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**THE HIGHER TECHNOLOGY SECTOR IN THE SYRIAN
ARAB REPUBLIC (ELECTRONICS AND COMPUTERS) IN THE
LIGHT OF IMPENDING REGIONAL AND INTERNATIONAL CHANGE***

by

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I. Introduction

A. Background

The next few years will be a period of extraordinary economic challenge for Syria. The country will be called upon to harness the opportunities provided by the system of trade and production introduced by eventual Syrian adherence to the World Trade Organization (WTO) and the European Partnership (Euro-Med) agreement, and which comprehensive regional peace could enhance. These will be both cause and result of major economic changes taking place in the region. Meanwhile, rapid technological progress offers the potential of a more dynamic pattern of economic development; but for a positive scenario to unfold, much is required, and one of the toughest criticisms made against Syria today is weakness in high tech.

This is a study of the “higher” technology sector in the Syrian economy. Comprising electronics and computers (E&C), this sector cannot be described as high tech as it encompasses mainly relatively low technology activities, such as simple assembly of some electronic products. Nevertheless, in relation to much of the rest of the economy, this sector’s technology is “higher.” In addition, parts of the sector are looking to progress towards high tech.

Compared to some other countries in the region, E&C is a subject generally absent from the Syrian media; economic meetings organized in the country by government or private bodies (often in cooperation with international organizations) rarely discuss the E&C sector. Economic studies done locally do not often choose E&C as their subject, and decisions or information rarely come from the government or a private party concerning this sector (e.g. on export encouragement, ISO, investment, meetings with visiting commercial delegations, etc.). Lately, however, international and regional organizations have been more active in studying E&C sector development in the country; among others, these include ESCWA, the Arab Fund for Economic and Social Development and UNIDO.

B. Scope of Work

This paper will examine:

1. The Syrian government’s policy towards the E&C sector including:
 - a. Incentives: subsidies, tax and/or financial incentives, export promotion etc.
 - b. State regulations concerning the sector: entry barriers, licensing, trade regime etc.
 - c. Support institutions: marketing organizations, export centers, information networks, advisory services, standardization centers, design and R&D support, and other facilities and support services.
 - d. State ownership of firms of the sector.

2. Performance of the sector and its competitiveness:
 - a. Major problems.
 - b. Productivity in relation to labor costs, capital intensity, level of technology, technology cost, value added content, cost of raw materials and their sources.

- c. Competitiveness in export markets: export performance, problems faced in export markets, value of exports as compared to production, and the position of companies in relation to major international competitors.
 - d. Competitiveness in the Syrian market against local and foreign products.
 - e. Subcontracting.
 - f. Competitive advantage over foreign products.
3. Perception of owners and managers of firms towards the impact of eventual peace:
 - a. Future relations with Israel as perceived by firms, in terms of competitiveness, technology transfer, markets, co-operation and subcontracting, etc.
 - b. Action to be undertaken by firms to cope with peace: restructuring of the company, specialization, better technologies, partnerships, etc.

C. Methodology

In order to collect the relevant data, a survey of twenty Syrian firms in the E&C sector was made. The firms were chosen to reflect broadly the country's E&C sector. Interviews were carried out with owners or managers of these enterprises. Information was also obtained from other private sector organizations as well as government entities.

Information in general and statistics in particular are usually a problem in looking at the Syrian economy. Traditionally, both firms and government hide details of their work from outsiders. In the private sector, most firms were unwilling to give detailed or specific information. In the public sector, the limited information available was often not up to date. In most cases it was not possible to obtain detailed answers to specific questions.

D. The Electronics Subsector

Three larger firms compose the electronics subsector in Syria. The first, Syronics, was established in 1960 and started production in 1964. After that, the industry developed very slowly. The Syrian private sector was unable to act in this regard, being hit by nationalization and other problems in the mid-sixties. On the other hand, the Syrian government itself did not try to develop the electronics subsector. In the seventies, tens of factories were established by government, but very little state investment went into the electronics subsector which was almost neglected. Syrcotel, the second firm to be established in the subsector, was set up in 1975 but does not produce and is being wound up. The subsector's third component, the Syrian-Korean Company (SKC), has just been established. The latter two firms will be discussed below, but our analysis will necessarily concentrate on Syronics.

Syronics is responsible for production of television sets, telephones and small telephone exchanges. The firm is a branch of the Syrian Engineering Establishment, an organization falling under the Ministry of Industry. Syronics manufactures some components of its final products (such as plastic television boxes, printed circuits, etc.) but is engaged mainly in assembly of imported parts. The firm was established in 1960 as a branch of the Al-Naser company of the Egyptian part of the then United Arab Republic (which included Syria). The firm began to assemble black and white (B&W)

TV sets from imported components, manufacture wooden TV cabinets and ancillaries locally, and undertake repairs and servicing for these sets in subsidiary workshops. By the early seventies, the firm entered a period of expansion and began manufacturing some components for TV and telephones sets including printed circuit boards, specialized packing materials, and black and white (B&W) TV tubes. The company also began to produce telephones and smaller switchboards. Syronics started assembling color TVs in 1976 and ceased production of B&W sets in 1986. The firm has service centers in all major Syrian cities.

Syronics buys molds and parts from a variety of international manufacturers such as Telefunken, ITT, Blaupunkt, Thomson, Eriksson, Gold Star, Samsung and others including Eastern European and Southeast Asian companies. A very limited amount of technology transfer has been achieved by training Syronics' Syrian staff in the foreign factories of suppliers, as well as by experts from the latter visiting Syria, especially for the launch of a new line of production. But no activity connected with R&D takes place at Syronics.

Syrian TV assembly is currently restricted to Syronics, whose actual production in 1994 was 77401 sets worth a total of SP(Syrian pounds)1.108 billion or about \$22.16 million (SP50 = \$1). Production in 1995 was 81195 sets whose value was SP1.129 billion (about \$22.58 million). Assembly dominates production which relies on ready-made imported components, with only a few nonessential parts locally produced. Till 1986, B&W screens were made locally but today color TV screens are imported. The company does not depend on a permanent connection to one importing company but imports its requirements from various sources through international tenders. Products of Southeast Asia have recently won many tenders due to cheap prices, but last year the French firm Thomson gained a contract to supply components for 25000 color TV sets.

The production of Syronics makes up the majority of the local consumption of TV sets. The government forbids their import except for some tourist companies and first class hotels which get a few hundred foreign sets annually. But Syronics production does not cover all local market needs. In particular, the demand for sets of better quality has led to smuggling, especially of brands from Southeast Asia and Japan; the quantity smuggled into the country in recent years has been estimated at between ten and twenty percent of local consumption.

