10	374.91	467.18	74.62	89.87	115.36	143.75

TABLE (5-23)
FIBRE EQUIVALENT OF THE PROJECTED POLYESTER AND ACRYLIC FABRIC CONSUMPTION IN EACH ARAB STATE FOR WEARING APPAREL (1000 TONS)

Arab Countries	Polyester Fabric			Acrylic Fabric		
Arab Countries	1990	1995	2000	1990	1995	2000
High-income						
Bahrain	3.05	3.73	4.59	0.94	0.11	1.41
Oman	6.92	8.75	11.10	2.13	0.69	3.41
Libya	14.64	19.40	25.03	4.50	5.97	7.70
Saudi Arabia	71.17	89.14	109.92	22.21	27.43	33.82
Kuwait	11.48	14.20	17.51	3.56	4.37	5.39
UAE	11.23	17.27	15.21	3.46	5.31	4.68
Qatar	2.56	3.20	3.90	0.78	0.98	1.20
Sub-total	122.05	155.68	187.26	37.58	46.86	57.61
Upper-middle						
Jordan	10.20	13.04	16.38	3.14	4.01	5.04
Syria	25.90	31.96	41.58	7.67	9.83	12.97
Algeria	69.57	93.48	114.54	21.40	28.76	35.24
Iraq	31.55	40.12	51.88	9.71	12.35	15.69
Lebanon	8.14	9.30	10.61	2.50	2.86	3.26
Sub-total	144.36	187.90	234.99	44.42	57.81	72.29
Lower-middle						
Mauritania	0.91	1.20	1.61	0.28	0.37	0.50
Yemen PDR	1.21	1.60	2.41	0.37	0.49	0.66
Yemen AR	0.74	0.96	1.29	0.23	0.30	0.40
Egypt	17.76	23.65	34.20	5.46	7.28	10.52
Morocco	21.19	27.02	33.69	6.52	8.31	10.37
Tunisia	6.63	8.11	9.86	2.04	2.50	3.03
Sub-total	48.44	62.54	82.79	14.90	19.25	25.48
Low-income						
Somalia	1.92	2.46	3.14	0.59	0.76	0.97
Sudan	10.57	13.91	17.97	3.31	4.28	5.53
Djibouti	0.37	0.47	0.60	0.11	0.14	0.19
Sub-total	13.04	16.48	21.27	4.01	5.18	6.69
Grand-total	327.89	422.96	526.75	100.91	129.10	162.07

TABLE (5-24)
FIBRE EQUIVALENT OF THE PROJECTED POLYESTER AND ACRYLIC FABRIC CONSUMPTION IN TOTAL OF ARAB WORLD FOR WEARING APPAREL
(1000 TONS)

Country Group	Polyester Fabric			Acrylic Fabric		
	1990	1995	2000	1990	1995	2000
1 High-income	122.05	155.68	187.26	37.58	46.86	57.61
2 Upper-income	144.36	187.90	234.99	44.42	57.81	72.29 25.48K
3 Lower-middle	48.44	62.54	82.79	14.90	19.25	6.69
4 Low-income	13.04	16.84	21.71	4.01	5.18	
Grand total	327.89	422.96	526.75	100.91	129.10	162.07

TABLE (5-25)
LOCAL MILL CONSUMPTION OF APPAREL FIBRE/YARN IN THE ARAB STATES IN 1980 AND 1985
(1000 TONS OF FIBRE EQUIVALENT)

Countries	1980 Total	1985 Total	% Share 1985
1 Algeria	53.9	60.0	9.0
2 Morocco	78.0	82.0	12.3
3 Tunisia	21.7	37.0	5.6
4 Egypt	316.0	334.0	50.1
5 Libya	16.0	22.0	3.3
6 Sudan	16.3	21.0	3.2
7 Iraq	54.9	40.0	6.0
8 Jordan	3.6	5.5	0.8
9 Oman	0.1	0.5	0.1
10 Saudi Arabia	0.6	2.5	0.4
11 Syria	55.5	62.0	9.3
Total	616.6 (1)	666.5 (1)	100

Source: FAO: World Appare Fibre Survey, 1983

(1) By applying fibre to fabric conversion ration(1: 0.87) the total is 536.4 tons of fabric equivalent, in 1980 and 580.0 tons in 1985.

TABLE (5-26)
SUPPLY-DEMAND FOR MAN-MADE TEXTILES (WEARING APPAREL)
IN THE ARAB WORLD (1000 TONS)

		1975		1979		1985	
1	Consumption (fabric equivalent)(see Table 15)		227.9		389.82		478.83
2 3	Local Production of yarn	25.4		31.4		35.0	
4	Import of yarn	62.8		103.5		160.0	
5	Total supply of yarn(2+3)	88.2		134.9		195.0	
6	Conversion ratio (yarn to fabric)	0.87		0.87		0.87	
7	Local production of man-made fabric		76.7		117.4		169.7
8	Import of man-made fabric		151.2		272.4		309.13
9	Total supply of man-made fabric (6+7)		227.9		389.8		478.83
	Share of local production in total supply consumption		34%		30%		35.5%

Source: Annual Trade Statistics, Arab League

TABLE (5-27)
IMPORT OF SYNTHETIC FIBRE/YARN IN SELECTED ARAB COUNTRIES
(METRIC TONS)

Countries	1980	1981	1982	1983
Libya	575	618	964	736
Saudi Arabia	227	464	523	732
Kuwait	169	220	297	388
UAE	300	370	164	1501
Jordan	305	286	367	214
Syria	10222	6861	8325	7439
Algeria	29780	23248	18059	13790
Iraq	18481	17653	23320	9548
Egypt	8413	11200	18086	15305
Morocco	32065	27471	21387	26197
Tunisia	9578	9600	11192	8455
Grand Total (11 Countries)	108115	100991	102684	84405

Source: Arab Annual Trade Statistics

TABLE (5-28)
COMPOSITION OF SYNTHETIC FIBRE/YARN IMPORTED INTO ARAB COUNTRIES
(METRIC TONS)

Year	Total (100%)	Polyester (65%)	Polyamide (12%)	Polyacrylic (20%)	Others (3%)
1980	108115	70275	12974	21623	3234
1981	100991	65644	12119	20198	3030
1982	102693	66750	12323	20539	3081
1983	84405	54863	10129	16881	2532

Source: Mostafa Nader: Al-Ta'aown AL Kaliji Journal Qatar 1984

TABLE (5-29)
IMPORT OF POLYESTER AND ACRYLIC FIBRE/YARN FOR MILL CONSUMPTION
IN SELECTED ARAB STATES IN 1984

	Countries	Polyester			Acrylic
		Yarn	Yarn & Fibre	Fibre	Fibre
1	Morocco	7710	-	12080	11130
2	Algeria	-	10080	-	10000
3	Iraq	-	9500	-	5000
4	Syria	9476	-	2050	620
5	Sudan	-	5000	-	Not available
6	Tunisia	3042	-	726	1600
7	Saudia Arabia	940	-	-	Not available
8	Yemen AR	-	-	1267	Not available
9	Egypt	1123	6710	6710	6000
	Sub-total	22291	32826	22833	34380
	Total of polyester as a whole	77950 (1)			
	Grand Total	112330 (2)			

(1) Total market for manufacturing of polyester fibre in 1984
(2) Total market for manufacturing of synthetic fibre in 1984

Source: FAO, World Apparel Fibre Survey, 1983

TABLE (5-30)

PROJECTED POPULATION, PAR-CAPITA INCOME AND CLOTHING TEXTILE CONSUMPTION DEMAND FOR THE WHOLE ARAB WORLD

	1990	1995	2000
Total Arab population (in 1000)	205565	229735	254006
Per-capita income ($)	1733	1773	1840
Total consumption of clothing textiles (1000 tons)	1117.82	1382.34	1666.74
Total consumption of man-made textiles (1000 tons)	581.27	746.46	933.37
Total consumption of synthetic fibre (1000 tons)	449.38	576.80	718.74
Total consumption of polyester (1000 tons)	292.10	374.91	467.18
Total consumption of acrylic (1000 tons)	89.87	115.36	143.75

CHAPTER SIX

COMPUTER MODEL FOR DEVELOPING SECONDARY INDUSTRIES IN THE ARAB WORLD: SHIRT PLANT AS EXAMPLE

Secondary industries are regarded as the first step in the industrialization of the Third World. The Arab World is likely to be a successful candidate for the development of such industries due to the availability of the most important prerequistes of production namely capital, labour and raw material. The technology is readily available and may be bought from the industrialized nations. The Arab oil producing states have a capital funds surplus which cannot be absorbed by their local economy. Most of their capital is invested abroad mainly in the U.S.A. Japan and Europe. Meanwhile, Arab non-oil producing states are looking for capital funds to meet their economic development plans. Since the Arabs are one nation sharing history, language, religion, land and other links, economic marriage should be achieved successfully among them. Initially, it is not necessary for the economic marriage to take place on a large scale among Arab countries. Proper small and medium business, with interests clearly declared between the partners, have a very good chance of success. With regard to the labour factor, the Arab population is presently about 200 million and is forecast to be approximately 254 million by the year 2000. Various types of natural raw materials are available and need to be developed as are oil and gas.

The Arab world is in an excellent position (in comparision with the other developing nations) to promote secondary industries. Among secondary industries that of clothing is one of the important industries needing to be developed in the Arab world. This industry is expected to have a good prospect because of its raw material namely Polyester and Acrylic fibres are produced in the Arab world from oil and gas. Saudi Arabia is thought to be the most likely to produce DMT and PTA in the quantities required. The production of these materials requires a proper textile industry that is capable of manufacturing the textile fibre (Polyester and Acrylic fibre) into the final clothing products. The forward and backward linkages of the textile industry (i.e. between basic products DMT/PTA, intermediate products polyester and acrylic fibre and final clothing products) place emphasis on the development of an integrated textile industry within the Arab world. Shirt production is taken as the starting point for a fully integrated textile industry. This industry is characterised as light, requires relatively small amounts of capital, creates employment opportunities (labour intensive), generate skills and knowledge, and operates relatively sophisticated technology.

