5. PHARMACEUTICAL INDUSTRIES IN THE NEIGHBORING COUNTRIES

5.1 During the last decade, many governmental agencies in the neighboring countries to Lebanon, gave considerable attention to the development of their respective pharmaceutical industries in support of the strategic role that this industry plays within their health care systems and its appeal to financial investments.

5.2 Governments of many Arab countries (Syria, Jordan, Egypt, Saudi Arabia, United Arab Emirates, and others) established health related laws and provided adequate infrastructure to encourage investment in their health care sectors and especially the pharmaceutical sectors. As a result, these pharmaceutical industries prospered and are able today to increasingly respond and satisfy their local demand with considerable potential to penetrate foreign markets.

5.3 Important growth is noted in the Arab pharmaceutical industries especially those of Syria, Jordan, Egypt, Saudi Arabia, and the United Arab Emirates. This Study will focus, however, on the pharmaceutical industries of the two neighboring Arab countries, Syria and Jordan. Emphasis will be made on the main causes of the increase of their pharmaceutical production volumes as well as their market shares.

5.4 Main reasons behind the choice of studying Syrian and Jordanian pharmaceutical industries while excluding other pharmaceutical Arab industries are various similarities and common economic and social factors with Lebanon.

5.5 Lebanon and Syria have close bilateral trade agreements allowing free movements of goods across the border. In 1994, Lebanon signed a Brotherhood and Cooperation agreement consisting of the following:

- Economic and Social Cooperation and Coordination Agreement
- Health Agreement
- Organization of the Move of Goods and Personnel Agreement
- Agricultural Cooperation and Coordination Agreement

5.6 Section 3 “Institutional Framework” summarized the main points regarding the Health agreement that included all terms of cooperation and coordination within the health field and more specifically in drug related issues.

5.7 Lebanon and Jordan maintain relatively similar economic and social indicators that render both economies comparable. Table “18” below shows comparisons between population counts, industrial, and manufacturing sectors’ contribution to the respective GDPs of both countries.

Table 18. Economic and social indicators in Lebanon and Jordan

	LEBANON	JORDAN
Population (millions)	4.0	4.6
GDP (US$ billions)	16.2	7.4
Total debt/GDP	113.0	115.6
Projected annual average Growth of GDP (1999-2003)	3.5%	3.2%
Industrial sector contribution as percent of GDP	26.5%	25.7%
Manufacturing sector contribution as percent of GDP	17.3%	13.9%
Projected annual average growth of exports of Goods & Services	3.5%	3.6%

Source: World Bank Development Indicators, 1998. - Lebanese Ministry of Economy and Trade, 1999.

Jordan

Background

5.8 Over the last decade, Jordan made considerable progress in economic development and structural reform. This has been possible through Jordan's commitment to an Economic Reform, programmed under guidance of the International Monetary Fund (IMF) as well as the World Bank.

5.9 The Government of Jordan (GOJ) initiated a series of policy reforms that made Jordan open for commerce. It created an investment climate conducive to encouraging domestic and foreign investment. One of the crucial components of the Government's policy is the development of an export-led growth.

5.10 The United States Agency for Investment and Development (USAID) provided technical assistance to the GOJ for the development of investment-related laws. These laws represent the culmination of efforts under the USAID's "Sector Policy Reform Program" to support a more liberal trade and investment regime. Another significant achievement under the same program has been modernization and computerization at the Customs Department designed to encourage and facilitate exports.

5.11 As an answer to their insufficient natural resources, Jordan has been increasingly focusing on high value-added manufacturing industries. The pharmaceutical industry, one of the most prominent manufacturing industries of the country, is considered one of the leading industries in terms of development and sophistication. It is now considered one of the most successful local industries in terms of foreign currency earnings and growth.

5.12 High quality services of the health sector sets Jordan ahead of many developed countries in the health field. There is around one physician for every 604 individuals, a pharmacist for every 1,321 persons, and one nurse for every 342 persons. There are 1,622 pharmacies, 75 hospitals of which 32 are public with 5,447 beds and 43 are private with 2,629 beds. Hospitals in Jordan are up-to-date facilities with sophisticated equipment.