After stopping for several years, Syronics's telephone production line is once again operating: in 1994 it produced 125715 sets whose value was SP101 million (\$2.02 million), and 1995 output 35700 sets worth SP29 million (\$571 thousand). Production for last year is estimated at over 45000 sets, with capacity at 300 sets per day in one shift. Syronics currently manufactures two phone models retailing at SP1170 and SP1350 respectively, with other more sophisticated ones planned for early production. The company emphasizes that its sets are guaranteed for ten years and easier to service than smuggled telephones currently retailing at SP4000.

Syronics's value added for 1995 has been calculated at 21%, but the price of the firm's output is decreed by administrative regulation and not by the market. The most recent figures available from Syronics show that average annual production per worker in 1995 reached SP1250000 or \$25000, which is a very low level in an assembly industry.

The low productivity is due to many reasons related to the nature of the government sector's problems in Syria; thus, with the same number of workers it would be possible to more than double production, but absenteeism, disguised unemployment and similar problems are characteristics of Syrian government sector companies. Workers on the production lines in Syronics are not more than 100. The rest, nine times this number, work in services and management. This rate of 1/9 is a very high one.

Syronics's stated aims are not to make a profit but instead to:

1. Establish the local electronic industry to supply the local market and avoid imports.
2. Create engineering and technical expertise and expand into other lines.
3. Employ graduates from Syria's technical schools, institutes, and universities, allowing them to work in the proper lines of specialization.
4. Transfer technology and adapt it for use locally.
5. Eliminate the psychological impression that Arabs are unable to undertake electronics production.

Despite widespread criticism leveled at Syronics, UNIDO for one confirmed recently that the basic, "static" performance of the company is good. (See the report of the UNIDO mission which visited Syria 5-20 November 1994, specifically p. 50 of the Arabic text.) Nevertheless, the company viewed "dynamically" over time has failed. For example, Syronics has not developed any R&D capacity or solid international relations to support its production, and did not even engage itself in long term agreements with foreign companies for importing components or raw materials, or for developing technology transfer. Rather, Syronics announces its need for importing components, raw materials or machines through international tender. Price considerations are paramount, and any other factors including technology transfer tend to be neglected. Relations with international firms therefore not only did not develop but actually deteriorated since Syronics' first contact with them in the 1960s. Syronics once used to produce B&W screens and other electronic items in addition to the TV box, cover and supplementary plastic and metal parts; today, the company imports its color screens and most other components.

The Syrian electronics subsector value added as a percentage of that of the whole economy is not significant and is made up mainly by the production of Syronics. The UNIDO mission of 1994 mentioned that the rate of value added achieved in the country's electronic subsector in 1980 was comparable with that of Singapore and Indonesia, but that Syria could not maintain or improve this level. Singapore, and to a certain degree, Indonesia have moved forward using developed industrial technology, then increasing the value added of higher tech industry, while Syrian industry still gets most of its value added from traditional manufacturing. The report's conclusion is that the incremental value added in higher tech activities needs strong support to encourage development of national technology over a long period. But a firm like Syronics, after over thirty years of production, still depends on imported technology as it did when it was newly established.

Syrcatel (the Syrian Electronics Manufacturing Company) is a Franco-Syrian firm established in 1975. However, it did not engage in any significant activity and has now stopped production. The Syrian Telecommunications Corporation (STC) and the French firm CIT Alcatel jointly set up Syrcatel with the stated aim of transferring the

technology of production of high capacity electronics switching systems. In the first stage of the agreement a factory was established and workers were trained. The factory was inaugurated in 1982 to produce switching systems with a capacity of 28000 telephone lines. Soon after, Syrcatel stopped functioning except for some maintenance activity. The company is now about to break up, and the Syrian side attributes this failure to several factors including:

1. high prices for imports provided by the French partner, with component costs becoming 35-40% more than the price of the imported set.
2. a drop in French shareholding in the joint venture to 13% (leaving 87% to the Syrian side), indicating no real foreign interest in a long-term relationship, except to sell components and other requirements.
3. the intrusion of political issues, with European countries and the US complicating or opposing the transfer of technology to Syria.

Recently, a new joint venture, SKC, was established between STC (owning 51%) and Samsung of Korea (49%) for producing, equipping and constructing large and small electronic switchboards, and with a view to manufacturing more electronic products in the future including TV, fax, video and other equipment. A twenty-year agreement provides for transfer of the technology of these industries to Syria, training Syrian workers in Korea for a short period (one month), providing the company with Korean technical personnel to train Syrians and supervise production, and of course, supplying components and raw materials from Samsung. This process has just begun, with the company recently being registered in Syria and the factory just starting production.

SKC is keen to avoid the shortcomings of the Syrian-French experiment. The co-operation contract provides for the transfer of technology through several phases:

- first, ready-made switching systems will be imported and installed.
- second, half-assembled switching systems will be imported and locally assembled, tested and installed.
- third, a mixture of primary products and components will be imported for the switching systems to be locally manufactured, tested, constructed and installed.

The company was set up in accordance with the Law on the Encouragement of Investment of 1991 (Law No. 10) which gives a new venture more flexibility and frees it from other, often confusing government regulations. The Syrian side hopes that this will set a new pattern in the electronics subsector in Syria. Low Korean prices and cheap Syrian labor should help in producing inexpensive products of an appropriate technology. In particular, according to the chairman of Samsung in a statement made last year, it is felt that the Koreans can better understand Syrian wishes to progress, as it was only until recently that Korea was struggling to develop, as Syria is doing today.

But this operation will not extend to manufacturing electronics components locally. Only certain non-electronics metal, plastic and other parts will be manufactured in the Syrian factory. Furthermore, technology flow from the Far East carries a culture imperative; Syrians have to "industrialize" the minds of managers, foremen, and others. The Korean 'tiger' represent a tough role model for Syria's industrial sector, and the accelerating pace of techno-industrial development will not make the task any easier.

Finally, some ready-made electronics components are used in a few local industries such as elevators and air conditioners. These use microprocessors and other electronic components; all of them are imported, and no local production or processing is performed.

E. The Computer Subsector

The Syrian computer subsector includes over 100 companies involved in hardware and software.

Due to low Syrian income levels, as well as weak technical awareness, the hardware market is predominantly price-driven. This price dependency has reduced the justification for local hardware-related R&D. Nevertheless, some limited R&D activities are pursued at the state Center for Scientific Research and Studies (CSRS). They include among other things Arabic speech recognition using computers. The center envisages setting up a laboratory-scale "silicon foundry" to manufacture its developed designs.

The low technical awareness of the general public has made the Syrian software market a price-driven one as well. This market is also fragmented and highly competitive. Its fragmentation is primarily attributed to low entry barriers, with firms, at the very basic level, needing only programming skills and simple hardware.

PC assembly in Syria has greatly expanded in the past few years; this typically sees trading rather than industrial companies becoming involved in such activity. Programming offices and institutes for training on computer applications, and specialized engineers with some practical experience of this activity are also becoming involved. PC assembly does not submit to any form of control by government or non-governmental organization. Practically anybody with some experience and simple equipment can go to companies which import computer components, buy PC components, and assemble them, with or without a trade mark. Assembly industry value added does not exceed ten percent.