As an example of such a venture, the feasbility of setting up a joint venture project between Kuwait and Morocco for the production and marketing of shirts has been examined. A computer model has been developed to analyse the proposed project viability in terms of techno-economic analysis. Data regarding machines and equipment and other technical aspects, have been collected from specialized firms of textile fibre and equipment, namely SPECIAL UNION and SINGER in England.

For this, several visits and meetings were made to their offices in London. Data regarding various aspects of the Moroccon economy, have been obtained through contacts with officials. The Moroccon and Arab-British Chambers of Commerce held July 1987 yielded useful information and direct contacts were made with Moroccon officials.

Profile of the Proposed Project

The proposed shirt project has been designed to produce one million shirts a year with a daily shift of eight hours. The outlook of the proposed project is as follows:

1. The shirts will be of three types

Normal shirts		
	long sleeve	25%
	short sleeve	25%
Casual		25%
Sport		25%

		100%

2. Each type of shirt will be manufactured in two qualities, No.1 (First class) and No.2 (Second class).

3. Initially shirts will be produced in four sizes

School children

Small (S)

Medium (M)

Large (L)

4. The proposed capacity of the plant is as follows:

First year	70%
Second year	80%
Third year	90%
Fourth to tenth year	100%

5. The life of the project has been assumed to be ten years.

6. The project is planned to be set up in Morocco on a joint ventures basis with Kuwait. Primary discussion with officials from both states has indicated that they have much interest in this sort of cooperation. Various favourable factors thought to bolster the success of this project are discussed in the following chapter.

7. The market analysis of the Arab market for textile has already been made in previous chapters. Accordingly, Morocco which has a large gap between imports and local production of textile was chosen as a suitable partner. This gap will increase according to forecasts made for the

years 1990, 1995 and 2000. The total consumption of textile in 1985 was 92800 tons and this will increase to 112400 tons in 1990, 136240 tons in 1995 and to 167060 tons by the year of 2000, Table 6-1. In addition to the local market, there will be a possibility of export to EEC countries due to the preference that Morocco has from European countries. Arab states in the North Africa are another potential market to which Morocco looks in the future.

8. The capital investment is estimated as about 1.21 million pound sterling. The estimated figures were reached after consultations with officals from SINGER and SPECIAL UNION and Moroccon nationals in London. Working capital is calculated to be 30% of the current expenses, Table 6-2 & 3.

9. The current expenses include all the costs that are required for the production except depreciation, Table 6-4.

10. Production costs contain current expenses plus depreciation cost Table 6-5.

11. All types and sizes of shirts share equally the production cost except that of the raw material, as the quantity and type of material is different from one type to another and from one size to another, Table 6-6.

12. The proposed project requires 76 people at different levels of skill. The total salaries are estimated at £282,000 and are projected

to increase at 3% per annum, Table 6-7.

13. The cost of depreciation is estimated as fixed percentages which are varied from item to item, Table 6-8.

14. Fixed and variable costs form the total production cost. The division is made according to direct and indirect relations with the production process, Table 6-9 & 10.

15. The material required for shirt production includes basic polycotton material, collar hardening material, threads and buttons. The cost of these materials is based on the Meter unit and increase at 10% per annum. The thread cost is calculated to be 1% of the basic polycotton material, increasing at 5% per annum, Table 6-11. The materials are to be imported from some Asian textile producing country such as China, Japan, Korea, Hong Kong or Thailand.

16. The sale price per shirt is calculated by adding 5% on the top of the production cost per shirt for the first year. Since the production capacity is increasing, the sale price per shirt of the first year will be applied on the second, third and fourth year respectively. Then an increase at 5% per annum will be applied on the years from 5 to 10, Table 6-12. The total income from sales for each year is calculated and is shown in Table 6-13.

17. The total income arises from sale, and since there are no other sources of income, the gross profit is calculated for each year after

the production cost is deducted. Net profit is calculated after the deduction of the loan interest, as no tax is due in Morocco in the area that the proposed project will be sited, Table 6-14.

18. Cash flow is calculated after specifying cash inflow items and cash outflow items, Table 6-15.

19. The capital investment has been calculated to be £1204776. Paid up capital forms about 58.5% (£704776) while load capital forms 41.5% (£500000) with an interest rate of 12% for five years, Table 6-16. Loan payments and interest are shown in Table 6-17.

20. The net present value is calculated to be 12% after taking into consideration the inflation rate. This rate seems to be attractive in comparison with similar projects in Morocco, Table 6-18.

21. The internal rate of return is calculated to be 24.15% as shown in Table 6-19. This rate again seems to be attractive in comparison with similar projects in Morocco.

22. The proposed project will have its capital investment returned within a pay-back period of 5 years and 2 months, Table 6-20.

23. The average utilized capacity at the break-even points is calculated as about 60.8% which equivalent to 571855 shirts, Table 6-21.

24. The value added for the proposed project is calculated as follows:

Total net profits	2401246
Total Salaries	3232813
Total depreciation	842550

Total valued added	6476609
(-) depreciation	842550

Net valued added	5634059

Summary of the proposed project

Proposed project	Shirt Plant
Designed capacity	1000000 units
Proposed Country	Morocco - Agadir
Investment type	Joint Venture with Kuwait
Type of shirts	1 - Normal shirts
	- Long sleeve 25%
	- Short sleeve 25%
	2 - Casual shirts 25%
	3 - Sport shirts 25%

	100%
Shirt quality	Each type of shirt will be produced in two quality types:
	- No.1 quality
	- No.2 quality

Average per-shirt cost		Quality No.1	Quality No.2
	L	2	1.88
	S	1.85	1.74
	C	1.77	1.64
	Sp	1.82	1.80

Proposed capacity		
	1 year	70%
	2 year	80%
	3 year	90%
	4-10	100%

Average per-shirt price		Quality No.1	Quality No.2
	L	2.34	2.19
	S	2.16	2.04
	C	2.07	1.92
	S	2.13	2.11

Raw material	Imported polycotton of different types
Number of workforce	76
Fixed assets (£)	872550
Working capital	332226

Total investment capital	1204766
Paid up capital (equity)	704776

Loan (12% interest for 5 years)	500000
Average current expenses	1668009.2
Average depreciation	8425.5

Average production costs	1752263.7
Average variable costs	1359752.5
Average fixed costs	392511.7
Average production capacity	940000 shirts
Average income from sales	2004952.6
Average net cash flow	142744.5
E.B.I.T.	252688.9
Average net profit	240124.6
Break-even point	%: 60.8%
	Volume: 571855 shirts
Pay-back period	5 year and 2 months
Net present value	12%
Internal rate of return	24.15%
Average manpower cost	323281.3
Average material costs	1086707

4. Some Economic Indicators of the Proposed Plant

- Labour cost/production cost	18.4%
- Net profit/average sales	12%
- E.B.I.T/Total investment capital	21%
- Net profit/total investment capital	20%
- Net profit/paid capital	34%
- Average material cost/production costs	62.2%
- Average utilised capacity in break-even point	60.8%

COMPUTER GENERATED TABLES

table 1 imports & local prod ction of textile (1000 tons)

years	imports	local production	total consumption
1974	42.77	5.83	48.6
1975	44.44	6.06	50.5
1976	44.79	6.11	50.9
1977	40.74	5.56	46.3
1978	42.51	5.79	48.3
1979	46.99	6.41	53.4
1980	88.33	10.68	99.01
1981	83.78	11.42	95.2
1982	81.01	11.18	92.19
1983	81.22	11.08	92.3
1984	85.11	11.59	96.7
1985	81.66	11.14	92.8

according to projection made in chapter 5

1990			112.14
1995			136.24
2000			167.06

table2 capital investment

	0.1	0.02
machine cost		420500
transp & erect		60000
construc & build		150000
furniture		40000
air condition		30000
transp equip & cars		40000
spr.prt(0.1 machin. 2yrs)		42050
license & know_how		50000
consult& studies fees		40000
total fixed assets		872550
working capital		332226.3
grand total		1204776.

working capital =30% of
current expenses

current e pens.= 1107421 0.3

table 3 machinery cost

	NO.	unitprice	total	0.1
collaring	1	40000	40000	
cuffing	1	40000	40000	
gautlet	1	40000	40000	
front blacet	1	40000	40000	
button hole	3	9000	27000	
button hole (single)	3	4000	12000	
sewing (overage)	15	1500	22500	
plane lock stitch	30	1700	51000	
collar & cuff turning	4	8000	32000	
laying up machine	1	60000	60000	
cutting (12 inch.)	6	1000	6000	
steam pressing	1	8000	8000	
packaging(folding&boxing)	6	7000	42000	420500
total			420500	

table 4 current expeses #

			1year	2 year	3 year
	capacity utilization		70%	80%	90%
	raw materials		603750	759000	896568.6
	threads 1% of material				
1.02	increase 2% per annum		6037.5	6158.25	6281.415
1.05	buttons increase 5% yearly		2000	2100	2205
	waste(5% of material)	0.05			
1.02	increase 2% per annum		30187.5	30791.25	31407.07
0.01	packaging 1% material first three				
1.01	years and 1% per annum afterwords		6037.5	7590	8965.686
1.03	salaries increas3% per annum		282000	290460	299173.8
1.05	power & fuel increas 5% per annum		10000	10500	11025
	machin mainten 5% machires				
1. 1	increas 1% per annum		21025	21235.25	21447.60
	build.maint.(2% buildings)				
1.05	increas 5% per annum		3000	3150	3307.5
0.05	machin&build insur.(0.5%)				
1.04	increase 4% per annum		28525	29666	30852.64
	spare parts 5% machines				
1.05	increas 5% per annum		21025	21025	22076.25
0.05	cars insur.(5%)				
1.02	increase 2% per annum		2000	2040	2080.8
0.01	sales com. (1% sales)		7000	8000	9000
1.05	advertising increas 5% per annum		10000	10500	11025
	admin(tel,telex,post,paper, ect.)				
1.05	increas 5% per annum		8000	8400	8820
	staff isuranc.&safty(5% salaries)				
1.05	increase 5% per annum		14100	14805	15545.25
	overheads 5% ofabo e)	1054687.			
1.05	increase 5% per annum	0.05	52734.37	55371.09	58139.64
	total		1107421.	1280791.	1437921.