5.13 Tables "19" and "20" illustrate the number of health professionals and health institutions in Lebanon and Jordan.

Table 19. Health professionals in Lebanon and Jordan (1998-1999)

	Lebanon	Jordan
Physicians	8,700	7,615
Pharmacists	3,800	3,482
Nurses	4,000	13,450

Source: Jordan International Team Consultants (JIT), 2000.

Table 20. Health institutions in Lebanon and Jordan (1998-1999)

	Lebanon	Jordan
Pharmacies	1,383	1,622
Public hospitals	15	32
Private hospitals	160	43

Source: Jordan International Team Consultants (JIT), 2000.

Production and Market Segmentation

5.14 The Jordanian pharmaceutical industry has grown in the last decade with the objective of providing quality medicine at affordable and competitive prices for low-income citizens.

5.15 Thirteen pharmaceutical producers[23] with high capacities and relatively modern set-up supply around 1,278 drugs as compared to eight Lebanese manufacturers producing 747 drugs. Jordanian manufacturers produce brand-name generic under license, generics as well as reproduction drugs[24]. Only one manufacturer produces around 14 serum products as compared to two in Lebanon producing 206 serum products.

5.16 Similar to the Lebanese patent legislation, Jordan recognizes patent rights to the manufacturing process but not to the end product. Intellectual Property Right (IPR) law has not been adopted yet. This allows the reproduction of drugs that are still under patent and the recovery of considerable returns on investments for manufacturers.

5.17 Market prices of reproduction drugs which are on average 25 to 30 percent cheaper than brand-name versions fiercely compete with imported patented and brand-name drugs. By following this strategy, Jordan gained a considerable number of export markets in the Middle East area.

23 Jordanian Pharmaceutical Products. The Jordanian Association of Manufacturers of Pharmaceuticals & Medical Appliances, 1998.

24 Reproduction drugs are imitations of drugs that are still under patent rights and which are produced by renowned international pharmaceutical laboratories.

5.18 The Jordanian Association of Manufacturers of Pharmaceuticals and Medical Appliances (JAMPMA) classify pharmaceutical products according to 13 therapeutic categories and 129 sub-categories (Table "21"). Each of these therapeutic categories constitutes micro-segments in which Jordanian manufacturers are positioned.

Table 21. Therapeutic categories[25] of locally manufactured pharmaceutical products in Jordan

Therapeutic Categories	Therapeutic Categories
1. Alimentary and Tract Metabolism	8. Genito-Urinary System
2. Blood & Blood Forming Agents	9. Musculo-Skeletal System & Joint
3. Cardiovascular System	10. Parasitologic Products
4. Central Nervous System	11. Respiratory System
5. Cytostatics	12. Sensory Organs
6. Dermatologicals	13. Systemic General Anti-Infectives
7. Endocrine System & Related	

Source: "Jordanian Pharmaceutical Products", The Jordanian Association of Manufacturers of Pharmaceuticals and Medical Appliances, 1998.

5.19 Segmentation of the Jordanian pharmaceutical market is similar to that of the Lebanese market. Positions of pharmaceutical products manufactured by Jordanian firms on the various therapeutic categories and the number of manufacturing firms competing in the same micro-segments of the market are listed in Table "22" below.

Table 22. Jordanian market segments based on therapeutic categories

Market Segments	Products	Manufacturers	Market Segments	Products	Manufacturers
1. Alimentary and Tract Metabolism	197	12	8. Genito-Urinary System	15	4
2. Blood & Blood Forming Agents	23	3	9. Musculo-Skeletal System & Joint	135	10
3. Cardiovascular System	121	10	10. Parasitologic Products	28	7
4. Central Nervous System	123	10	11. Respiratory System	102	9
5. Cytostatics	11	4	12. Sensory Organs	47	5
6. Dermatologicals	105	9	13. Systemic General Ant-Infectives	351	10
7. Endocrine System & Related	16	8			

Source: "Jordanian Pharmaceutical Products", The Jordanian Association of Manufacturers of Pharmaceuticals and Medical Appliances (JAPMA), 1998.

[25] This classification represents only pharmaceutical products produced by Jordanian manufacturers and does not include classification of imported pharmaceuticals.

Quality Control

5.20 In general Jordanian manufacturers comply with GMP regulations and apply quality control standards. Quality control measures are conducted on raw and validation of systems, formulations, and manufacturing procedures.