Assembled PC components are all imported, and nothing similar is locally produced. Most imported components are from the Far East or Southeast Asia. Korean and Malaysian items are particularly popular, but some European and US products also gaining ground. Some companies assemble computers under "foreign" trade names, including the Ikrayim firm which assembles and markets a computer under the name "Gold Teck" a trademark registered in Taiwan and the Hamra Center company which assembles and markets PCs under the name "DTK" a trademark registered in Austria. In fact this does not go beyond using trademarks registered in a foreign country in cooperation with associates residing there. Computer assemblers are not engaged in any agreement with foreigners for effective support of production.

Imports enter Syria either legally, mostly most via the Jabal Ali Free Zone in the United Arab Emirates (UAE); or through smuggling via Lebanon or directly into Syria by air. A great deal of the officially imported or smuggled components are of inferior quality, or at least come with no guarantee as the majority are from discounted stock. But some Syrian workshops and computer firms are emerging which look to the future and

provide assembled computers of good quality with a one- or two-year guarantee and paid maintenance afterwards; these firms sometimes give their production a trademark to help ensure product quality. Some of these workshops have gained good experience in assembly of PCs and have managed to assure a certain amount of uniformity. Such operations are now asking for government controls over the assembly process to protect the profession's level and its development. However, to date this has been impossible to achieve, as is the case with quality control over industrial production in many manufacturing lines Syria in general. The idea has been broached of a government authority to import computer components and distribute them to guarantee quality, but many doubt that this solution will be effective given what the government does in other fields.

Prices of computers on the Syrian market are approximately:

- Locally assembled sets @ about SP70000-100000 (\$1400-2000)
- Sets produced in Southeast Asia @ about SP80000-115000 (\$1600-2300)
- Sets produced in Western countries or Japan @ about SP95000-135000 (\$1900-2700).

The number of PCs in use in Syria is estimated at around 20000. The number of computers annually assembled in recent years has gone up to about 4500, in addition to imports of about 1500 PCs per annum. The latter are, in approximate order of importance, mainly ACER, IBM, Compaq, Apple, Epson, Sakhr, and NCR brands.

In addition, there is some assembly of electronic Atari-like games, given the local brand name Ali Baba or Sally, but this involves no more than putting together ready-made parts in the same manner as PC assembly.

There was a consensus among public and private sector interviewees that establishing a local computer hardware industry in Syria will be difficult. It would need special technology, large investments, major expenditure on research, a wide market, specific technical experience, trained workmen and other conditions unavailable locally. This makes establishing such an industry under present circumstances uncompetitive; even investors who got licenses to establish more sophisticated electronics industries based on assembly could not launch their projects and have concentrated instead on trade or the very simplest assembly industry which does not differ much from commerce. Most interviewees felt that establishing such industries should be done in direct cooperation with large international companies, but that the latter's decision to work in Syria was still negative for various reasons.

The assembly of personal computers or electronic games does not need more than simple manual tools, and so one cannot really talk about enhancing the technological level. Importing technology into Syria does not at present lead to learning and so does not help in developing national skills.

Some firms have since the 1980s been undertaking Arabization of software. With the onset of this decade, a few were putting together packages of ready-made programs for financial and administrative applications. Software in Syria is produced to cover a variety of Arabized applications, including education; management systems for schools, hotels and hospitals; inventory control and accounting; CAD and GIS; word processing

and publishing; and special applications such as bar-coding, optical retrieval, archiving and microfilm.

Syrian companies are also involved in software development for Arab countries. This has generally been well received because what is produced is sometimes not merely an Arabic version of a Western package, but is adapted to mimic practices used in the Arab world. Firms in Syria working along these lines can help in technology transfer and even in developing indigenous R&D capability.

Syrian software development skills are relatively good and inexpensive. The combination of skills and low cost can serve as a competitive advantage for Syria. In many cases, locally developed custom software is substantially cheaper than Western off-the-shelf items. Such a situation can help to provide an adequate base to build on and create a more robust software industry in which advanced applications can be developed.

Inventory control and accounting programs (numbering around eight) devised by local offices have thousands of industrial, commercial, and other users in Syria. The country is not considered a market for imported programs in English or other foreign languages; this is due both to Syrians' weak English, and to the general policy in Syria that does not encourage the use of foreign languages in various aspects of daily life. This helped in creating a tendency to develop programs in a way that conforms to local needs.

Syria has some specialized programmers who can meet markets needs at a good prevailing standard. Programming in Syria is mainly undertaken by three groups:

1. Government authorities (offering services principally to other government bodies), including the National Information Center (NIC) and the Syrian Universities unit for CAD programs.
2. Agencies of non-Syrian firms such as Epson, Sakhr, NCR, IBM and Apple which provide programs to clients who buy their systems, or produce special programs by local programmers for local clients.
3. Private Syrian firms which sell ready made programs, or produce specific programs according to their client specifications; these firms (with their programs in brackets) include the Bazarji company (al-Bazar), the Ikrayim company (programs of the Egyptian firm Delta), the Hamra Center (al-Aseel), the Idari group (al-Idari), and the Ufoq company (al-Beiruni).

Training on various aspects of computers including programming is given to about five percent of the country's enrollment in vocational training centers; about sixty percent of these are students, with most of the rest workers or people looking for work. Initial training in programming takes around seventy hours in addition to another advanced course in programming for those who complete the beginner's course; the latter gives the graduate a potential to develop on his own through practice and private study. But university qualification remains the main source for acquiring programming skills, and most programmers are engineers in electronics or other engineering specializations.

The number of training institutes offering computer courses has greatly increased over the last few years in Syria. For example, the number of institutes affiliated to the

Society of Vocational Education and Training Institutes in Damascus alone is 52, of which about 20 are very active. The majority specialize in training of occupations and vocations outside the E&C sector, but computer subsector courses are becoming widespread.

The corporate and government demand for collective courses has increased, for example, the NIC is executing a training contract for 400 employees of a government authority; the number of NIC trainees is increasing every year at a rate of forty or fifty percent, and their institute works at full capacity and takes on 400 people per course. The NIC trains about 2000 persons annually who are granted official certificates.

There are no foreign training institutes in Syria; the law still prohibits their entry, but foreign companies' Syrian agents train customers in special courses not open to the public.

Syrian export of programs is growing. Some programming offices and computer companies sell their programs in neighboring Arab countries. For example, al-Bazarji company sells its accounting programs in Jordan and has direct contact with clients (without having an office in Amman). However, the firm has three offices in Saudi Arabia bearing its name in each of Riyadh, Jeddah, Dammam; a branch in Lebanon; and service and support offices through other companies in Kuwait and the UAE.