4 year 100%	5 year 100%	6 year 100%	7 year 100%	8 year 100%	9 year 100%	10 year 100%	total
1045996	1098295	1153209	1210868	1271410	1334980	1401728	107758040
6407.043	6535.184	6665.887	6799.205	6935.189	7073.893	7215.371	66108.94
2315.25	2431.012	2552.563	2680.191	2814.200	2954.910	3102.656	25155.780
32035.21	32675.92	33329.43	33996.02	34675.94	35369.46	36076.85	330544.70
9055.342	9145.896	9237.355	9329.728	9423.026	9517.256	9612.428	87914.22
308149.0	317393.4	326915.2	336722.7	346824.4	357229.1	367946.0	3232813.
11576.25	12155.06	12762.81	13400.95	14071.00	14774.55	15513.28	125778.90
21662.07	21878.69	22097.48	22318.46	22541.64	22767.06	22994.73	219968.00
3472.875	3646.518	3828.844	4020.286	4221.301	4432.366	4653.984	37733.670
32086.74	33370.21	34705.02	36093.22	37536.95	39038.43	40599.96	342474.20
23180.06	24339.06	25556.01	26833.81	28175.51	29584.28	31063.50	252858.50
2122.416	2164.864	2208.161	2252.324	2297.371	2343.318	2390.185	21899.44
10000	10000	10000	10000	10000	10000	10000	94000
11576.25	12155.06	12762.81	13400.95	14071.00	14774.55	15513.28	125778.90
9261	9724.05	10210.25	10720.76	11256.80	11819.64	12410.62	100623.10
16322.51	17138.63	179 5.57	18895.34	19840.11	20832.12	21873.72	177348.20
61046.63	640 8.96	67303.91	70669.10	74202.56	77912.68	81808.32	663287.3
1606264.	1677147.	1751340.	1829001.	1910297.	1995403.	2084502.	16680092

table 5 production cost

years	total current expenses	total depreciation	grand total
yr1	1107421	114075	1221496
yr2	1280791	114075	1394866
yr3	1437921	93050	1530971
yr4	1606264	93050	1699314
yr5	1677147	93050	1770197
yr6	1751340	67050	1818390
yr7	1829001	67050	1896051
yr8	1910297	67050	1977347
yr9	1995403	67050	2062453
yr10	2084502	67050	2151552
	16680087	842550	17522637

table 6 production cost per shirt

		long sleeve		short sleeve		casual sl
	1.025 0.011482	NO.1	NO.2	NO.1	NO.2	NO.1
yr1	material cost	1.036	0.936	0.911	0.823	0.936
	other cost	0.87	0.87	0.87	0.87	0.87
	total	1.906	1.806	1.781	1.693	1.806
yr2	M.cost	1.089	0.984	0.958	0.866	0.884
	other	0.78	0.78	0.78	0.78	0.78
	total	1.869	1.764	1.738	1.646	1.664
yr3	M.cost	1.04	1.029	1.002	0.905	0.927
	other	0.69	0.69	0.69	0.69	0.69
	total	1.73	1.719	1.692	1.595	1.617
yr4	M.cost	1.204	1.088	1.059	0.958	0.981
	others	0.64	0.64	0.64	0.64	0.64
	total	1.844	1.728	1.699	1.598	1.621
yr5	M.cost	1.255	1.134	1.103	0.997	1.021
	othrrs	0.66	0.66	0.66	0.66	0.66
	total	1.915	1.794	1.763	1.657	1.681
yr6	M.cost	1.318	1.19	1.148	1.046	1.072
	others	0.65	0.65	0.65	0.65	0.65
	total	1.968	1.84	1.798	1.695	1.722
yr7	M.cost	1.383	1.249	1.216	1.098	1.125
	others	0.67	0.67	0.67	0.67	0.67
	total	2.053	1.919	1.886	1.768	1.795
yr8	M.cost	1.452	1.311	1.276	1.153	1.153
	others	0.69	0.69	0.69	0.69	0.69
	total	2.142	2.001	1.966	1.843	1.843
yr9	M.cost	1.524	1.376	1.339	1.21	1.239
	others	0.71	0.71	0.71	0.71	0.71
	total	2.234	2.086	2.049	1.92	1.949
yr10	M.cost	1.6	1.444	1.406	1.27	1.301
	others	0.74	0.74	0.74	0.74	0.74
	total	2.34	2.184	2.146	2.01	2.041
	S,total 10	20.001	18.841	18.518	17.426	17.729
	rg.SHrt cost	2.0001	1.8841	1.8518	1.7426	1.7729

seve	sport slee e	
NO.2	NO.1	NO.2
0.751	0.936	0.806
0.87	0.87	0.87
1.621	1.806	1.676
0.787	0.922	0.845
0.78	0.78	0.78
1.567	1.702	1.625
0.75	0.935	0.8
0.69	0.69	0.69
1.44	1.625	1.49
0.874	1.024	0.938
0.64	0.64	0.64
1.514	1.664	1.578
0.909	1.066	1.976
0.66	0.66	0.66
1.569	1.726	2.636
0.954	1.119	1.025
0.65	0.65	0.65
1.604	1.769	1.675
1.001	1.175	1.076
0.67	0.67	0.67
1.671	1.845	1.746
1.051	1.233	1.129
0.69	0.69	0.69
1.741	1.923	1.819
1.103	1.294	1.185
0.71	0.71	0.71
1.813	2.004	1.895
1.157	1.358	1.244
0.74	0.74	0.74
1.897	2.098	1.984

16.437	18.162	18.124
1.6437	1.8162	1.8124

table 7 staff & salaries

	NO.	salary	total	
managment staff(direct cost)				
manager	1	10000	10000	
assistant	2	9000	18000	
clerks	10	4000	40000	
engineers	4	7000	28000	
unskilled	15	2500	37500	
lab.salry(dirct)				133500
foremen	5	4500	22500	
skilled	19	4000	76000	
unskilled	20	2500	50000	
total	76			148500
total salaries				282000

table 8 depreciation cost

project life	dep.%	tot cost	1 year	2 year	3 year	4 year	5 year	6 yaa	7 year	8 year	9 year	10 year	total
build&costruct.	10	150000	15000	15000	15000	15000	15000	15000	15000	15000	15000	15000	
machin&equip(T&E)	10	450500	45050	45050	45050	45050	45050	45050	45050	45050	45050	45050	
furniture	10	40000	4000	4000	4000	4000	4000	4 00	4000	4000	4000	4000	
air conditioning	10	30000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	
cars	20	40000	8000	8000	8000	8000	8000						
spare parts	50	42050	21025	21025									
license&know_how	20	50000	10000	10000	10000	10000	10000						
consult&studies fe	20	40000	8000	8000	8000	8000	8 0						
total			114075	114075	93050	93050	93050	67050	67050	67050	67050	67050	842550

table 9 fixed ccst

		1year	2year	3year	4year	5year	6year	7year	8year	9year	10year .
	depreciation	114075	114075	93050	93050	93 50	67 50	67050	67050	67050	67050
1.04	insur build,machin)	28525	29666	30852.64	32086.74	33370.21	34705.02	36093.22	37536.95	39038.43	40599.96
1.05	maintenance build,corstr)	3000	3150	3307.5	3472.875	3646.518	3828.844	4 20.286	4221.301	4432.366	4653.984
1.03	salariy(manag. staff)	132540	136516.2	140611.6	144830.0	149174.9	153650.1	158259.6	163007.4	167897.7	172934.6
1.02	car insurance	2000	2040	2080.8	2122.416	2164.864	2208.161	2252.324	2297.371	2343.318	2390.185
1.05	over heads	52734.37	55371.08	58139.64	61046.62	64098. 5	67303.90	7 669.09	74202.55	77912.68	81808.31
	sales commition	7000	8000	9000	10000	10000	10000	10000	10000	10000	10000
1.05	advertising	10000	10500	11025	11576.25	121 5.06	12762.81	134 0.95	14071.00	14774.55	15513.28
1.05	administratives	8000	8400	8820	9261	9 24. 5	10210.25	10 2 .76	11256.80	11819.64	12410.62
1.05	staff insur.& safty	14100	14805	15545.25	16322.51	17138.63	179 5.57	18895.34	19840.11	20832.12	21873.72
	total	371974.3	382523.2	372432.5	383768.4	394523.2	379714.7	391361.6	403483.5	416100.8	429234.7

3925117.

table 10 variable costs

		0.01 1year	2year	3year	4year
	raw material	603750	759000	896568.6	1045996
1.02	threads	6037.5	6158.25	6281.415	6407.043
1.05	buttons	2000	2100	2205	2315.25
1.02	waste	30187.5	30791.25	31407.07	32035.21
1.01	packaging material	6037.5	7590	8965.686	9055.342
1.03	salaries(prod. staff)	149460	153943.8	158562.1	163318.9
1.05	spare parts	21025	21025	22076.25	23180.06
1.01	maintarance(machir&equip)	21025	21235.25	21447.60	21662.07
1.05	power & fuel	10000	10500	11025	11576.25
	tctal	849522.5	1012343.	1158538.	1315546.