5.21 Some Jordanian manufacturers perform bioequivalency tests in cooperation with three universities endowed with bioequivalency centers. The availability of such centers contributed in creating an acceptable consumer confidence level in the local production.

Raw Material

5.22 Since Jordan lacks the raw material needed to produce drugs, Jordanian manufacturers import their raw material mainly from Europe, United States, Germany, and England. Pharmaceutical raw material is exempt from customs at entry to Jordan.

Human Resource

5.23 Jordanian pharmaceutical industry employs a relatively skilled low-cost workforce with a total number of approximately 3,098 employees. The pharmaceutical workforce is composed of a considerable proportion of female pharmacists and chemists, graduating from one of the eight universities that offer a pharmacy major in Jordan.

5.24 Around 36.9 percent of the workforce is employed in production, 13.3 percent in marketing, 8.6 percent in administration, 7.4 percent in quality control, and 5.4 percent in Research & Development. Table "23" details the distribution of the workforce in the Jordanian pharmaceutical sector.

Table 23. Distribution of the workforce in the Jordanian pharmaceutical sector

Department	Distribution (%)	Department	Distribution (%)
Production	36.9	Finance	3.1
R&D	5.4	Warehouse	4.9
Quality	7.4	Maintenance	6.9
Marketing	13.3	Janitors	7.2
Administration	8.6	Others	6.3

Source: Presentation on the "Structure of Employment ", Jordanian Ministry of Planning, 1998.

Pharmaceutical Trade

5.25 In general, the Jordanian industry is an export-led industry as it exports more than 50 percent of its production (Table "24"). Iraq is a major market for Jordanian exports followed by India, Saudi Arabia, and Morocco. Exports of medicaments accounted, on average, for 8.5 percent of total exports from 1996 to 1999 as compared to an average of 0.4 percent in Lebanon.

Table 24. Values of Jordanian pharmaceutical exports (1996-1999)

	1996 ($)[a]	1997 ($)[b]	1998 ($)[c]	1999 ($)[d]
Medicaments	146,243,302	186,770,304	141,923,321	140,868,168
Other Exports	1,668,572,858	1,647,943,416	1,652,887,230	1,638,786,072
Total Exports	1,814,816,160	1,834,713,720	1,794,810,551	1,779,654,240

Source: Department of Statistics, Central Bank of Jordan.
(a) 1 JD=1.4088$ (b) 1 JD=1.4098$ (c) 1 JD=1.4045$ (d) 1 JD=1.4084$

5.26 Bilateral trade of pharmaceutical products between Lebanon and Jordan during the years 1996-1999 was continuously unbalanced. The pharmaceutical products trade balance between both countries is largely to the benefit of Jordanian manufacturers. In four years (1996-1999), Jordanian exports of pharmaceutical products to Lebanon more than doubled and those imported from Lebanon more than tripled (Table "25").

5.27 Despite the presumably advantageous situation that the Lebanese pharmaceutical manufacturers are seemingly enjoying, the reality is that:

1- Lebanon's pharmaceutical products trade balance with Jordan is continuously in deficit and increasingly so at an average annual rate of 40.6 percent.

2- US dollar amounts of pharmaceutical exports from Lebanon to Jordan are on average 30 percent of that of Jordanian pharmaceutical exports to Lebanon.

Table 25. Lebanese pharmaceutical imports from and exports to Jordan (1996-1999)

	1996 ($)	1997 ($)	1998 ($)	1999 ($)
Pharmaceutical imports from Jordan	1,146,886	2,555,776	1,988,533	3,474,205
Variation of pharmaceutical imports from Jordan	-	122.8%	(22.2%)	74.7%
Growth of pharmaceutical imports from Jordan (1996=100)	-	122.8%	73.4%	202.9%
Pharmaceutical exports to Jordan	318,538	968,999	120,104	1,372,319
Variation of pharmaceutical exports to Jordan	-	204.2%	(87.6%)	1,042.6%
Growth of pharmaceutical exports to Jordan (1996=100)	-	204.2%	(62.3%)	330.8%
Lebanese pharmaceutical products trade balance (deficit) with Jordan	**(828,348)**	**(1,586,777)**	**(1,868,429)**	**(2,101,886)**

Source: Trade Information Center (MET), 2000 - Lebanese Customs (Ministry of Finance), 2000.