Low cost and an Arabic format help Syrian programs to sell in neighboring Arab countries especially Saudi Arabia and the Gulf; competition comes mainly from Egypt, with Lebanon next. Program export activity does not receive any support or direction from any government or other body. Every company depends on its own individual activity which limits the possibility of expansion in other Arab or foreign markets, especially since the financial resources of these companies are small and bigger businesses did not enter this area yet. The latter prefer to restrict their work to commercial activity dealing with well known international brands of computers.

To date, the large international companies did not attempt to establish local programming offices in Syria; furthermore, local rules still do not allow this. Some Syrian firms have tried to establish programming courses in cooperation with international companies but this did not succeed. The public's generally poor English plays a retarding role in using other than Arabic programs.

The Saudi and Gulf program markets are the most interesting and many individuals and offices specialized in programming work for companies there. Programming offices are also trying to extend their work to Jordan and Lebanon. Syrian activity in this connection can expand wherever Arabic is used, but under the present circumstances cannot go beyond this.

Syria's demand for computer programs is largely for locally produced ones basically because of their low prices and public weakness in foreign languages. Software industry in other Arab countries have tried to enter the Syrian market, thus the Ikrayim company sells the Delta programs of Egypt for accounting, inventory, and management of hospitals, schools, car rental, travel, tourism, and other services. A few Jordanian

programs are also found in Syria. But the Syrian software market remains mainly one for local products.

II. Survey Results

A. Ownership Structure

Syronics is a Syrian public sector firm. Syrcotel and SKC are mixed Syrian public sector/foreign private sector companies. The remaining seventeen establishments are all private sector.

B. Company Age and Level of Activity

Eighteen of the companies are in the production stage, while one is being established and one is stagnant and under liquidation. A notable feature of the computer subsector is its youth. Among the newest within Syria's industry, many firms in this sector were set up in the 1990s. (In some cases however, the actual larger business which founded the computer firm was much older.) This could possibly indicate more progressive and modern attitudes among managers unencumbered with old-fashioned ways of looking at technology, industry, and trade. Unfortunately, this is not necessarily the case of the electronics subsector.

C. Personnel

Syronics has close to 1000 employees. Staff figures for Syrcotel and SKC are not available, with the first being wound up and the second just starting. The number of staff in the seventeen remaining firms ranged between 97 and 3. Personnel in the E&C sector are overwhelmingly Syrian. In Syronics there is no technician or engineer who is not Syrian, even though the company sometimes brings in some foreign expertise for a short time to supervise installation of new plant, for training, or for major repairs; and Syrian factories, hospitals, laboratories and the like which use electronic equipment, tools with electronic parts or computers depend on foreign expertise only for major repairs. A rare hiring of non-Syrians can be observed at the Ikrayim company (agent of Delta systems of Egypt) which uses a few Egyptian programmers to produce some locally required programs.

D. Main Items Produced

The items the surveyed companies produce include telephones, software, televisions, personal computers, and computer training for programmers. The public sector alone is currently authorized to produce TV sets and telephones, and their manufacture is monopolized by Syronics. The private sector monopolizes the assembly of personal computers and electronics games, and dominates programming training on computer applications. The government has licensed several electronics assembly projects under Law No. 10, but most of them have not been implemented and none has reached the production stage yet. The government has stopped giving new licenses in the electronics assembly subsector under this law.

E. State Policy towards the sector

A large majority of the companies reported that there were no institutions supporting the E&C sector, and firms made the usual complaints about the general difficulties in dealing with Syrian government departments. The investment climate suffers from, among other things, state interference. In particular, foreign direct industrial investment into the country is limited.

There is no coherent national strategy and no national R&D center for E&C. No specific state policy exists towards Syria's E&C sector. In an economy still dominated by the government, the result of this neglect has been to slow the development of the E&C sector. Development of higher technology is not among the top priorities of the government.

There is no specialized institution or organization in Syria dealing with export promotion. The Ministry of Economy has the lion's share of influence within this field. But there is also a certain amount of scattering of authority concerning Syria's industrial and export policies. The Ministry of Economy is technically responsible for the overall trade regime, but other ministries, including Finance, also carry out functions which have an important bearing on the matter.

On the private side, the country's chambers of commerce and industry have an interest in promoting exports and have been more active in the past few years.

In the computer subsector, the state NIC has been trying increasingly to push the practical applications of computers and informatics. Established seven years ago, the NIC is a leader in introducing and developing new higher tech ideas for the computer and related subsectors. For example, last year the NIC held several symposia on processing information. These discussed the technology and applications of geographical information systems (GIS) to establish informatic rules in town planning, computerizing establishments, setting up communication networks, and collecting geographical data. Another recent NIC activity included leading the National Co-operation and Co-ordination Committee for Information with the aim of linking all the different sectors of the country who have or are about to obtain a data base, and thus help in developing a national information system. An important part of the committee's work is in putting together an Arabic information thesaurus, with Arab League help.

1. Incentives

The response to the question on whether there were any incentives provided by the government to the industry was mainly negative. No firms receive any subsidies or financial incentives. The government does not offer any notable financial support to this sector, with the exception of the help given to the state company Syronics. This is generally part of government policy towards public sector firms, and includes support in providing liquidity, allowing delays in repayment of debt to other government authorities or in paying taxes and fees, etc. However, it should be remembered that Syronics makes considerable profits compared to other government companies. Computer assembly firms in the private sector can sometimes get loans from the country's industrial bank on easy terms, but this is part of the government's general

policy towards manufacturing and there is no special support for the computer subsector.

Companies working in the E&C sector pay the same taxes and fees as others, though tax levels are not high compared to countries, and indirect taxes predominate. However, the law has exempted educational and vocational training organizations from taxes and fees, which also includes institutes offering computer programming. But this exemption applies across the board to all such organizations. On the other hand, a consumption tax is levied on many household electronic products, as well as on personal computers and peripherals.

Procurement policy by state organs was a positive factor for firms, with the Syrian government giving local purchases an edge over foreign articles.

2. Licensing

Government regulations stipulate that larger firms (such as the ones in the electronics subsector) require a particular license, though no special legislation is applicable to the E&C sector. Under the provisions of Law No. 10, Syrian and foreign investors alike are offered incentives such as exemption from customs duties and foreign-exchange regulations, and tax holidays of up to seven years. Law No. 10's increased range of incentives are potentially very important to the E&C business. But the government still monopolizes TV assembly, and despite the favorable general impact of Law No. 10, licenses in this line have not been obtainable. The Higher Investment Council has refused many demands under Law No. 10 to permit private sector organizations to establish such a business, but the rest of the electronics subsector is practically open to local and foreign private sectors.

For small operations, particularly in the computer subsector, many specialized engineers and businesspersons with some practical experience undertake manufacturing and commercial activity which does not submit to any form of license or control by government or other organizations. The irony here is that others in this subsector have been calling for various government measures to be taken, including licensing and import control. The government has so far not responded to such requests.