		5year	6year	7year	8year	9year	10year	
	raw material	1098295	1153209	1210868	1271410	1334980	1401728	
1.02	threads	6535.184	6665.887	6799.205	6935.169	7073.893	7215.371	
1.05	buttons	2431.012	2552.563	2680.191	2814.200	2954.910	3102.656	
1.02	waste	32675.92	33329.43	33996.02	34675.94	35369.46	36076.85	
1.01	packaging material	9145.896	9237.355	9329.728	9423.026	9517.256	9612.428	
1.03	salaries(prod. staff)	168218.5	173265.1	178463.0	183816.9	189331.4	195011.4	
1.05	spare parts	24339.06	25556..1	26833.81	28175.51	29584.23	31063.50	
1.01	maintarance(machir&equip)	21878.69	22097.48	22318.46	22541.64	22767.06	22994.73	
1.05	power & fuel	12155.06	12762.81	13400.95	14071.00	14774.55	15513.28	tctal
	tctal	1375674.	1438675.	1504689.	1573863.	1646352.	1722218.	13597525

table 11 grand total of materials cost

years	L.sleeve	S.sleeve	C.sleeve	S.sleeve		total	cost of threads & buttons
yr1	170625	149843.7	137593.7	145687.6		603750	8037.5
yr2	214500	188375	172975	183150		759000	8258.25
yr3	253378.1	222517.9	204326.8	216345.9		896568.7	8486.4
yr4	295607.8	299604.2	238381.1	252403.5		1085996.	8722.25
yr5	310387.9	272584.2	250300.1	265023.3		1098295.	8966.2
yr6	325907	286213.2	262814.9	278274.2		1153209.	9218.6
yr7	342201.9	300523.5	275955.4	292187.8		1210868.	9479.4
yr8	359311.7	315549.3	289752.9	306796.8		1271410.	9749.4
yr9	377277.1	331326.7	304240.3	322136.4		1334980.	10028.8
yr10	396140.7	347892.8	319452	338242.9		1401728.	10318.1
						10815808	91264.9
					G.total	10907073	

shrt capacity	per shirt cost of M & B
700000	0.011482
800000	0.010322
00000	0.00 429
1000000	0. 8722
1000000	0.008966
1 00000	0.009218
1000000	0.009479
1000000	0.009749
1000000	0.010028
1000000	0.010318

table 11-1 material cost (#)

increase 10% per annum first year			L.sleeve	S.sleeve	C.sleeve	S.sleeve
design capacity (shirts)			250000	250000	250000	250000
operating capacity			0.7	0.7	0.7	0.7
production volume (shirts)			175000	175000	175000	175000
meters per shirt			2	1.75	1.85	1.85
total meters required			350000	306250	323750	323750
quality NO.1 (50%)		0.5	175000	153125	161875	161875
quality NO.1 per meter cost			0.5	0.5	0.45	0.47
total cost of NO.1 quality			87500	76562.5	72843.75	76081.25
quality NO.2 per meter cost			0.45	0.45	0.4	0.43
total cost of NO.2 quality			78750	68906.25	64750	69606.25
collar hardening 50% forL & S slev)			43750	43750	0	0
per meter cost 0.15			0.1	0.1	0	0
total cost of hardening material			4375	4375	0	0
total cost			170625	149843.7	137593.7	145687.5
grand total	603750	0.5	1.025	0.9	0.8325	0.8695
		87500	0.925	0.8125	0.74	0.7955

collar hardening calculation

shirt requires M)	0.25
no. of shirts	350000
total meters	87500
meter cost	0.1

total cost		8750
L.sleeve	0.5	4375
S,sleeve	0.5	4375

table 11-2 material cost

			L.sleeve	S.sleeve	C.sleeve	S.sleeve
		1.1	0.5	0.5	0.45	0.47
second year			0.45	0.45	0.4	0.43
			0.1	0.1		
design capacity (shirts)			250000	250000	250000	250000
operating capacity			0.8	0.8	0.8	0.8
production volume (shirts)			200000	200000	200000	200000
meters per shirt			2	1.75	1.85	1.85
total meters required			400000	350000	370000	370000
quality NO.1 (50%)		0.5	200000	175000	185000	185000
quality NO.1 per meter cost			0.55	0.55	0.495	0.517
total cost of NO.1 quality			110000	96250	91575	95645
quality NO.2 per meter cost			0.495	0.495	0.44	0.473
total cost of NO.2 quality			99000	86625	81400	87505
collar hardening 50% forL & S slev)			50000	50000	0	0
per meter cost 0.15			0.11	0.11	0	0
total cost of hardening material			5500	5500	0	0
total cost			214500	188375	172975	183150
	::					
grand total	759000	0.5	1.1275	0.99	0.91575	0.95645
		100000	1.0175	0.89375	0.814	0.87505

collar hardeni g calculation

shirt requires	M	0.25	
no. of shirts		400000	
total meters		100000	1.05
meter cost		0.11	0.1
total cost		11000	
L.sleeve	0.5	5500	
S,sleeve	0.5	5500	

table 11-3 material cost(#)

		L.sleeve	S.sleeve	C.sleeve	S.sleeve
	1.1	0.525	0.525	0.4725	0.4935
third year		0.4725	0.4725	0.42	0.4515
		0.105	0.105		
design capacity (shirts)		250000	250000	250000	250000
operating capacity		0.9	0.9	0.9	0.9
production volume (shirts)		225000	225000	225000	225000
meters per shirt		2	1.75	1.85	1.85
total meters required		450000	393750	416250	416250
quality NO.1 (50%)	0.5	225000	196875	208125	208125
quality NO.1 per meter cost		0.5775	0.5775	0.51975	0.54285
total cost of NO.1 quality		129937.5	113695.3	108172.9	112980.6
quality NO.2 per meter cost		0.51975	0.51975	0.462	0.49665
total cost of NO.2 quality		116943.7	102325.7	96153.75	103365.2
collar hardening(50% forL & S slev)		6496.875	6890.625	0	0
per meter cost 0.15		0.1155	0.1155	0	0
total cost of hardening material		6496.875	6496.875	0	0
total cost		253378.1	222517.9	204326.7	216345.9
896568.7					
grand total ---------	0.5	1.183875	1.0395	0.961537	1.004272
	112500	1.068375	0.938437	0.8547	0.918802

collar hardening calculation

shirt requires M)		0.25	
no. of shirts		450000	
total meters		112500	2
meter cost		0.1155	1.05
total cost		12993.75	0.105
L.sleeve	0.5	6496.875	
S,sleeve	0.5	6496.875	

table 11-4 material cost (#)

		L.sleeve	S.sleeve	C.sleeve	S.sleeve
	1.1	0.55125	0.55125	0.496125	0.518175
fourth year		0.496125	0.496125	0.441	0.474075
		0.11025	0.11025		
design capacity shirts)		250000	250000	250000	250000
operating capacity		1	1	1	1
production volume (shirts)		250000	250000	250000	250000
meters per shirt		2	1.75	1.85	1.85
total meters required		500000	437500	462500	462500
quality NO.1 (50%)	0.5	250000	218750	231250	231250
quality NO.1 per meter cost		0.606375	0.606375	0.545737	0.569992
total cost of NO.1 quality		151593.7	132644.5	126201.7	131810.7
quality NO.2 per meter cost		0.545737	0.545737	0.4851	0.521482
total cost of NO.2 quality		136434.3	119380.0	112179.3	120592.8
collar hardening(50% forL & S slev)		7579.687	6890.625	0	0
per meter cost 0.15		0.121275	0.121275	0	0
total cost of hardening material		7579.687	7579.687	0	0
total cost		295607.8	259604.2	238381.1	252403.5
1045996.					
grand total ---------	0.5	1.243068	1.091475	1.009614	1.054486
	125000	1.121793	0.985359	0.897435	0.964742

collar harde i g calculation

shirt requires (M)	0.25	
no. of shirts	500000	
total meters	125000	2
meter cost	0.121275	1.05
total cost	15159.37	0.105
L.slee e	0.5 7579.687	
S,sleeve	0.5 7579.687	

table 11-5 material cost (#)

		L.sleeve	S.sleeve	C.sleeve	S.sleeve
fifth year	1.1	0.578812	0.578812	0.520931	0.544083
		0.520931	0.520931	0.46305	0.497778
		0.115762	0.115762		
design capacity (shirts)		250000	250000	250000	250000
operating capacity		1	1	1	1
production volume (shirts)		250000	250000	250000	250000
meters per shirt		2	1.75	1.85	1.85
total meters required		500000	437500	462500	462500
quality NO.1 (50%)	0.5	250000	218750	231250	231250
quality NO.1 per meter cost		0.636693	0.636693	0.573024	0.598491
total cost of NO.1 quality		159173.3	139276.6	132511.8	138401.1
quality NO.2 per meter cost		0.573024	0.573024	0.509355	0.547555
total cost of NO.2 quality		143256.0	125349.0	117788.3	126622.2
collar hardening(50% forL & S slev)		7958.637	6890.625	0	0
per meter cost 0.15		0.127338	0.127338	0	0
total cost of hardening material		7958.637	7958.637	0	0
total cost		310387.9	272584.2	250300.1	265023.3

1098295.