5.28 These imbalances of bilateral trade between Lebanon and Jordan are mainly attributed to each government policies regarding market access and market barriers practices. Jordanian pharmaceutical products can easily gain access to the Lebanese market, while Lebanese pharmaceutical products face difficulties when tempting to introduce their products in the Jordanian market.

5.29 Pharmaceutical registration and pricing in Jordan follow almost the same procedures that are applied in Lebanon. Pharmaceuticals obtain drug approvals, first, from a technical committee presided by the Minister of Health, and at a second stage these drugs are priced and authorized to be marketed. Registration process of Lebanese pharmaceutical products in Jordan require between six months to two years from date of submission of drug registration request till actual registration and introduction on the Jordanian market. In comparison, Jordanian pharmaceutical products require three months to be registered and marketed in Lebanon.

5.30 Jordan imports around 1,575 patented, brand-name and generic drugs from other world countries as compared to 2,737 in Lebanon[26]. These imports consist mainly of specialized drugs such as cancer and heart disease treatments mainly originating from Europe, and medical and pharmaceutical products/oils and perfumes. Table "26" details imports from 1996 to 1999.

Table 26. Jordanian medical and pharmaceutical Products/Essential oils and Perfume products imports (1996 – 1999)

	1996 ($)(a)	1997 ($)(b)	1998 ($)(c)	1999 ($)(d)
Medical & Pharmacy Products/ Essential oils and Perfume Materials	118,408,231	129,628,290	138,176,115	143,499,059
Other Imports	4,169,415,449	3,970,211,090	3,674,198,686	3,579,324,661
Total Imports	4,287,823,680	4,099,839,380	3,812,374,801	3,722,823,720

Source: Department of Statistics, Central Bank of Jordan.
(a) 1 JD=1.4088$ (b) 1 JD=1.4098$ (c) 1 JD=1.4045$ (d) 1 JD=1.4084$

Local Demand

5.31 In Jordan, the imported patented and brand-name drugs enjoy a better reputation than the locally manufactured products. However, due to considerable price differentials between locally manufactured drugs and imported ones, Jordanians find refuge in the locally produced drugs.

5.32 Marketing efforts primarily target physicians and pharmacists. As in Lebanon, no pharmaceutical mass media marketing is permitted.

26 "Drugs in Jordan", Jordan Pharmaceutical Association, the Scientific Committee, 1999.

Syria

Background

5.33 Aiming at improving health standards in the country, Syria is witnessing a noticeable development in the health care sector, especially in the different health professions and in the number of private and public hospitals available.

5.34 Plans to train and develop physicians according to modern scientific programs are carried out. New educational programs are being offered to eager future health professionals, mainly in: pharmaceutical production and quality control, drug testing, ambulatory medicine, family medicine, and hospital administration. In addition, medical educational programs are being implemented and licensing and testing procedures for physicians are modernized. A scientific library was established in 1993 consisting of extensive scientific and medical books and references.

5.35 With a population of 15.3 million[27], Syria has 349 private and public hospitals (one hospital per 43,839 citizens) with total bed capacity of 17,382. In Lebanon there are 175 private and public hospitals with one hospital per 22,857 citizens. There are 20,888 practicing physicians and 7,936 pharmacists in Syria as compared to 8,700 and 3,800 respectively in Lebanon. Table "27" compares the number of health institutions and professionals in 1993 with that in 1998. Comparisons demonstrate growth in Syria's health institutions and professionals.

Table 27. Growth of Syrian health institutions and health professionals (1993 and 1998)

	1993	1998	% Growth	Average annual growth rate (%)
Private Hospitals (beds)	210 (3,871)	285 (5,177)	35.7 (33.7)	7.1 (6.7)
Public Hospitals (beds)	53 (10,725)	64 (12,205)	20.8 (13.8)	4.2 (2.8)
Sanitariums (beds)	2 (102)	4 (1,335)	50.0 (1,209)	10.0 (241.8)
Physicians	13,863	20,888	50.7	10.1
Pharmacists	4,775	7,936	66.2	13.2
Dentists	6,238	10,473	67.9	13.6
Health Technicians	15,950	20,534	28.7	5.7
Midwives	4,551	6,672	46.6	9.3
Nurses	18,396	29,500	60.4	12.1

Source: Syrian Ministry of Health, 1998.