3. Trade restrictions

The Syrian government since the 1960s has imposed a wide variety of restrictions on imports. These are designed to save on foreign exchange and to help protect local production, but their effect as part of an overall policy of state control has been stifling, according to most firms.

4. Customs

As in many other parts of the region, Syria's customs regime is onerous. However, some of the firms dealing with customs noted that average time for customs clearance of goods has decreased over the past few years. Duties on imports of electronics components were 29-47%.

5. Institutions Supporting the Industry

On the whole, firms complained that there were no serious attempt to create institutions aimed at supporting this industry. For the computer subsector, the NIC was considered useful. Its meetings were felt to have some -- though limited -- impact.

On another level, some state and private sector institutions were trying to improve the situation by helping to organize exhibitions. The success of the second Damascus Computer and Telecoms Exhibition of March 1996 is an example of the heavy demand for this type of service. Local participation was strong, and included state firms as well as private computer assembly, programming and training companies. The response of visitors was enthusiastic. Local fair activity and participation in international exhibitions has accelerated in recent years, and private fairs have started to appear. Especially over the past four years, information and computer fairs have been held in local five-star hotels and in the Damascus International fairgrounds.

Most firms worked on their own go to foreign exhibitions and have their own network of marketing and distribution. There was in the opinion of most firms no serious attempt to inform Syrian firms about trade agreements and other aspects of international relations which might impinge on Syria's business.

Services of marketing organizations, export centers, and information networks, as well as advisory, design and R&D support were all provided by private organizations such as chambers of commerce. However, these services were not significant and their impact is seen as limited. Some efforts have been undertaken by the NIC but the results are still very modest and do not involve strategic decisions and actions to promote and sustain the whole industry; In general, it was only private publications and magazines which gave information on the industry situation as a whole, including the Arabic edition of *PC* magazine which distributes about 1500 copies of each issue in Syria. Its editor-in-chief, subeditor, technical editor, and three editorial consultants happen to be Syrian, a further contact between the Syrian computer subsector and outside sources of information.

Official authorities do not get involved in the international marketing process; production of the private sector is marketed through companies' own activity and through private commercial firms, or by direct sale to retail outlets. The government restricts TV distribution to state corporations and establishments.

Syrian industry in general and the E&C sector in particular lack data bases and information networks. There are hardly any information centers in Syria which provide what the E&C sector needs. Information provided by the state Central Statistical Bureau is limited and not always accurate, up to date, or otherwise appropriate for the needs of business. Recently, the country's Union of Chambers of Commerce has started to provide addresses and other basic information about European companies. The NIC has also lately begun to offer services to private sector clients. These are steps in the right direction, but far more is needed.

Syrians firms depend on themselves in establishing international or regional business relations. The services of commercial counselors in Syrian embassies all over the world

are not at the required level; in the words of one interviewee, "they are not acquainted with offering services to private sector, and very often, advantages of Syrian exporters are lost abroad without the help that could be provided by these counselors."

Economic studies centers are still new and their activities are developing slowly. These centers are few and dominated by one person or a handful of people; these organizations have not yet taken on an institutional character. Their resources are still limited and their international contacts are not widespread. This causes business satisfaction with their services and demands on them to be limited; in general most local businesses are not fully satisfied with the importance and benefit of economic studies and they believe that the money paid for the is wasted. This has a negative impact on developing the activity of such firms.

R&D generally seems backward especially in the electronics subsector; there are no government centers for R&D except the CSRS. The universities do not do more than some theoretical research of a simple character which is worth little to industry. Syria's universities shifts more important researches to the CSRS. The country's National Creativity Conference of 1987 described scientific research in Syria's electronics industries sector as "nonexistent," and this assessment is still largely accurate ten years later.

G. Performance of the E&C Sector and Its Competitiveness

1. Problems faced by the sector

The order in which problems are listed below reflects their overall seriousness, with access to finance as the greatest problem and labor laws/social costs as the least for the E&C sector as a whole.

a. Access to finance The banking system is underdeveloped in Syria, which has still not permitted private banks. The primitive banking system means that 95% of business deals in Syria are cash. Financial services provided the public sector are poor, and talk about a reform of the banking sector and the establishment of mixed public-private banks has been stalled, as has the debate about opening a stock exchange. In this difficult situation, the plight of the manufacturer is even worse, with only ten percent of bank loans going to industry. Syronics for example complained that past financing difficulties had deprived the firm of components and slowed production.

b. Customs was the second biggest issue overall for the sector. Customs formalities and extra costs relating to bribes were seen as a problem. Imports of electronics components are subject to tariffs of 29-47% which makes the finished product expensive and uncompetitive.

c. Utilities (power, water, telecoms etc). Problems in the physical infrastructure such as the electricity and telecommunications networks were seen by several firms as a very serious, though the situation is much better now than it was a few years ago.

d. Availability of skilled labor was the issue on which the greatest differences of opinion were expressed. SKC says that its experience showed that Syrian workers learn

readily, a certain amount of ambition pushing them. This was also apparent in training workers of the new company in Korea. The technical manager of Syronics reflects the same positive opinion towards Syrian workers' capability to learn and develop quickly. SKC says it has engineers and technicians who know the basics of electronics and can develop through practical training. Syronics says that it is obliged to depend upon training on the production lines through actual work. On the other hand, departure of skilled technical staff in search of better wages was particularly cited as a problem by Syronics.

e. Access to material inputs, largely imported, was sometime inadequate. For the computer subsector, the quality of some imported items was questionable, particularly those smuggled into the country. For Syronics, some of its suppliers were not serious in supplying raw materials, particularly electronic components, although these materials and components sometimes had other sources. No viable and cost-effective local production has been emerging. Furthermore, imports are severely regulated by the state, and access to them is sometimes problematic.

f. Limited market demand/severe competition was not seen as a major problem for most. On the other hand, the difficulties and final abandonment of transforming the Syronics B&W TV tube factory to color failed because of small production quantities. Syronics's inability to export and the country's small internal market meant that this difficulty could not be overcome, so the company ended up importing instead of producing locally.

g. Labor laws-social costs was the least important problem for private firms. The government sector, on the other hand, suffers from overemployment problems, and Syronics is no exception. These issues are now being discussed in the media; in recent years some measures were taken to correct them but these have had mixed results.

2. Productivity

a. Technology The "assembly" character of Syronics and other firms, their limited capacity, the high prices of advanced technology, limited local investment capacity, plus low Syrian labor productivity, all play a role in decreasing the standard of the Syrian E&C sector's technology. Assembly processes do not need complex technology, except that testing and examining the TV sets and the plastic injection lines at Syronics require equipment which is up to prevailing international standards.