grand total	---------	0.5	1.305220	1.146047	1.060094	1.107208
		125000	1.177882	1.034626	0.942306	1.012978

cellar hardenirg calculation

shirt equires M)		0.25	
no. of shirts		500000	
total meters		125000	2
meter cost		0.127338	1.05
total cost		15917.27	0.105
L.sleeve	0.5	7958.637	
S,sleeve	.5	7958.637	

table 11-6 material cost

si th year		L.sleeve	S.sleeve	C.sleeve	S.sleeve
	1.1	0.607752	0.607752	0.546977	0.571287
		0.546977	0.546977	0.486202	0.522666
		0.12155	0.12155		
design capacity (shirts)		250000	250000	250000	250000
operating capacity		1	1	1	1
production volume (shirts)		250000	250000	250000	250000
meters per shirt		2	1.75	1.85	1.85
total meters required		500000	437500	462500	462500
quality NO.1 (50%)	0.5	250000	218750	231250	231250
quality NO.1 per meter cost		0.668527	0.668527	0.601674	0.628415
total cost of NO.1 quality		167131.8	146240.3	139137.2	145321.1
quality NO.2 per meter cost		0.601674	0.601674	0.534822	0.574932
total cost of NO.2 quality		150418.6	131616.3	123677.6	132953.1

collar hardening 50% forL & S slev)	8356.562	6890.625	0	0
per meter cost 0.15	0.133705	0.133705	0	0
total cost of hardening material	8356.562	8356.562	0	0
total cost	325907.0	286213.2	262814.9	278274.2

grand total 1153209.

collar hardening calculation

shirt requires M)		0.25
no. of shirts		500000
total meters		125000
meter cost		0.133705
total cost		16713.12
L.slee e	0.5	8356.562
S,slee e	0.5	8356.562

table 11-7 material cost (#)

		L.sleeve	S.sleeve	C.sleeve	S.sleeve
seventh year	1.1	0.638139	0.638139	0.574325	0.599851
		0.574325	0.574325	0.510512	0.548799
		0.127627	0.127627		
design capacity (shirts)		250000	250000	250000	250000
operating capacity		1	1	1	1
production volume (shirts)		250000	250000	250000	250000
meters per shirt		2	1.75	1.85	1.85
total meters required		500000	437500	462500	462500
quality NO.1 (50%)	0.5	250000	218750	231250	231250
quality NO.1 per meter cost		0.701952	0.701952	0.631757	0.659836
total cost of NO.1 quality		175488.2	153552.1	146093.9	152587.0
quality NO.2 per meter cost		0.631757	0.631757	0.561563	0.603678
total cost of NO.2 quality		157939.3	138196.9	129861.4	139600.7
collar hardening 50% forL & S slev)		8774.356	6890.625	0	0
per meter cost 0.15		0.140389	0.140389	0	0
total cost of hardening material		8774.356	8774.356	0	0
total cost		342201.9	300523.5	275955.4	292187.8
1210868.					
grand total	0.5	1.439003	1.263515	1.168751	1.220696
	125000	1.298612	1.140673	1.038891	1.116805

collar hardening calculation

shirt requires M)	0.25	
no. of shirts	500000	
total meters	125000	2
meter cost	0.140389	1.05

total cost		17548.71	0.105
L.sleeve	0.5	8774.356	
S,sleeve	0.5	8774.356	

table 11-9 material cost #)

		L.sleeve	S.sleeve	C.sleeve	S.sleeve
eighth year	1.1	0.670045	0.670045	0.603041	0.629843
		0.603041	0.603041	0.536037	0.576238
		0.134008	0.134008		
design capacity (shirts)		250000	250000	250000	250000
operating capacity		1	1	1	1
production volume (shirts)		250000	250000	250000	250000
meters per shirt		. 2	1.75	1.85	1.85
total meters required		500000	437500	462500	462500
quality NO.1 (50%)	0.5	250000	218750	231250	231250
quality NO.1 per meter cost		0.737049	0.737049	0.663345	0.692827
total cost of NO.1 quality		184262.3	161229.5	153398.5	160216.3
quality NO.2 per meter cost		0.663345	0.663345	0.589640	0.633861
total cost of NO.2 quality		165836.2	145106.7	136354.4	146580.5
collar hardening 50% forL & S slev)		9213.05	6890.625	0	0
per meter cost 0.15		0.147408	0.147408	0	0
total cost of hardening material		9213.05	9213.05	0	0
total cost		359311.7	315549.3	289752.9	306796.8
1271410.					
grand total	0.5	1.510951	1.326688	1.227188	1.281730
	125000	1.363542	1.197706	1.090835	1.172644

collar hardening calculation

shirt requires M)		0.25	
no. of shirts		500000	
total meters		125000	2
meter cost		0.147408	1.05
total cost		18426.1	0.105
L.sleeve	0.5	9213.05	
S,sleeve	0.5	9213.05	

table 11-9 material cost (#)

		L.sleeve	S.sleeve	C.sleeve	S.sleeve
ninth year	1.1	0.703547	0.703547	0.633193	0.661335
		0.633193	0.633193	0.562838	0.605049
		0.140708	0.140708		
design capacity (shirts)		250000	250000	250000	250000
operating capacity		1	1	1	1
production volume (shirts)		250000	250000	250000	250000
meters per shirt		2	1.75	1.85	1.85
total meters required		500000	437500	462500	462500
quality NO.1 (50%)	0.5	250000	218750	231250	231250
quality NO.1 per meter cost		0.773901	0.773901	0.696512	0.727468
total cost of NO.1 quality		193475.4	169290.9	161068.4	168227.0
quality NO.2 per meter cost		0.696512	0.696512	0.619121	0.665553
total cost of NO.2 quality		174128.0	152362.0	143171.9	153909.3
collar hardening(50% forL & S slev)		9673.675	6890.625	0	0
per meter cost 0.15		0.154778	0.154778	0	0
total cost of hardening material		9673.675	9673.675	0	0
total cost		377277.1	331326.7	304240.3	322136.4
grand total 1334980. / ---------	0.5	1.586498	1.393022	1.288547	1.345816
	125000	1.431719	1.257591	1.145375	1.231274

collar hardening calculation

shirt requires M)	0.25	
no. of shirts	500000	
total meters	125000	2
meter cost	0.154778	1.05
total cost	19347.35	0.105
L.sleeve 0.5	9673.675	
S,sleeve 0.5	9673.675	

table 11-10 material cost (#)

		L.sleeve	S.sleeve	C.sleeve	S.sleeve
tenth year	1.1	0.738724	0.738724	0.664852	0.694401
		0.664852	0.664852	0.590979	0.635301
		0.147743	0.147743		
design capacity (shirts)		250000	250000	250000	250000
operating capacity		1	1	1	1
production volume (shirts)		250000	250000	250000	250000
meters per shirt		2	1.75	1.85	1.85
total meters required		500000	437500	462500	462500
quality NO.1 (50%)	0.5	250000	218750	231250	231250
quality NO.1 per meter cost		0.812596	0.812596	0.731337	0.763841
total cost of NO.1 quality		203149.1	177755.4	169121.7	176638.2
quality NO.2 per meter cost		0.731337	0.731337	0.650076	0.698831
total cost of NO.2 quality		182834.3	159980.0	150330.2	161604.6
collar hardening(50% forL & S slev)		10157.33	6890.625	0	0
per meter cost 0.15		0.162517	0.162517	0	0
total cost of hardening material		10157.33	10157.33	0	0
total cost		396140.7	347892.8	319452.0	338242.9
1401728.					
grand total	0.5	1.665822	1.462673	1.352973	1.413106
	125000	1.503303	1.320469	1.202642	1.292837

collar ardening calculation

shirt requires M		0.25	
no. of shirts		500000	
total meters		125000	2
meter cost		0.162517	1.05
total cost		20314.66	0.105
L.sleeve	0.5	10157.33	
S,sleeve	0.5	10157.33	

table 12 sale price per shirt

	L sleeve		S sleeve		C shirt		S shirt	
	NO.1	NO.2	NO.1	NO.2	NO.1	NO.2	NO.1	NO.2
yr1	2.1	1.97	1.94	1.83	1.86	1.72	1.91	1.89
yr2	2.1	1.97	1.94	1.83	1.86	1.72	1.91	1.89
yr3	2.1	1.97	1.94	1.83	1.86	1.72	1.91	1.89
yr4	2.1	1.97	1.94	1.83	1.86	1.72	1.91	1.89
yr5	2.205	2.068	2.037	1.921	1.953	1.806	2.005	1.984
yr6	2.315	2.171	2.138	2.017	2.05	1.896	2.105	2.083
yr7	2.43	2.279	2.244	2.117	2.152	1.99	2.21	2.187
yr8	2.551	2.392	2.356	2.222	2.259	2.089	2.32	2.[illegible]96
yr9	2.678	2.511	2.473	2.333	2.371	2.193	2.436	2 41
yr10	2.811	2.636	2.596	2.449	2.489	2.302	2.557	2.53
10	23.39	21.937	21.604	20.379	20.714	19.156	21.273	21. 5
Av.C.shrt	2.339	2.1937	2.1604	2.0379	2.0714	1.9156	2.1273	2.1 5

table 13 prices & income

shirt prices increase 5% per annum from 5-10 years

year 1

types	price NO1	quantity	total	price NO2	quantity	total	G.total
L.sleev	2.1	87500	183750	1.97	87500	172375	356125
S.sleev	1.94	87500	169750	1.83	87500	160125	329875
C.shirt	1.86	87500	162750	1.72	87500	150500	313250
S.shirt	1.91	87500	167125	1.89	87500	165375	332500
							1331750

year 2

	2.1			1.97			
1	1.94			1.83			
	1.86			1.72			
	1.91			1.89			
types	price 1	quantity	total	price 2	quantity	total	G.total
L.sleev	2.1	100000	210000	1.97	100000	197000	407000
S.sleev	1.94	100000	194000	1.83	100000	183000	377000
C.shirt	1.86	100000	186000	1.72	100000	172000	358000
S.shirt	1.91	100000	191000	1.89	100000	189000	380000
							1522000