[27] World Bank Development Indicators, 1998.

5.36 Since 1989, the pharmaceutical manufacturing Industry in Syria has been experiencing growth, as a result of government policy. This sector witnessed significant shifts towards liberalization where regulations governing the private sector's operations have undergone repeated revisions. Efforts are currently aimed at ending price controls as well as state subsidies to the private sector.

5.37 Four pharmaceutical related directorates are modernized at the Ministry of Health: Directorate of Pharmacy, Directorate of Drug Control, Directorate of Control Laboratories and Drug Research, and Directorate of Drug Studies.

5.38 A quality control laboratory was established in 1990 and expanded its services in 1993. Quality control and inspection are done on a regular basis. In 1998, about 10,005 tests were performed and about 1,028 inspection visits were done[28] (i.e. an average of 20 visits per company), compared to 1,396 pharmaceutical related tests carried out by the Central Laboratory in Lebanon. It is worth noting that in October 1999, the quality control laboratory at the Syrian Ministry of Health obtained ISO certification, the first in kind among the Arab Nations.

Production and Market Segmentation

5.39 There are 50 pharmaceutical manufacturers in Syria of which two are public. These manufacturers are mostly small to medium-sized companies. The two public pharmaceutical manufacturing plants produce serum products in addition to their regular generic drugs producing activities. As in Lebanon, the spectrum of manufactured pharmaceuticals in Syria consist of brand name generics produced under license as well as generics.

5.40 The Syrian production is primarily based on imported raw active ingredients. The majority of production and packaging equipment as well as a large proportion of auxiliary materials are imported. Most raw materials originate from the Unite States, United Kingdom, Germany, Switzerland, France, Ireland, Italy, Spain, Belgium, Austria, and the Netherlands. Raw material in Syria is not exempt from customs and duties.

5.41 The number of locally manufactured drugs[29] increased from 100 during the 1970s to 350 drugs in the 1980s and to 3,194 in 1999. The Syrian pharmaceutical production has expanded[30] drastically in 30 years. Today it covers almost 87 percent of the market demand compared to only 10 percent during the 1970s.

5.42 The Syrian Local Drugs Guide (Medica Syria 99), established by the Ministry of Health, classifies pharmaceutical products that are manufactured in Syria according to 15 therapeutic categories and 63 sub-categories (Table "28"). Each of these therapeutic categories as well as their corresponding sub-categories constitute market segments in which Syrian manufacturers, are positioned.

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[28] "The Nation's Health under the attention of H.E. President Hafez El-Assad", Ministry of Health, 1970-1999.
[29] "Local Drugs Guide", Syrian Ministry of Health, August 1999.
[30] "The Nation's Health under the attention of H.E. President Hafez El-Assad", Ministry of Health, 1970-1999.

Table 28. Therapeutic categories[31] of locally manufactured pharmaceutical products in Syria

Therapeutic Categories	Therapeutic Categories
1. Allergology	9. Ophtalmology
2. Antispasmodics	10. Pneumology
3. Cardiology & Angiology	11. Rheumatology
4. Dermatology	12. Rhinology
5. Endocrinology	13. Serum & Vitamins
6. Gastroenterology	14. Urology, Nephrology & Gynecology
7. Anti-Infectives	15. Various
8. Neurology & Psychiatry	

Source: "Medica Syria 99", The Syrian Ministry of Health, 1999.

5.43 Positions of pharmaceutical products produced by Syrian manufacturers on the various therapeutic categories and the number of manufacturing firms competing in the same micro-segments of the market are listed in Table "29" below.

Table 29. Syrian market segments based on therapeutic categories

Market Segments	Products	Manufacturers	Market Segments	Products	Manufacturers
1. Allergology	56	21	9. Ophthalmology	102	6
2. Antispasmodics	158	37	10. Pneumology	251	39
3. Cardiology & Angiology	445	34	11. Rheumatology	294	42
4. Dermatology	373	28	12. Rhinology	29	12
5. Endocrinology	79	23	13. Serum & Vitamins	244	38
6. Gastroenterology	371	40	14. Urology, Nephrology & Gynecology	121	31
7. Anti-Infectives	412	39	15. Various	40	22
8. Neurology & Psychiatry	219	26			

Source: "Medica Syria 99", The Syrian Ministry of Health, 1999.