There has also been reluctance by some Western companies to supply Syronics with complete technological information, and the general lack of contact between Syria and the main international sources of E&C technology have had a negative impact. On the other hand, Syria has not succeeded in developing its own technologies, and these two factors together have had a powerful downward impact on productivity.

b. Material inputs These are almost all imported, with no viable and cost-effective local production emerging. Furthermore, imports are severely regulated by the state, and access to them is sometimes problematic. This has had a negative effect on productivity.

The following table gives details of Syria's imports of PC components etc; brands etc are listed in order of importance.

Monitors	CTX, ADI
Processors	Intel Pentium, AMD 486DX4
Memory chips	Malaysian, Taiwanese, and Korean
Floppy disk drives	TEAC, Mitsumi
Hard disk	Western Digital, Quantum
Mouse	Genius, Microsoft
Multimedia	Sound Galaxy, Creative
UPS	APC, Emerson
Printers	HP, Epson, Star

c. Machinery The new firm SKC intends to use modern machines in its production lines. However, for Syronics, the period from 1980 till today has seen a greater reliance on more labor-intensive production and less investment in machinery. The inability to bear the high cost of replacing old machines lessens the ability to compete. The private sector's machinery is practically non-existent. The production tools and lines of plastic and metal terminal components needed for production of some PC components are considered too expensive at current levels of production. The Syrian market is not big enough, and exporting is still a long way off, so production levels are low and output is not competitive.

3. Competitiveness in export markets

Main E&C export items are software packages. Export markets were established and maintained in a variety of ways that showed the strength of the international network of the Syrian private sector. More conventional methods of export marketing by participation in fairs abroad were cited by firms and visits to Syria by foreign trade missions by others. "Independent initiative" meant mainly going through Syrian living in Arab countries, and elsewhere who acted as intermediaries. The surveyed exporting firms typically had sister companies, offices, agents and/or other intermediaries in places abroad. These tended to be in charge of marketing but sometimes performed other tasks.

Firms which were not exporting cited several reasons for this. Weaknesses in marketing, uncompetitive prices, lack of finance, and international standards of products being different from Syrian output were also cited as causes for lack of exports.

Major competitors in export markets were mainly Arab products.

4. Competitiveness in local markets

Syronics exists within a system of rigid import controls which the government has imposed. It is only in such an artificial situation that the firm's products are competitive. However, Syria's eventual accession to the WTO means a dismantling of restrictions on imports. The other problem with this type of industry is that it is based

on high capital intensity and is meant to serve large markets. This is obviously not possible internally in Syria.

5. Subcontracting

Outsourcing more technologically oriented products effectively takes place in the assembly operations of Syronics and for PCs. However, these are not activities which are part of a subcontracting chain. Subcontracting is still virtually unknown in the country's E&C sector.

6. Competitive advantage

The advantages of Syrian E&C firms compared to foreign ones were seen as mainly centering around lower cost, particularly that of skilled labor. This makes Syrian software exports cheaper to produce and allows them to compete more effectively. A skilled worker in local companies does not receive more than \$150 a month and engineers do not get more than double that. A program for bookkeeping and inventory like al-Bazar, al-Idari, al-Aseel or al-Beiruni sells for SP15,000-30,000 (\$300-600).

In addition to cheap manpower, Syria has skillful and capable businessmen. They are spread all over the world, active in various fields in different countries, and occupy good positions in many of them. But transforming this potential to reality needs fundamental changes in most factors which affect the investment climate in Syria.

VIII. Impact of the Peace Process and Other Changes

1. Eventual Accession to the WTO

The impact of the WTO agreement on business was not considered by most firms. Some publicity has started in Syria to introduce the WTO to local producers and others, but the E&C sector has not been a particular target of this activity.

Syrian businesses were divided on the subject of co-operation with more advanced countries and companies. Some had no fear of globalization, while others were more conservative. The latter were fond of citing the Syrian proverb "no one brings the wolf to his vineyard."

2. Eventual Euro-Syrian Partnership

There was a mixed response to the question about the impact of an eventual Euro-Med partnership agreement, which eliminates tariffs between Syria and the EU by the year 2010. Many companies are concerned with the greater competition they will face under the agreement, some firms claim it will put obstacles in the face of Syrian exports, like requiring quality certificates. However, most businesses did not make any preparations to face potential changes in the area due to Euro-Med.

3. Peace with Israel

Asked about the impact a future peace will have on business, many opted not to answer. Syrians view Israel's robust market with pessimism but not with fear. Some deem Israel's abundance of capital dangerous; but, generally, serious attempts at evaluating the impact a regional peace would have on Syria's economic environment were strikingly absent. Few studies or plans for economic responses have been undertaken, whether in the government, universities, or chambers of commerce and industry, on the economic repercussions peace would have for Syria. Neither the media nor other public fora debate the challenges Syria would have to face after a peace treaty. The matter is not yet a topic of discussion.

There are objective fears on the part of Syrian policymakers, officials, academics, and members of the private sector about the challenges of a new and peaceful Middle east. These resemble, to a large extent, the fears among the public in general: fears of further disunion and fragmentation in the Arab world, of Israeli economic hegemony; and of Arab economic dependence on Israel.

Many interviewees feared that the foreign aid which the country has been attracting from the regional system will most probably decrease with peace or at best remain steady. To them, it does not seem as if Syria, in the short-term at least, will get a fair share of the "peace dividend." International agencies' expectations that Israel will reap more economic benefit from regional peace than Arab states have further increased Syrian anxieties.

It goes without saying that, to date, there are no commercial, industrial or educational relations of any kind between Syria and Israel. Syrian businesses are not enthusiastic towards peace talks between Syrian and Israel. Syria's boycott of the Cairo, Casablanca and Amman economic conferences reflect the official position of the government and that of business as well.

Syrian businesses today generally do not consider the future of Syrian-Israeli relations, and are conservative in talking about forms of tangible links that could in future be established between Syria and Israel. Few have the knowledge of Israel's E&C industries.

4. Countries in the region which will affect the Syrian E&C sector

As regards the exchange of goods, Israel may, in the near future, prove to be of as limited interest for Syrian producers as Syria is for Israel's industries. Syria may, however, gain a reasonable share of the Palestinian market. Historically, Palestine was the most important export market for Syria's industry; and the new Palestinian entity may offer market opportunities for Syrian products. At the same time, however, Syrian exporters may lose market shares in the Gulf. Here, Israeli competition may threaten Syria.

In the longer term, Syrian E&C businesses are likely to adapt to a new regional setting and find niches for their services and products. Syrians have often stated that Syria's economic future lies in a regionally integrated economy. But peace with Israel is not the

only condition for this. Of similar importance to Syria is whether a framework for cooperation with the countries of the GCC can be established, and whether Syria could challenge some of the adverse results of Israel's entry in the region's economy by re-establishing economic links with an Iraq whose isolation has ended. From the late 1970s, when Syrian-Iraqi relations temporarily improved, until 1982, when trade relations between the two countries were practically severed, Iraq was Syria's single largest Arab trading partner, absorbing up to thirty percent of its regional exports. To the extent that the new Middle East market may be Israeli-dominated, Syria risks finding itself at the fringes; with Iraq included, Syria's role would undoubtedly be enhanced.