year 3

1	2.1	1.97
	1.94	1.83
	1.86	1.72
	1.91	1.89

types	price 1	quantity	total	price 2	quantity	total	G.total
L.sleev	2.1	112500	236250	1.97	112500	221625	457875
S.sleev	1.94	112500	218250	1.83	112500	205875	424125
C.shirt	1.86	112500	209250	1.72	112500	193500	402750
S.shirt	1.91	112500	214875	1.89	112500	212625	427500
							1712250

year 4

1	2.1	1.97
	1.94	1.83
	1.86	1.72
	1.91	1.89

types	price 1	quantity	total	price 2	quantity	total	G.total
L.sleev	2.1	125000	262500	1.97	125000	246250	508750
S.sleev	1.94	125000	242500	1.83	125000	228750	471250
C.shirt	1.86	125000	232500	1.72	125000	215000	447500
S.shirt	1.91	125000	238750	1.89	125000	236250	475000
							1902500

year 5

1.05	2.1	1.97
	1.94	1.83
	1.86	1.72
	1.91	1.89

types	price 1	quantity	total	price 2	quantity	total	G.total
L.sleev	2.205	125000	275625	2.0685	125000	258562.5	534187.5
S.sleev	2.037	125000	254625	1.9215	125000	240187.5	494812.5
C.shirt	1.953	125000	244125	1.806	125000	225750	469875
S.shirt	2.0055	125000	250687.5	1.9845	125000	248062.5	498750
							1997625

year 6

1. 5	2.205	2.0685
	2.037	1.9215
	1.953	1.806
	2.005	1.9845

types	price 1	quantity	total	price 2	quantity	total	G.total
L.sleev	2.31525	125000	289406.2	2.171925	125000	271490.6	560896.8
S.sleev	2.13885	125000	267356.2	2.017575	125000	252196.8	519553.1
C.shirt	2. 5065	125000	256331.2	1.8963	125000	237037.5	493368.7
S.shirt	2.10525	125000	263156.2	2.083725	125000	260465.6	523621.8
							2097440.

year 7

1.05	2.315	2.171
	2.138	2.017
	2.05	1.896
	2.105	2.083

types	price 1	quantity	total	price 2	quantity	total	G.total
L.sleev	2.43075	125000	303843.7	2.27955	125000	284943.7	588787.5
S.sleev	2.2449	125000	280612.5	2.11785	125000	264731.2	545343.7
C.shirt	2.1525	125000	269062.5	1.9908	125000	248850	517912.5
S.shirt	2.21025	1.5000	.76231.2	2.18715	125000	273393.7	549675
							2201718.

ar 8
- -

1. 5 2.43 2.279
2.244 2.117
2.152 1.99
2.21 2.187

types	price 1	quantity	total	price 2	quantity	total	G.total
L.sleev	2.5515	125000	318937.5	2.39295	125000	299118.7	618056.2
. le v	2.3562	125000	294525	2.22285	125000	277856.2	572381.2
C.shirt	2.2" 6	125000	282450	2.0895	125000	261187.5	543637.5
S. irt	2.3205	125000	290062.5	2.29635	125000	287043.7	577106.2
							2311181.

year 9
---- --

1.05 2.551 2.392
2.356 2.222
2.259 2.089
2.32 2.2°6

types	price 1	q antity	total	price 2	quantity	total	G.total
L.sleev	2.67855	125000	334818.7	2.5116	125000	313950	648768.7
S.sleev	2.4 38	125000	309225	2.3331	125000	291637.5	600862.5
C. hirt	2.3 195	125000	296493.7	2.19345	125000	274181.2	570675
S.s irt	2.436	125000	304500	2.4108	125000	301350	605850
							2426156.

year 10

1.05	2.678			2.511			
	2.473			2.333			
	2.371			2.193			
	2.436			2.41			
types	price 1	quantity	total	price 2	quantity	total	S.total
L.sleev	2.8119	125000	351487.5	2.63655	125000	329568.7	681056.2
S.sleev	2.59665	125000	324581.2	2.44965	125000	306206.2	630787.5
C.shirt	2.48955	125000	311193.7	2.30265	125000	287831.2	599025
S.shirt	2.5578	125000	319725	2.5305	125000	316312.5	636037.5
							2546906.

table 14 income statement

	1yr	2yr	3yr	4yr	5yr	6yr	7yr	8yr	9yr	10yr	total
sales icome	1331750	1522000	1712250	1902500	1997625	2097440	2201718	2311181	2426156	2546906	20049526
(-)production cost	1221496	1394866	1530971	1699314	1770197	1818390	1896051	1977347	2062453	2151552	17522637
gross profit E.B.I.T)	110254	127134	181279	203186	227428	279050	305667	333834	363703	395354	2526889
(-) interest	38704.8	31693.7	24904.6	18339.6	12000						125642.7
(-) tax											
net profit	71549.2	95440.3	156374.4	184846.4	215428	279050	305667	333834	363703	395354	0 2401246.

table 15 cash flow

	zero	1yr	2yr	3yr	4yr	5yr	6yr	7yr	8yr	9yr	10yr
1-inflow											
sales	0	1331750	1522000	1712250	1 02500	1997625	2097440	2201718	2311181	2426156	2546906
working capital	0	0	0	0	0	0	0	0	0	0	0
others	0	0	0	0	0	0	0	0	0	0	0
total inflow	0	1331750	1522000	1712250	1902500	1997625	2097440	2201718	2311181	2426156	2546906
2-outflow											
paid capital	704776										
current expenses	0	1107421	1280791	1437921	1606264	1677147	1751340	1829001	1910297	1995403	2084502
loan instalment	0	100000	100000	100000	100000	100000					
loan interests	0	38704.8	31693.7	24904.6	18339.6	12 00					
renew cars							45000				
tax											
total outflow	704776	1246125.	1412484.	1562825.	1724603.	1789147	1796340	1829001	1910297	1995403	2084502
net cash flow	-704776	85624.2	109515.3	149424.4	17 896.4	208478	301100	372717	400884	430753	462404

```
balance  total
 --- ---- --------


         20049526
332226.3 332226.3
       0        0
-----------------
332226.3 20381752
-----------------



          16680087
            500000
          125642.7
             45000

-----------------
       0 17350729
-----------------T.C F

332226.3 3031022. 1994020.
         =========
```

table 16 capital structure

fixed capital	872550
working capital	332226.3
total ivestment	1204776.
paid capital	704776
loan (12% intrest 5 years)	500000
total	1204776

table 17 loan payments & interests

		loan	500000		
		interest	0.12		
		term	5 years		
		100000		0.12	total
				interest	payment
			yr1	38704.8	138704.8
			yr2	31693.7	131693.7
			yr3	24904.6	124904.6
			yr4	18339.6	118339.6
princ	100000		yr5	12000	112000
intrst	0.12				
term	1				
payment	112000			125642.7	625642.7

table 18 net present value

years	cash flow	Disc.in rate 10%	NPV in Disc.10%	Disc.in rate 12%	NPV in Dsc. 12%
year 0	-704776	1	-704776	1	-704776
1yr	85624.2	0.909	77832.39	0.893	76462.41
2yr	109515.3	0.826	90459.63	0.797	87283.69
3yr	149424.4	0.751	112217.7	0.712	106390.1
4yr	177896.4	0.683	121503.2	0.636	113142.1
5yr	208478	0.621	129464.8	0.567	118207.0
6yr	301100	0.564	169820.4	0.507	152657.7
7yr	372717	0.513	191203.8	0.452	168468.0
8yr	400884	0.467	187212.8	0.404	161957.1
9yr	430753	0.424	182639.2	0.361	155501.8
10yr	462404	0.386	178487.9	0.322	148894.0
WC.retain	332226.3	0.35	116279.2	0.287	95348.94
	2326246.		-704776		-704776
			1557121.		1384313.
			852345.3		679537.2

Disc.in rate 15%	NPV in Dsc. 15%	Disc.in rate 20%	NPV in Disc. 20%	Disc.in rate 21%
1	-704776	1	-704776	1
0.87	74493.05	0.833	71324.95	0.8264
0.756	82793.56	0.694	76003.61	0.683
0.658	98321.25	0.579	86516.72	0.5645
0.572	101756.7	0.482	85746.06	0.4665
0.497	103613.5	0.402	83808.15	0.3855
0.432	130075.2	0.335	100868.5	0.3186
0.367	136787.1	0.279	103988.0	0.2633
0.327	131 89.0	0.233	93405.97	0.2176
0.284	122333.8	0.194	83566.08	0.1799
0.247	114213.7	0.162	74909.44	0.1486
0.215	71428.65	0.135	44850.55	0.1228
	-704776		-704776	
	1166905.		904988.1	
	462129.8		200212.1	

NPV in Disc. 21%
-704776
70759.83
74798.94
84350.07
82988.67
80368.26
95930.46
98136.38
87232,35
77492.46
68713.23
40797.38
-704776
861568.0
156792.0

Disc.in rate 22%	NPV in Disc. 22%
1	-704776
0.8197	70186.15
0.6719	73583.33
0.5507	82288.01
0.4514	80302.43
0.37	77136.86
0.3033	91323.63
0.2486	92657.44
0.2038	81700.15
0.167	71935.75
0.1369	63303.10
0.1122	37275.79
	-704776
	821692.6
	116916.6

Disc.in rate 23%	NPV in Disc. 23%
1	-704776
0.823	70468.71
0.661	72389.61
0.5374	80300.67
0.4369	77722.93
0.3552	74051.38
0.2888	86957.68
0.2348	87513.95
0.1909	76528.75
0.1552	66852.86
0.1262	58355.38
0.1026	34086.41
	-704776
	785228.3
	80452.38