Quality Control

5.44 Syrian manufacturers seek the services of QA multinational companies for ISO 2000 certifications. The certifying activity served to accelerate the adoption and enforcement of Good Manufacturing Practices at the national level. Six Syrian pharmaceutical

[31] This classification represents only pharmaceutical products produced by Syrian manufacturers and does not include classification of imported pharmaceuticals.

manufacturers[32] have already acquired ISO 9002 certification compared to four manufacturers in Lebanon.

5.45 Special care is given to quality control laboratories in order to meet the technical needs of the licensing companies. Foreign pharmaceuticals (locally manufactured) are regarded as having higher quality than local products because of the stringent quality control procedures adopted by foreign licensors.

Imports

5.46 The Syrian Government has a monopoly on imports of all pharmaceuticals into Syria, through its trading institution "Saydalaya". Saydalaya is the State importer, the only authorized importer of pharmaceuticals in Syria.

5.47 The Syrian Government follows a national drug policy based on establishing a balance between local production and imports based on the Syrian Essential Drug List. The drug importation policy consists of importing only those pharmaceuticals that are not manufactured by Syrian pharmaceutical companies in quantities sufficient to meet local demand.

5.48 Although the expansion of local pharmaceutical manufacturing in Syria is reducing the spectrum of imported pharmaceuticals, however, drugs such as anticancer, hormones, vaccines and serum, immunology, toxicology, neurology and psychiatry, endocrinology, anti-infective drugs and sophisticated antibiotics are imported. Around 637 drugs are imported[33], 532 of which are drugs destined for human use, 79 drugs for veterinary use, 14 types of X-Ray films, and 12 types of sterile tissues and cotton.

5.49 Pharmaceutical imports originate from Switzerland, Germany, France, Italy, and the Netherlands, and some from Middle Eastern countries.

5.50 Pharmaceutical products are subject to a registration and pricing procedure carried out by the Ministry of Health. However, registration of Syrian manufactured pharmaceuticals is based on the National Essential Drug list. The Syrian Ministry of Health limits the number of registration of similar products. Pharmaceutical product registration in Syria is based on quality and price criteria.

Pharmaceutical Trade

5.51 Table "30" below indicates bilateral trade levels of pharmaceutical products between Lebanon and Syria. Trade deficit is slowly being reduced in favor of Lebanon.

5.52 Bilateral trade of pharmaceutical products between Lebanon and Syria during the years 1996-1999 has approximately the same magnitude. In four years (1996-1999), Syrian exports of pharmaceutical products to Lebanon remained modest barely doubled and those imported from Lebanon increased by 2.7 folds. The main reason behind the deficit in the

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[32] "The Nation's Health under the attention of H.E. President Hafez El-Assad", Ministry of Health, 1970-1999.

[33] "Prices of Imported Drugs as of 1/1/2000", Order of Syrian Pharmacists.

trade balance between the two countries is mainly due to the fact that Syria gives priority to its local production that supplies a good share of the market demand.

Table 30. Lebanese pharmaceutical imports from and exports to Syria (1996-1999)

	1996 ($)	1997 ($)	1998 ($)	1999 ($)
Pharmaceutical imports from Syria	158,897	212,610	54,354	128,328
Variation of pharmaceutical imports from Syria	-	33.8%	(74.4%)	136.1%
Growth of pharmaceutical imports from Syria (1996=100)	-	33.8%	(65.8%)	(19.2%)
Pharmaceutical exports to Syria	16,174	40,912	45,081	60, 183
Variation of pharmaceutical exports to Syria	-	153.0%	10.2%	33.5%
Growth of pharmaceutical exports to Syria (1996=100)	-	153.0%	178.7%	272.1%
Lebanese pharmaceutical products trade balance (deficit) with Syria	**(142,723)**	**(171,698)**	**(9,273)**	**(68,145)**

Source: Department of Statistics, Central Bank of Jordan - Lebanese Customs (Ministry of Finance), 1999.

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