5. Actions that may be undertaken with eventual peace

Asked about such moves as restructuring of the company, specialization, better technologies, new products and processes, and partnerships with other countries, firms tended to be cynical. When asked what actions will be undertaken to cope with eventual regional peace, most companies did not answer. Of those which did respond, most claimed that, on the individual level, they were doing well and did not expect to make any adjustments.

On the national level, the companies foresee that quite a bit of action will be undertaken to cope with the peace situation, including economic restructuring, specialization, better technologies, partnerships with other countries, and new business strategies.

6. Possible government action

There is no clear national program for technology, and this must be the state's first task in the E&C sector.

Standards and specifications are still not a subject of serious attention in the E&C sector in Syria. This will become a major problem -- which it is up to the state to take the lead in resolving -- as standards such as ISO are applied in other countries.

Almost every private company called for the elimination of excessive bureaucracy in government departments. Many restrictions facing the private sector were mentioned: licensing, export and import restrictions, financial regulations, laws on economic security, price control, restrictions on establishing private technical teaching institutes. Some firms also asked for state aid to help them participate in international trade shows, and for assistance in training. Provision of data bases and support in marketing regional exports were also called for by a few firms.

III. Conclusion

The market for E&C products and systems in Syria has been expanding steadily, especially in regard to software, TVs, PCs, and microprocessors. The E&C sector is rapidly becoming more important to Syria's economy as well as to society as a whole, but a vision for the country's higher technology which includes serious state planning and a clear strategy is lacking. Syria's government policy, such as it is, is seen as ineffective. Incentive measures provided (such as subsidies, tax and financial incentives,

and export promotion) are inadequate, and state support institutions such as marketing organizations, export centers, information networks, extension and advisory services, standardization centers, and the provision of design and R&D help are viewed by firms as non-existent or at best ineffective.

On the other hand, the performance of the private sector and its competitiveness leave a lot to be desired. Much private capital that accumulates in Syria today is being smuggled abroad. In the electronics subsector, it was the government which invested in Syronics, Syrcatel and SKC. The private sector has hardly invested in the electronics subsector, and private computer assembly, programming training, and programming do not form an investment of any considerable value. On the other hand, the private sector is still not encouraged to invest in the electronics subsector; private business's ambition was to obtain permits for TV assembly, but the government still insists on monopolizing this activity.

For purposes of serious regional and international competition, Syria's electronics subsector productivity tends to be low, output is small, and long-term financial capital is scarce. Expenditure on R&D is severely limited due to the absence of long-term planning. In the Syrian market today, there is no demand for industrial research; this obviously discourages research, which is anyway seen as particularly costly for the E&C sector. Prevailing conditions in the government sector do not encourage research as a researcher's very low salary practically does not differ from that of other government employees. Thus, Syria is characterized by backwardness in R&D. But this is also true in services such as investment studies, engineering design, construction management, experimental manufacturing, and training of technical staff. Syrian industry is highly dependent on foreign technology, and this creates subordination, raises cost, and weakens the capability to compete.

Syria cannot afford to neglect the higher technology sector of its economy. Since Syria has significant human resources, economic prosperity will to a great extent depend on the ability to develop specialized, high value-added industries. Few sectors offer the high value added content of E&C. To achieve such an objective, focus should be placed on removing state barriers to information technology development. At the same time, Syrian companies should begin in earnest to seek joint ventures in the field of specialized hardware manufacturing. More important, the software industry should focus on establishing R&D joint ventures, as well as marketing arrangements with organizations that have a worldwide reach. Only by expanding the market, and integrating the country with the rest of the world can an advanced E&C sector be developed in Syria.

For higher tech E&C production in general and information technology in particular to start playing a significant role in a developing country like Syria, several pre-requisites are necessary. These include a sound telecommunications infrastructure, a serious intellectual property rights (IPR) regime, and a solid educational system.

Syria's telecommunications system has been developed by a government monopoly, the STC. While the telephone network witnessed substantial expansion, with about a million new lines installed in the past few years, little interest has been directed at developing the telecommunications infrastructure necessary for a modern information-

based economy. Under these conditions, information businesses in Syria have thus far been restricted and the neglect of the need to set-up data and multimedia-oriented infrastructure has delayed the development of indigenous electronic information activity. The NIC is aware of the problems caused by delays in upgrading the telecommunications infrastructure, and has been urging the modernization of regulations connected to information identification and other factors that deals with techniques and new technological systems that have not been yet mentioned in the country's laws. The NIC has been pushing for Internet accessibility and ISDN.

The lack of guarantee of IPR is proving to be an obstacle to the development of the Syrian computer industry. Syria unfortunately lacks proper enforcement of copyright laws, and this has so far reduced the possibility of serious software development in the country. Respect for intellectual property rights will allow better prices to be charged for intellectual work and creativity. In the process, Syrian software developers will be forced to pool resources and integrate their efforts, while less serious players are expected to drop out of the market.

Intellectual property issues are being more seriously discussed in the Syrian computer subsector. IPR is an issue that is being stressed. The NIC has helped raise the question of how the country's computer industry stands to gain from implementing intellectual property rights, and stresses that new laws must also take into consideration future techniques which will appear. But on the level of software piracy, there is no attempt by the authorities to deal seriously deal with this phenomenon. However, this also affects locally produced programs as they suffer from this problem. A solution here is not easy, especially in the absence of IPR laws and practices.

Syria's educational system produces qualified personnel in the field of computer science. Their relatively low salaries compared with the West or the Gulf have helped Syria focus on software production for the Arab world. Syrian graduates have on the whole proved themselves to be well-qualified and have succeeded in the Syrian and other Arab markets, before or after continuing their higher education. But measures are needed to improve the educational system so that graduates will be more productive and encouraged to think creatively. The universities in many countries is a real center for R&D, but not in Syria.

Of the general characteristics prevailing in Syria is the weak relation between academic organizations and the production companies; this is true for the E&C sector more than others, as universities' research has a theoretical character basically related to teaching in the universities, and there is not enough to spend on scientific research; therefore the universities direct research projects to the CSRS to handle them the way it finds convenient; but the CSRS relationship with the E&C sector is weak.

Higher education concerning the E&C sector is restricted to Syrian universities and the Higher Institute of Science and Technology. Graduates of the latter do not work in industry, therefore universities are the principal source for providing electronics industry with specialized engineers, in addition to a small number of graduates from abroad. In addition to the universities, intermediate industrial institutes offer mechanical, electrical and electronics specializations. There are many industrial secondary schools in Syria which attach importance to technical education; the period

of study is three years; graduates become qualified to work as professional technicians in different industrial occupations such as maintenance of electrical and electronics equipment.