Disc.in t 2 %	NPV in Di c. 24%
1	-704776
0.8065	69055.91
0.6504	71228.75
0.5245	8373.09
0.423	75250.17
0.3411	71111.84
0.2 51	82832.61
0.2218	8.668.63
0.1789	71718.14
0.1443	62157.65
0.1164	53823.82
0.0938	31162.82
	704776
	749383.4
	44607.48

Disc. in rate 25%	NPV in Disc 25%
1	-704776
0.8	62265.91
0.64	57894.16
0.512	57455.47
0.4096	49767.72
0.3277	42425.62
0.2621	44509.92
0.2097	40095.44
0.1678	31414.31
0.1342	24510.19
0.1074	19169.60
0.0859	9988.383
	-704776
	439496.7
	-265279.

table 19 internal rate of return

IRR=D1+PV D2-D1)/PV+NV

PV:positive value ofnet present value = 47139.48
NV:nagative value of net present value =265279
D1:least discount rate with postive NPV close to zero=24
D2:great discount rate with nagative NPV close to zero=25

IRR=24+47139.48(25-24)/47139.48+265279=24.15%

table 20 pay back period

	net profit	depreciation	total	
yr1	71549.2	114075	185624.2	
yr2	95440.3	114075	209515.3	
yr3	156374.4	67050	223424.4	
yr4	184846.4	67050	251896.4	
yr5	215428	67050	282478	1152938.
yr6	279050	67050	346100	
yr7	305667	67050	372717	
yr8	333834	67050	400884	
yr9	363703	67050	430753	
yr10	395354	67050	462404	
	2401246.			

pay back period =5 years & two months

table 21 break-even point
----

average fi ed costs=392511.7
average income sales=2004952.6
average variable costs=1359752.5
average production capacity=940000

break-even point =392511.7 * 940000 / 2004952.6 - 1359752.5

=571855 shirts
=60.8% of the capacity

CHAPTER SEVEN

PROPOSED SHIRT PLANT:
WHY JOINT VENTURE?
WHY BETWEEN KUWAIT AND MOROCCO

7.1 The Importance of Joint Venture

As discussed in Chapter 1, Joint Venture reflects the interests of two parties setting up commercial organizations to carry out agreed economic activities over periods of time.

The general factor explaining the importance of establishing inter-Arab joint ventures is the complementary nature of the resources and interests between the parties in such ventures. One of the basic contemporary divisions in the Arab World is that which classifies its states into two groups: one accumulating large liquid assets in excess of its present absorptive capacity, and the other suffering from acute shortages in financial resources while having, in most cases, a greater absorptive capacity than that of the first group. States of the first group are seeking investment opportunities abroad while those in the second group are offering investment opportunities to outside financiers. Under these circumstances, the joint venture formula presents itself as a means of strengthening political ties between the two groups and creating a better investment climate in the Arab capital-importing states.

In view of the limited production capabilities of each Arab country, the objective of Arab economic integration seems to be unattainable through trade liberalization measures only. Along with such measures, the volume and quality of the production of goods and services in each Arab country should therefore be such as to allow for meaningful trade among these countries. One of the most important means of achieving such changes in the pattern and scale of production capabilities in the region, is the creation of joint ventures with greater resources than those available at present to national enterprises.

Accordingly, it is recommended that a Shirt Plant set up on a joint venture basis. The candidates for this venture are Kuwait as a capital-exporting country and Morocco as capital importing country.

7.2 General Success Elements Of Investment In Morocco

Various indicators from the past show that investment in Morocco has a good chance of success. Some of the reasons are:

1. Political stability.

2. A liberal economy.

3. The openness to the outside world especially to Europe due to the special relation with France and hence to the markets of the EEC.

4. The success of the tourism activities.

5. The availability of a relatively skilled and low cost labourforce.

6. The well built infrastructures especially the communication system.

7. The large potential local market.

8. Morocco is geographically situated away from Arab Israeli involvements.

9. The lack of indigenous capital renders the Moroccon government receptive to foreign investment. The investment environment is under continuous scrutiny and is designed in order to attract outside investors. This is reflected in tax exemption, freely transferred money and other legislative investment facilities.

7.3 Success Elements in the Joint Venture between Kuwait and Morocco

The proposed shirt plant is thought to have a good chance of success. It is set up in Morocco based on a joint venture with Kuwait. In some measure, the success of the proposal will be due to the following:

1. The availability of a generally favourable political atmosphere among the partners. The past experience of inter-Arab joint venture indicates that the establishment of the joint venture investment among Arab states was and still is subjected to political

developments in the area. This factor has been so important that it may be considered the single factor in such projects in recent years. Past experience shows that economic, political and social relationships between Kuwait and Morocco have been favourable at all levels. Some private Kuwait investors have previously invested in Morocco as well as the Kuwaiti government. As a result, the Moroccon government has waived visa requirements for Kuwaiti nationals entering the country.

2. The Kuwaiti policy of investment abroad favours the joint venture rather than the supply of straight loans.

3. The Kuwaiti government has already set up a body called Kuwait Fund for Economic and Social Development (KFESD). This organisation performs financial transactions with Arab states and some of the non-Arab states in Africa and Asia, which are preferably on a joint venture basis.

4. KFESD policy is to deal in relatively small businesses and with no long term loans. The proposed shirt plant is modelled to its requirements.

5. The identification of a clear economic interest for both partners in the implementation of the proposed project. This complementary interest can be identified as Kuwait having the money and looking for reasonably profitable investment, the Moroccons having the market, the labour and looking for a sponsor.

6. The proximity of Morocco to Europe and the preference of its goods in the European market makes the proposed project viable in terms of marketing potential. This is an additional attraction for the Kuwait/Morocco joint venture.

7. The European influence in Morocco, particular that of France, through various economic and social activities, has created an economically viable climate in which Moroccon nationals are able to participate commercially.

8. Due to the various risks to which Arab investments were and still are subject to abroad, Kuwaiti investors (public and private) prefer the Arab world as a potential market for their investment. The proposed project demonstrates a sympathy with these aspirations.

9. The distributions of wealth among Arab states has done a great harm to Arab unity and created a feeling of hatred between Arab peoples. Statistics show that Kuwait as an oil producing state has the highest per-capita income, while Morocco as non-oil producing state has the lowest per-capita income. The proposed Kuwait/Morocoo joint shirt project will be a step forward in reducing the income gap and consequently will create a good feelings among their peoples as they both believe that they belong to one nation and should share Arab wealth. In the long term, it is to be hoped that joint venture projects will eventually improve the quality of life in the poorer Arab countries and lead to Arab economic, social and political stability.

10. The inflow of Kuwaiti capital to Morocco would allow Morocco to increase its rates of investment in human resources and productive capacities. Hence increase the regional availability of skills for the Kuwaiti economy.

CHAPTER EIGHT

CONCLUSION

Arab secondary industry is believed to be a good area of investment if it is based on joint venture between Arab countries. Textile and in particular shirt production has been chosen as a pilot development. The factors acting in favour of this proposal are:

- small capital requirement

- the technology whilst sophisticated is one which is labour intensive

- skills are created which could lead to greater diversity

- employment opportunities are created

- opens the way for the development of raw materials production in the Arab world.

Kuwait and Morocco have been chosen for the joint venture; Kuwait to provide the capital, Morocco the production base. The reasons for this choice are several, for example:

- the similarity of the political systems of both countries

- Morocco is remote from the site of Arab-Israeli conflict

- the nearness of Morocco to Europe and the various links and cooperation with EEC states particularly France offers marketing possibilities that are attractive to Kuwait investors.

CHAPTER NINE

FUTURE WORK

It is very likely that this work can further be developed in terms of expansion in the future. According to projected figures, consumption of textile as a whole will be increased over the next ten years. This will create the opportunity for the proposed shirt plant in Morocco to expand by producing more shirts with different types and sizes. On the other hand, expansion can be taken place by diversifying the range of production e.g. producing mens' suits and trousers in particular. This requires using more machines, equipment, capital and labour. By this process, although it takes time, an integrated textile industry could be developed.

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Appendix 1

Installed Projects for Basic Petrochemical Products in the Arab Countries as of Mid 1985

(Design capacity in thousand tons/year)

	Algeria	Bahrain	Egypt	Iraq	Kuwait	Libya	Qatar	Saudi Arabia	U.A.E.	Total
OLEFINS										
Ethylene	120	-	-	135	-	330	280	1606	-	2471
Propylene	-	-	-	-	-	165	5	-	-	170
Butadiene	-	-	-	-	-	-	-	-	-	-
Butene-1	-	-	-	-	-	-	-	-	-	-
AROMATICS										
Benzene	95	-	-	-	-	-	-	-	-	95
Orthoxylene	-	-	-	-	-	-	-	-	-	-
Paraxylene	38	-	-	-	-	-	-	-	-	38
ALCOHOLS										
Methanol	100	330	-	-	-	660	-	1250	-	2340
Ethanol	-	-	-	-	-	-	-	-	-	-

SOURCE: Direct information from the member countries.

Appendix 2

Under Construction Projects for Basic Petrochemical Products in the Arab Countries as of Mid 1985
(Design capacity in thousand tons/year)

	Algeria	Bahrain	Egypt	Iraq	Kuwait	Libya	Qatar	Saudi Arabia	U.A.E.	Total
OLEFINS										
Ethylene	-	-	-	-	-	-	-	-	-	-
Propylene	-	-	-	-	-	-	-	-	-	-
Butadiene	-	-	-	-	-	50	-	124	-	174
Butene-1	-	-	-	-	-	-	-	80	-	90
AROMATICS										
Benzene	-	-	-	17	25	-	-	-	-	42
Orthoxylene	-	-	-	-	-	-	-	-	-	-
Paraxylene	-	-	-	-	-	-	-	-	-	-
ALCOHOLS										
Methanol	-	-	-	-	-	-	-	-	-	-
Ethanol	-	-	-	-	-	-	-	-	-	-

SOURCE: Direct information from the member countries.