Factors which have negative impact on the quality of graduates include: lack of specialization, which grants the graduate a lot of broad information instead of deep knowledge of specific, narrower sectors; lack of professors and tutors compared to the number of students; low salary level of professors; poor financial resources of universities; and weak interaction with the E&C sector.

Although universities and technical schools provide adequate education in electronics to an increasing number of students, most graduates face difficulty in finding jobs in their fields of specialization because of the limited local industry. Consequently, universities graduates do not have the opportunity to acquire practical design and manufacturing experience, so many of them revert to work in unrelated fields. In general, teaching, electronic sciences and training in electronics industries in Syria are still backward in comparison with world levels, and there is a great need for upgrading these activities. The link between E&C industries and education and training in them matters greatly in developing both; without industry there will be less need for teaching and training, and without effective teaching and training, the E&C sector will not develop.

Technological links with developed outside partners are almost nonexistent. Some interviewees believed that this relation with developed outside partners and their support are what the Syrian E&C sector really needs. Thus, this sector, which requires costly R&D, a great amount of capital, and large markets cannot be developed except by working with strong global partners. Even with government support, development will not be achieved without such partnerships. An exception might be the programming industry where human resources play a major role. This industry could develop relatively fast and generate exports, but in its present form cannot expand beyond the Arab world.

The principal problem that the growth of this sector faces is the technological one. E&C does not have any domestic tradition and there are no electrical industries which contribute experiences similar to the electronics subsector to help and support it.

Capital is another major problem. Syria has great numbers of unemployed educated people and artisans, who if provided with capital could establish successful companies. But the government is becoming a less important source of finance and in the private sector capital flight continued for many local economic, social and political reasons. A just, lasting and comprehensive peace is desirable and may bring some profit, but will not provide a final solution for Syria's economic problems, particularly in the E&C sector. The direction of Syria's economy is not just related to peace but to factors such as WTO and Euro-Med that have an indirect relation with peace negotiations. Economic problems will not be solved by the peace process alone but through domestic reform.

New partnerships between the agents of technological development in the Syrian community in and outside the country are required. More serious linkages with regional

and international economies' public and private sector organizations are also needed in the area of technology. Foreign investment is a tool to transfer technology and efficient productive practices, thus boosting competitiveness. But a certain general technological level is itself required in the economy and society, and this is not being reached quickly. Industry, which has traditionally been a carrier of technological progress, is called upon to play its part in this process. At the same time, industry is a beneficiary of such progress.

Divisions exist in Syria over economic policies between the public and private sectors. The arguments on both sides are becoming the subject of debate, and the need for change is perceived as increasingly urgent in light of major regional and international developments. The greater possibility of change is there in the context of the present, more private sector-orientation of the regime.

Perception of managers of firms of the impact of peace are dim and vague. Relations with Israel are seen by very few managers in terms of competitiveness, technology transfer, market outlets in Israel, specialization of the company, co-operation and subcontracting. Plans by the managers to cope with the peace situation, including restructuring of the company, specialization, better technologies, partnerships, are scant. But Syria's readiness to contemplate peace has been evident since 1991. In the long run, a comprehensive peace settlement is likely to serve the interests of all the countries of the Middle East. Syrians interviewed for this study, however, feel that the 'peace dividend' which is expected to accrue to the region will be unequally divided, and Syria does not for the foreseeable future expect to receive its fair share.

Whether Syria will gain a peace dividend or not depends on more than a peace treaty with Israel. Syrian development policies pursued till the mid-80s included import-substituting industrialization. Since then, the government has embarked on a cautious economic reform program which has led to the reduction of state control over production, foreign trade, and consumption, increased the scope of the private sector, and given more importance to economic rationality.

Various mechanisms may provide economic benefits to the Middle East after a peace settlement. These include: intra-regional trade and cooperation in a new Middle East with reduced trade barriers; investments from regional and international sources which a pacified and integrated Middle East would attract; and reduced state expenditures and the freeing of resources for economic development. Syria may well find itself at the losing end of such developments. In the short term, there is a threat to Syria from the integration of Israel's advanced and more efficient economy into the region. However, Syria does not have to fear a flood of Israeli products in its domestic market. Israeli industry undoubtedly offers a range of comparatively advanced industrial products which neither Syria nor other Arab states produce, but Syrian consumers in the foreseeable future will probably prefer to buy such goods from Europe or Japan. Few Israeli products will have a promising future in the Syrian market. Nothing will prevent Syria from continuing to protect its own industrial trade arrangements with Arab countries such as Lebanon, Jordan, and Palestine.

It is generally expected that regional stability and peace in the Middle East will encourage the inflow of foreign capital and help repatriate private money that has fled

in the past decades. Capital flight from Syria has been particularly high: savings of Syrian residents abroad have been estimated at \$26 billion. There is no doubt that even a partial reversal of this could promote economic growth. The Syrian government, in the course of the cautious economic liberalization program which it has been pursuing since the mid-1980s, has expended considerable efforts to attract local, expatriate, and foreign investments. As a result, funds taken out of Syria may now re-enter as expatriate capital. There doubtless exist investment opportunities in Syria's E&C sector. Generally capital-poor, it could benefit if foreign and expatriate investments came in. Some difficulties remain, however, as regards Syria's prospects to attract foreign investment and even expatriate capital. In a regional economy after a peace settlement, Syria will have to compete for investment with Lebanon, Jordan, Israel, and Palestine.

It was felt by most interviewees that Syria will not, in the short term, receive substantial economic gains from a peace settlement with Israel. Syria must be able to pursue necessary reforms to make use of its human capital and innovative forces, and thus begin to constructively deal with the challenges and options of a new regional environment. This will necessitate an overhaul of the country's foreign trade system and a stress on certain types of industrial exports, including some in the E&C sector.

The state has involved itself in various ways over the past few decades in foreign trade, trying to regulate imports and expand exports with limited success. However, measures to encourage exports had no impact on the E&C sector. The government's export policy changes in reaction to changing circumstances. It is highly influenced by Syrian economic and political conditions. A complex regulatory system for exports and imports prevails. In general, the export promotion policy of the government is ineffectual as far as the E&C sector is concerned, and the private sector still depends on scattered individual efforts of exporters.

In meetings in Syria on export development, E&C is not discussed, with the exception of exports of computer programs which has become active over the past few years. On the other hand, Syria exports workers. Many of the country's graduates go to the Gulf states and Saudi Arabia to teach and train on implementations and programming. These Syrians have proved to be successful in their work, and there is a call for them in these markets. But it is only when they and the country's expatriate capital come home that the Syrian E&C sector will have the chance to establish itself properly as a serious producer and exporter.