Appendix 3

Planned Projects for Basic Petrochemical Products in the Arab Countries as of Mid 1985
(Design capacity in thousand tons/year)

	Algeria	Bahrain	Egypt	Iraq	Kuwait	Libya	Qatar	Saudi Arabia	U.A.E.	Total
OLEFINS										
Ethylene	-	-	200	-	-	-	-	-	-	200
Propylene	50	-	-	-	-	-	-	-	-	50
Butadiene	-	-	50	-	-	-	-	-	-	50
Butene-1	-	-	-	-	-	-	-	-	-	-
AROMATICS										
Benzene	-	-	-	-	-	-	-	-	-	-
Orthoxylene	-	-	-	-	-	-	-	-	-	-
Paraxyle	-	-	40	-	-	-	-	-	-	40
ALCOHOLS										
Methanol	-	-	-	-	-	-	-	-	825	825
Ethanol	-	-	-	-	-	-	-	-	-	-

SOURCE: Direct information from the member countrie

Appendix 4
Installed Projects for Intermediate Petrochemical
Products in the Arab countries as of Mid 1985
(Design capacity in thousand tons/year)

	Algeria	Egypt	Iraq	Kuwait	Libya	Saudi Arabia	Tunisia	Total
Ethylene dichloride	-	-	-	-	-	454	-	454
Ethylene glycol	-	-	-	-	-	-	-	-
Styrene	-	-	-	-	-	295	-	295
Monovinyl chloride	40	-	66	-	-	-	-	106
Formaldehyde	-	-	-	-	-	-	-	-
Dimethyl terephthalate	-	-	-	-	-	-	-	-
Phthalic anhydride	-	-	-	-	-	-	-	-

Source: Direct information from the member countries.

Appendix 5
Under Construction Projects for Intermediate Petrochemical Products in the Arab countries as of Mid 1985
(Design capacity in thousand tons/year)

	Algeria	Egypt	Iraq	Kuwait	Libya	Saudi Arabia	Tunisia	Total
Ethylene dichloride	-	-	-	-	-	-	-	-
Ethylene glycol	-	-	-	-	50	520	-	570
Styrene	-	-	-	-	-	-	-	-
Monovinyl chloride	-	100	-	-	-	300	-	400
Formaldehyde	-	-	-	-	-	-	12	12
Dimethyl terephthalate	-	-	-	-	-	-	-	-
Phtalic anhydride	-	-	-	-	-	-	-	-

Source: Direct information from the member countries.

Appendix 6

Planned Projects for Intermediate Petrochemical Products in the Arab countries as of Mid 1985
(Design capacity in thousand tons/year)

	Algeria	Egypt	Iraq	Kuwait	Libya	Saudi Arabia	Tunisia	Total
Ethylene dichloride	-	-	-	-	-	-	-	-
Ethylene glycol	-	30	-	-	-	-	-	30
Styrene	150	-	-	-	175	-	-	325
Monovinyl chloride	-	-	-	-	65	-	-	65
Formaldehyde	-	-	-	-	-	-	-	-
Dimethyl terephthalate	50	25	-	-	-	-	-	75
Phthalic anhydride	-	-	-	-	-	-	-	-

Source: Direct information from the member countries.

Appendix 7

Installed Projects for Final Petrochemical Products in the Arab Countries as of Mid 1985
(Design capacity in thousand tons/year)

	Algeria	Egypt	Iraq	Kuwait	Libya	Qatar	Saudi Arabia	Tunisia	Morocco	Total
PLASTICS										
Polyethylene LD	48	-	60	-	-	140	460	-	-	708
Polyethylene HD	-	-	30	-	-	-	-	-	-	30
Polypropylene	-	-	-	-	-	-	-	-	-	-
Polyvinyl chloride	35	-	60	-	60	-	47	-	25	227
Polystyrene	-	-	-	-	-	-	-	-	-	-
Melamine	-	-	-	-	-	-	-	-	-	-
Polyurethane	-	-	-	-	-	-	-	-	-	-
Polyol	-	-	-	-	-	-	-	-	-	-
PAINTS										
Polyvinyl acetate	-	-	-	-	-	-	-	-	6	6
SYNTHETIC FIBERS										
Polyester	-	25	-	-	-	-	-	-	-	25
SYNTHETIC RUBBERS										
Styrene butadiene	-	-	-	-	-	-	-	-	-	-
Polybutadiene	-	-	-	-	-	-	-	-	-	-
Carbon black	-	-	-	-	-	-	-	-	-	-
SYNTHETIC DETERGENTS										
L.Alkyl benzene	-	-	-	-	-	-	-	-	-	-
OCTANE IMPROVERS										
M.T.B.E.	-	-	-	-	-	-	-	-	-	-
PLASTICISERS	-	-	-	-	-	-	-	-	-	-
OXO ALCHOLS	-	-	-	-	-	-	-	-	-	-

SOURCE: Direct information from the member countries.

Appendix 8

Under Construction Projects for Final Petrochemical Products in the Arab Countries as of Mid 1985

(Design capacity in thousand tons/year)

	Algeria	Egypt	Iraq	Kuwait	Libya	Qatar	Saudi Arabia	Tunisia	Morocco	Total
PLASTICS										
Polyethylene LD	-	-	-	-	130	-	130	-	-	260
Polyethylene HD	-	-	-	-	80	-	90	-	-	170
Polypropylene	-	-	-	-	68	-	-	-	-	68
Polyvinyl chloride	-	80	-	-	-	-	200	-	-	280
Polystyrene	-	-	-	-	-	-	-	-	-	-
Melamine	-	-	-	-	-	-	20	-	-	20
Polyurethane	-	-	-	-	-	-	-	-	-	-
Polyol	-	-	-	-	-	-	-	-	-	-
PAINTS										
Polyvinyl acetate	-	-	-	-	-	-	-	-	-	-
SYNTHETIC FIBERS										
Polyester	-	-	-	-	-	-	-	-	-	-
SYNTHETIC RUBBERS										
Styrene butadiene	-	-	-	-	-	-	-	-	-	-
Polybutadiene	-	-	-	-	-	-	-	-	-	-
Carbon black	-	-	-	-	-	-	-	-	-	-
SYNTHETIC DETERGENTS										
L.Alkyl benzene	-	40	50	-	-	-	-	-	-	90
OCTANE IMPROVERS										
M.T.B.E	-	-	-	-	-	-	500	-	-	500
PLASTICISERS	-	-	-	-	-	-	-	-	-	-
OXO ALCHOLS	-	-	-	-	-	-	-	-	-	-

SOURCE: Direct Information from the member countries.

Appendix 9
Planned Projects for Final Petrochemical Products in the Arab Countries as of Mid 1985
(Design capacity in thousand tons/year)

	Algeria	Egypt	Iraq	Kuwait	Libya	Qatar	Saudi Arabia	Tunisia	Morocco	Total
PLASTICS										
Polyethylene LD	80	90	-	-	-	-	-	-	-	170
Polyethylene HD	75	40	-	-	-	70	-	-	-	185
Polypropylene	-	40	-	62	-	-	-	-	-	102
Polyvinyl chloride	-	-	-	-	60	-	23	-	-	83
Polystyrene	-	-	-	-	-	-	95	-	-	95
Melamine	-	-	-	-	-	-	-	-	-	-
Polyurethane	-	-	-	-	-	-	12	-	-	12
Polyol	-	-	-	-	-	-	3	-	-	3
PAINTS										
Polyvinyl acetate	-	-	-	-	-	-	-	-	-	-
SYNTHETIC FIBERS										
Polyester	50	-	-	-	-	-	-	18	-	18
SYNTHETIC RUBBERS										
Styrene butadiene	-	-	-	-	45	-	-	-	-	45
Polybutadiene	-	-	-	-	25	-	-	-	-	25
Carbon black	-	10	-	-	20	-	-	-	-	30
SYNTHETIC DETERGENTS										
L.Alkyl benzene	50	-	-	-	-	-	-	-	-	50
OCTANE IMPROVERS										
M.T.B.E.	-	-	-	-	-	-	-	-	-	-
PLASTICISERS	40	-	-	-	-	-	-	-	-	40
OXO ALCHOLS	50	-	-	-	-	-	-	-	-	50

SOURCE: Direct information from the member countries.

Appendix 10

List of Questionnaires Made to Oil-Producing States Regarding Petrochemical Industry in the Arab Worl

- Country	:			
- Organization	:			
- Establishment Date	:			
- Products	:			
- Production Cost (Unit Cost)	:			
- Rate of Return	:			
- Number of Plants	:	Basic products	Intermediate	Final
State Number		( )	( )	( )
- Staff	:	Management	Skilled Worker	Unskilled Worker
State Number		( )	( )	( )
- Capital Investment	:	Basic products	Intermediate	Final
State Capital		( )	( )	( )
- Design Capital	:	Installed -	Under Construction -	Planned -
State Quantity		Basic ( )	Basic ( )	Basic ( )
		Interm( )	Interm( )	Interm( )
		Final ( )	Final ( )	Final ( )
- Ownership	:	Government	Private	Mixed
		( )	( )	( )
- Type of Investment	:	National	Arab to Arab	Arab to Foreign
State Names of Dividence			Joint Project	Joint Project
		( )	( )	( )
- Outputs Market	:	Domestic Market	Regional Market	Foreign Market
State Importing Countries and Quotas		( )	( )	( )
- Feedstocks Sources	:	Domestic Market	Regional Market	Foreign Market
State Type of Raw Materials		( )	( )	( )

Organisation visited and replies received: