

الجمهورية اللبنانية
مكتب وزير الدولة لشؤون التنمية الإدارية
مركز مشاريع ودراسات القطاع العام

Republic of Lebanon
Office of the Minister of State for Administrative Reform
Center for Public Sector Projects and Studies
(C.P.S.P.S.)

Al-Qreiah Model
Industrial Park
Market Study

Presentation to the
Investment Development
Authority of Lebanon (IDAL)

Arthur D. Little International, Inc

January 1997

Reference: 31853

Discussion Draft

Arthur D Little

Agenda

1	Executive Summary
2	The Site
3	Market Potential
4	Industrial Parks Elsewhere
5	Project Concept
6	Implementation Considerations

Objective

1

The Industrial Development Authority of Lebanon (IDAL) retained Associated Consulting Engineers (ACE) to prepare a feasibility study and a concept master plan for the Al Qreiah Model Industrial Park (QMIP). ACE asked Arthur D. Little to prepare for this project

- A market analysis and
- A financial assessment based on cost estimates prepared by ACE

This presentation/report covers the first part of our work, the market study

The scope of the market study includes the following tasks

- Site review
- Assessment of market potential
- Field market survey
- Review of successful industrial parks elsewhere
- Formulation of project concept

We summarize below the findings and conclusions resulting from the first phase of our work program

The site may be developed as a model industrial park for light, non-polluting industries

- The site has interesting potential but it has to overcome important challenges
- However, it has to overcome several challenges
 - ⇒ Access from coastal highway (8 km away)
 - ⇒ Lack of water
 - ⇒ Hilly terrain and rocky soil
- The site is likely to be suitable for non-polluting industries which do **not** consume extensive amounts of water and do **not** require heavy or large trucks for logistics purposes

There is a good market potential for properly planned and serviced industrial facilities in Lebanon

- Although overall utilization of existing industrial zones in Lebanon is low (35% of a total of 42 million m²), the poor condition of these zones provides opportunities for better serviced facilities to get established
- In addition to existing industrial zones, new industrial zones are being established and are likely to be in direct competition with QMIP
- Also some competition should be expected from the new free zones being established in Lebanon (around 1.5 million m² gross)

Findings and Conclusions Target Market Share

1

QMIP may target to achieve 10-15% of incremental demand from industries suitable for QMIP

		1995-2000	2000-2005	2005-2010	2010-2015	Cumulative
Total Market	Incremental total demand for industrial land	1,901	1,735	1,705	2,096	7,437
Addressable Market	Incremental demand for industrial land from industries suitable for QMIP	981	889	864	1,058	3,792
Target Market	QMIP target					
	<ul style="list-style-type: none"> • @ 10% of "addressable" market • @ 15% of "addressable" market 	98 147	89 133	86 130	106 159	379 569

Source: ADL estimate

In our review, we considered the following concepts of industrial developments elsewhere

- The science park
- The business park
- The Industrial estates

QMIP may consider the concept of the business park (offices and manufacturing/warehousing facilities) which has become popular in Europe

Prices of industrial facilities in Lebanon have to be competitive relative to international property

1995 Rental Prices for Built-up Industrial Property
(\$/m²/year)

Countries	Rental Rate	Countries	Rental Rate
Europe:		Middle East/Gulf:	
Germany	75-105	UAE	45-60
France	60-100	Jordan	15
Italy	50-80	Turkey	50
Portugal	70-120	Asia:	
Spain	75-85	Hong Kong	220
UK	65-145	Japan	275
North America:		Taiwan	80
Canada	30-40	Singapore	195
US	40-65		

We propose a differentiated concept for QMIP

- Well planned and nicely landscaped development
- Good infrastructure facilities
- Supported by effective services, managed perhaps by a private company(ies)
- Providing land for sale (in large tracts for further development) and/or ready built facilities (for sale or lease)

The business park concept prevalent elsewhere may provide a guide for QMIP

The following implementation issues should be considered

- Given prevailing prices, the capital investment plus financing costs which could be assumed by a private developer retained to develop QMIP is in the order of \$15 to \$25 million

- IDAL needs to establish the following
 - ⇒ Whether the project will be for sale or lease
 - ⇒ Whether the government is prepared to finance either fully or partially the cost of the infrastructure
 - ⇒ Whether it will be developed/managed by the government or a private company

Next steps

1

Next steps include

- Confirming the project concept with ACE and IDAL
- Addressing management and implementation issues
- Preparing financial analysis based on capital cost estimates prepared by ACE

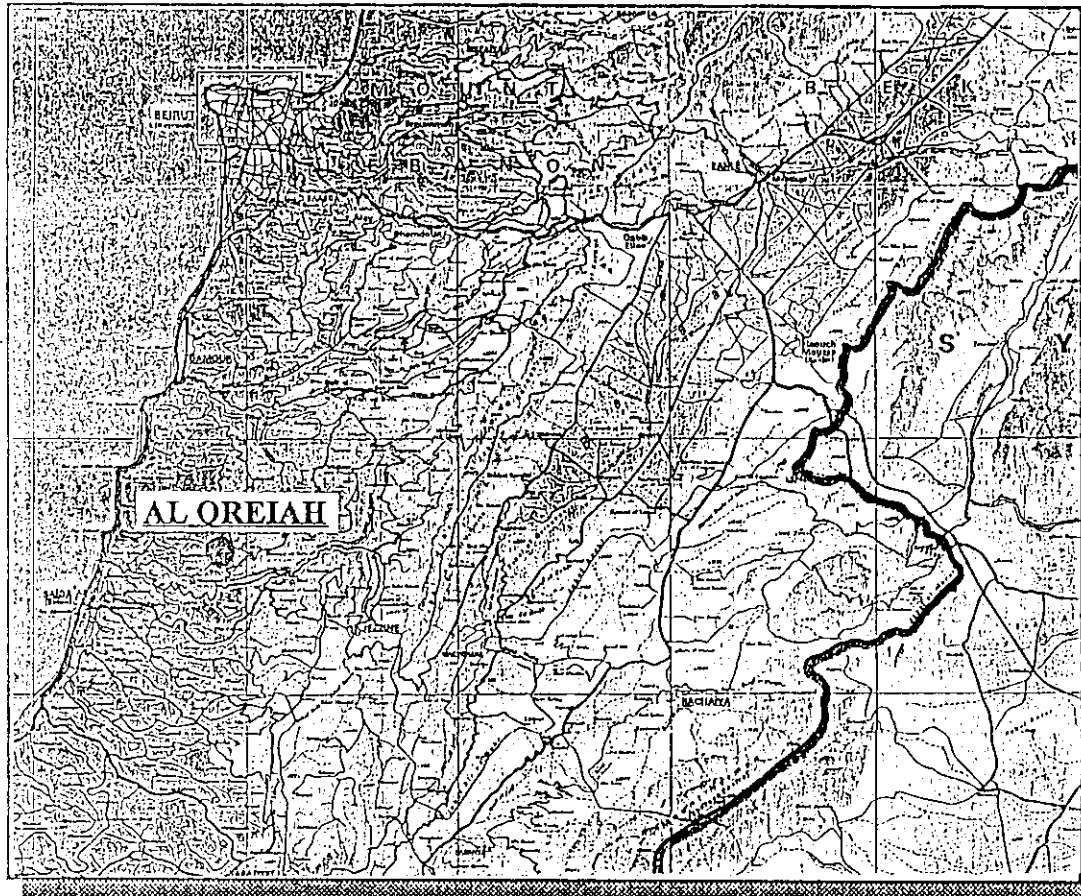
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The site may be suitable for light industries

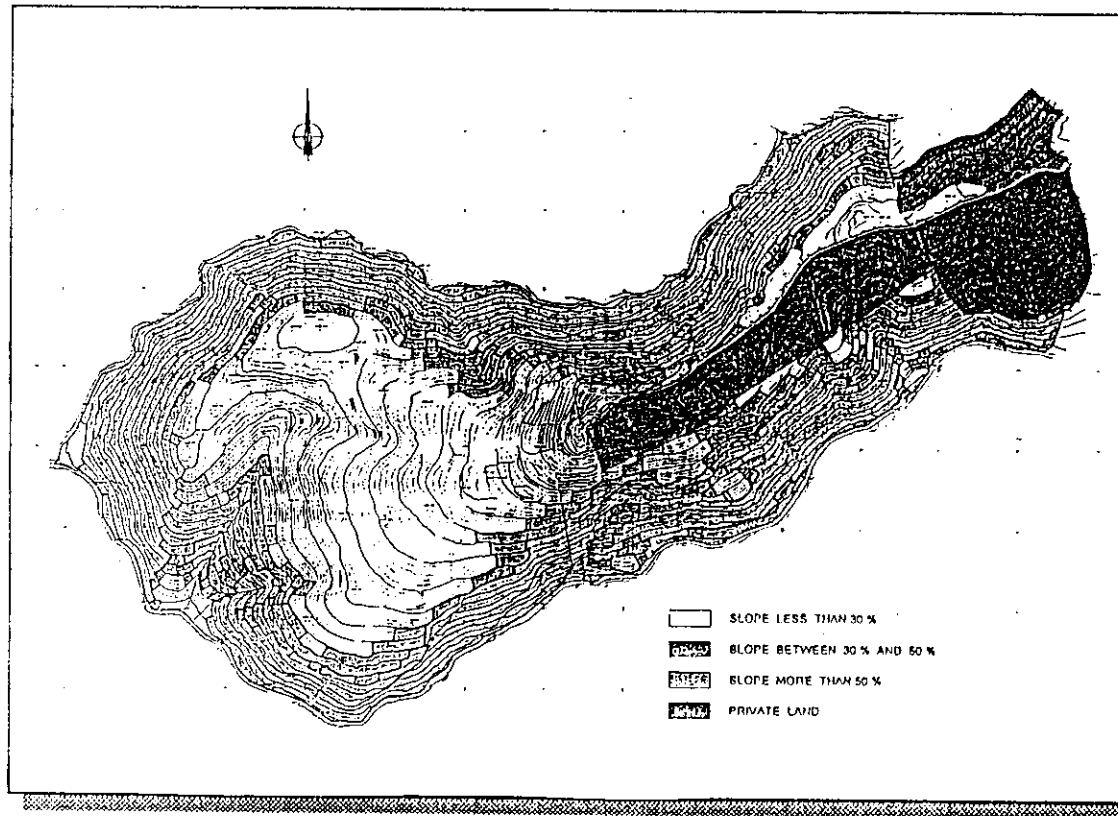
- The site is green and pleasant
- It is fairly close to Beirut and Saida
- However, it has to overcome a number of challenges
 - ⇒ Scarcity of water
 - ⇒ Difficult access for heavy trucks
 - ⇒ Rocky soil and high gradient
- To succeed, the project has to target light, low water consuming and non-polluting industries

Al-Qreiah is located around 42 km South of Beirut



Distance Between QMIP and	km
• Beirut	42
• Saida	16
• Tyre	55
• Chtoura	75
• Al Chouf (Baaklin)	28
• Ports:	
- Beirut Port	48
- Beirut Airport	40
- Saida Port	18

The total surface area of the site is about 1.67 million m² of which an estimated 720 thousand m² are usable - the rest has a gradient of more than 30%



Gradient	Gross Size (000m ²)
0-10%	65
10-20%	300
20-30%	355
30%+	950
Total	1,670

Existing road access is unsuitable for heavy trucks

- The site is 8 km away from the Wadi al Zeini crossing on the Beirut-Saida highway
- The road connecting the site to the highway passes through several small villages. It is narrow (3 to 7 m wide) with high gradient and sharp turns
- Accordingly, it does not permit easy access for large trucks and suffers from congestion from time to time
- The use of this road by heavy trucks will be disturbing and potentially unsafe for local village residents, as well as for passing traffic

ACE have considered two options for improving access to the QMIP from the Jiyeh - Zahrani coastal highway, however, the cost may be prohibitive if assumed by the QMIP developer

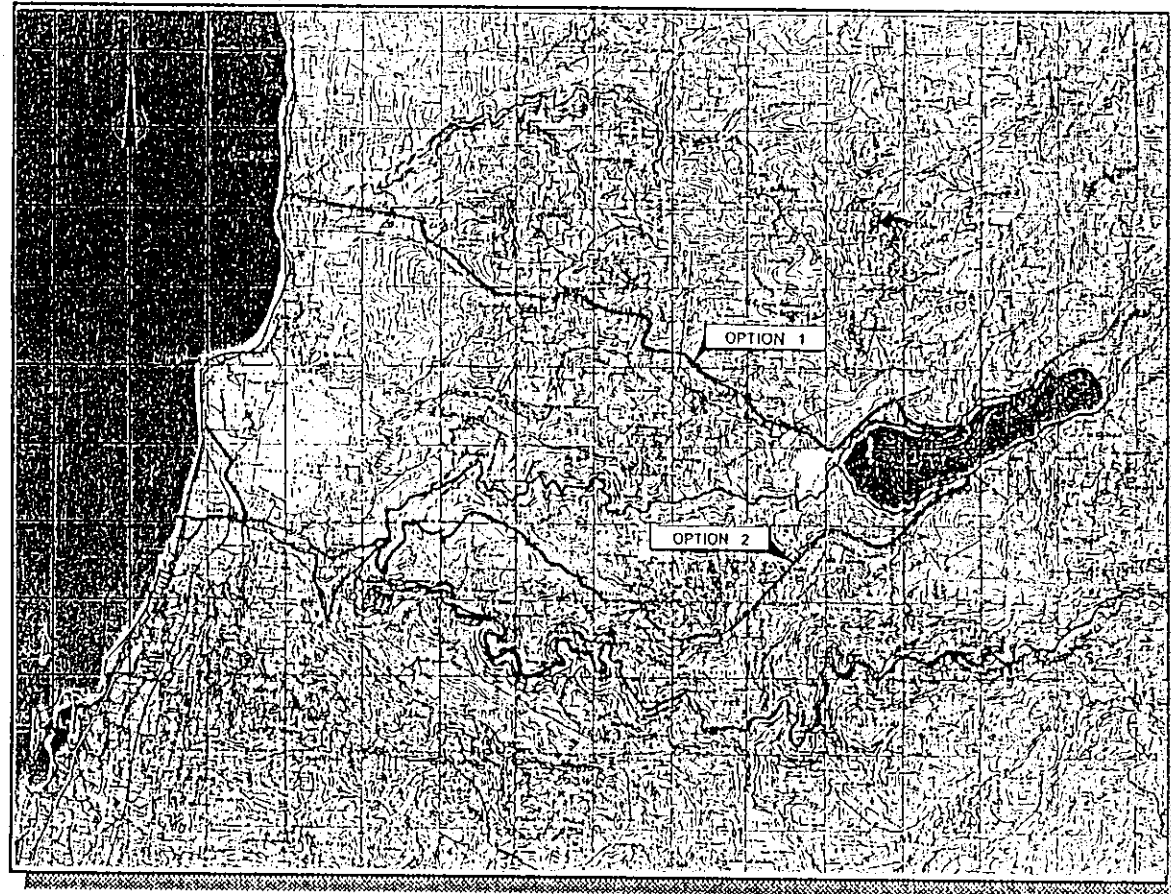
Proposed Road Access

Option 1

Connection between Sibline and QMIP bypassing Ketermaya, Mgahirieh, Ouarde
Length: 9.5 km (7.2 km with viaduct)
Width: 3 lanes; 10.5 m wide
Estimated cost: \$ 5 million
(\$ 7 million with viaduct)

Option 2

Connection between Rmeileh and QMIP
Length: 5.5 km (4 km with viaduct)
Width: 3 lanes; 10.5 m wide
Estimated cost: \$ 4.6 million
(\$ 7 million with viaduct)



Around 115,000 people live in surrounding areas, and the active population is 75,000 approximately

Profile of QMIP Surrounding Area

Population:		Hospitals:	
Iqlim Al Kharoub*	62,000	Private	3
Other Chouf Villages	53,000	Public	1
Schools:		Other Facilities:	
Private	1	Restaurants	30
Public	30	Super/Mini Market	45
		Recreation	6
Vocational Schools:			
Private	3		
Public	2		

* Media ...

The site ... also ... (in thousands of people in villages)

Water is not available in sufficient quantities for water consuming industries

- Water is available today from Barouk, but it is sufficient for domestic use only
- Additional water from Barouk is not likely to be available in sufficient quantities
- Alternative sources of water are being considered
 - ⇒ Al Awali river / Qanan Lake: ACE are investigating this possibility, but this alternative is likely to be costly (around \$ 1.8 million), if feasible
 - ⇒ On site wells: A number of wells will be needed and this option may also be expensive considering the cost of drilling wells and the cost of extracting and treating water. Also, it is unclear whether the quantities available are sufficient.
- Electricity may be supplied through a high tension connection from the Jiyeh power plant. A substation on site will be required.
- Telephone lines will be available from the planned central switching office in Zaarourieh
- A waste treatment facility will be needed. No sewer lines exist in the area. Treated water may be recycled for industrial applications, cooling, or irrigation.

Other characteristics of the site include the following

- The soil is rocky
- The site is partly green with pine trees and olive groves on neighboring land
- The site is surrounded by hills mostly covered with pine forests with a sea view in the distance
- No building for housing or other use is immediately adjacent to the site. The closest residential developments are around 2 km away

Overall, the site can be considered reasonable for industrial use, especially for light, low water consuming industries

Site Strengths

- Proximity to the market in the South
- Proximity to the new Port planned for Saida
- Pleasant and clean environment
- Suitable for non-polluting industries

Site Weaknesses

- Scarcity of water
- Uneven and hilly terrain (around 40% of land is usable)
- Access is difficult for heavy trucks
- Rocky soil implying expensive development costs
- Limited availability of skilled labor in the area

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The industrial sector in Lebanon is characterized as follows

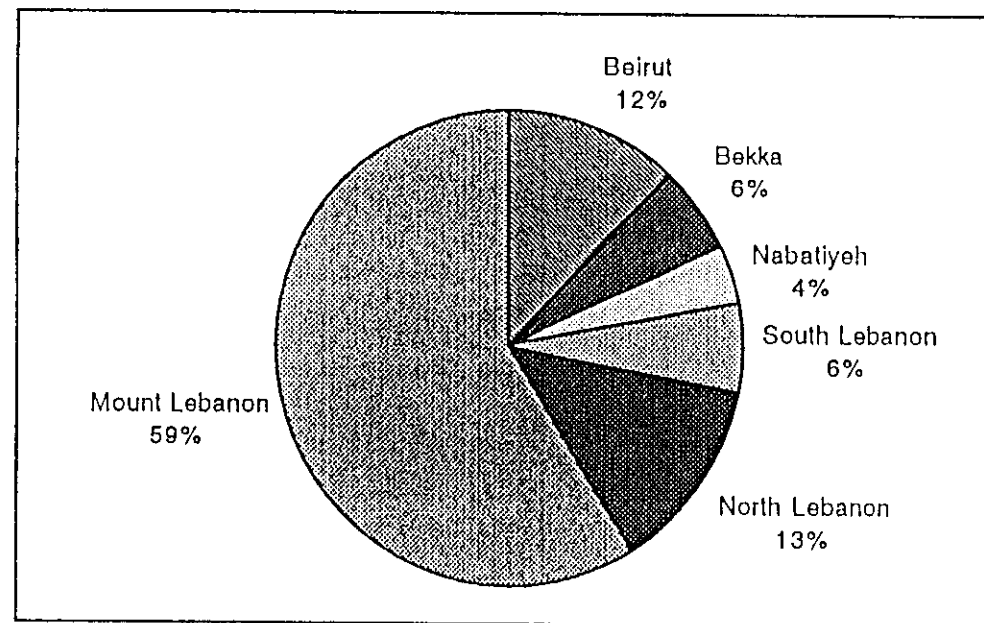
Profile the Lebanese Industrial Sector
1995

Industrial production (\$ billion)	3.9
Industrial value added (\$ billion)	1.9
Number of workers (000)	150
Average value added per worker	\$ 12,650
Industrial land	
• Total (million m ²)	42
• Utilized	35 (%)

Source: ADL estimates based on 1994 industrial census

Industry in Lebanon is concentrated in Mount Lebanon

Distribution of Industrial Labor
(1994 - 100%= 144 thousand workers)

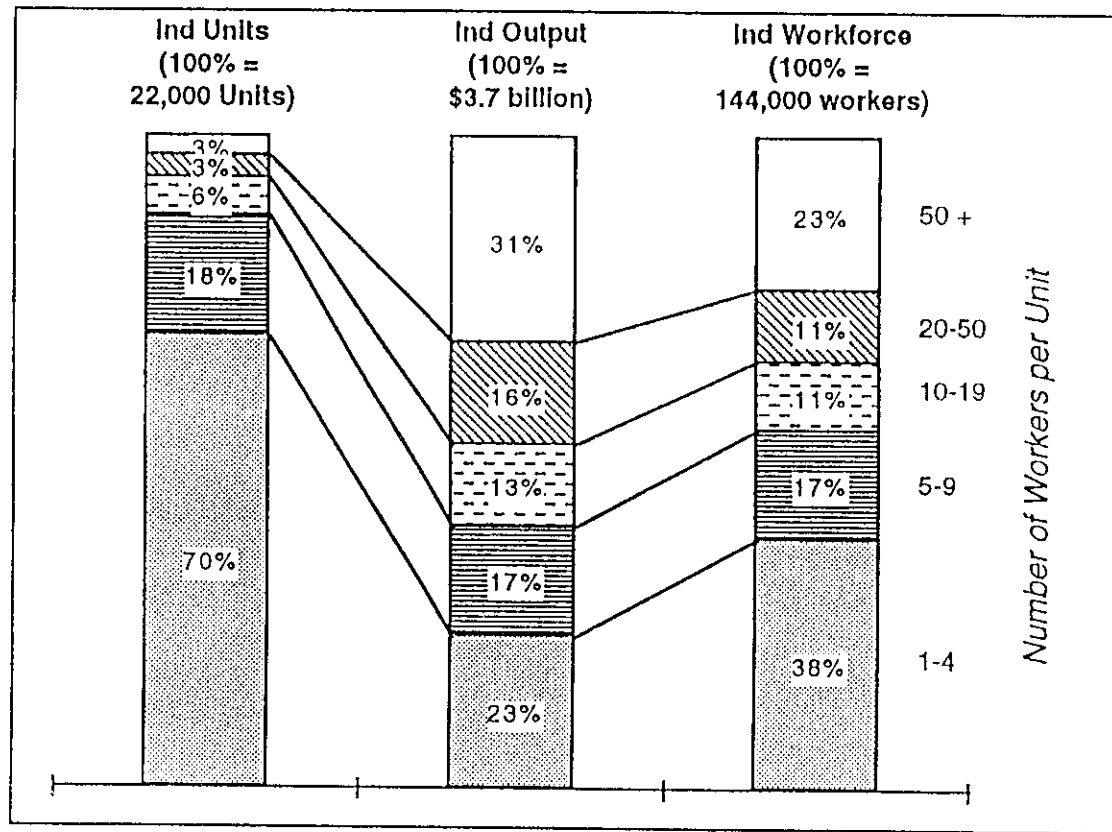


Source: Industrial census - 1994

The Lebanese government is working to encourage industrial investment in the Bekaa, the North and the South

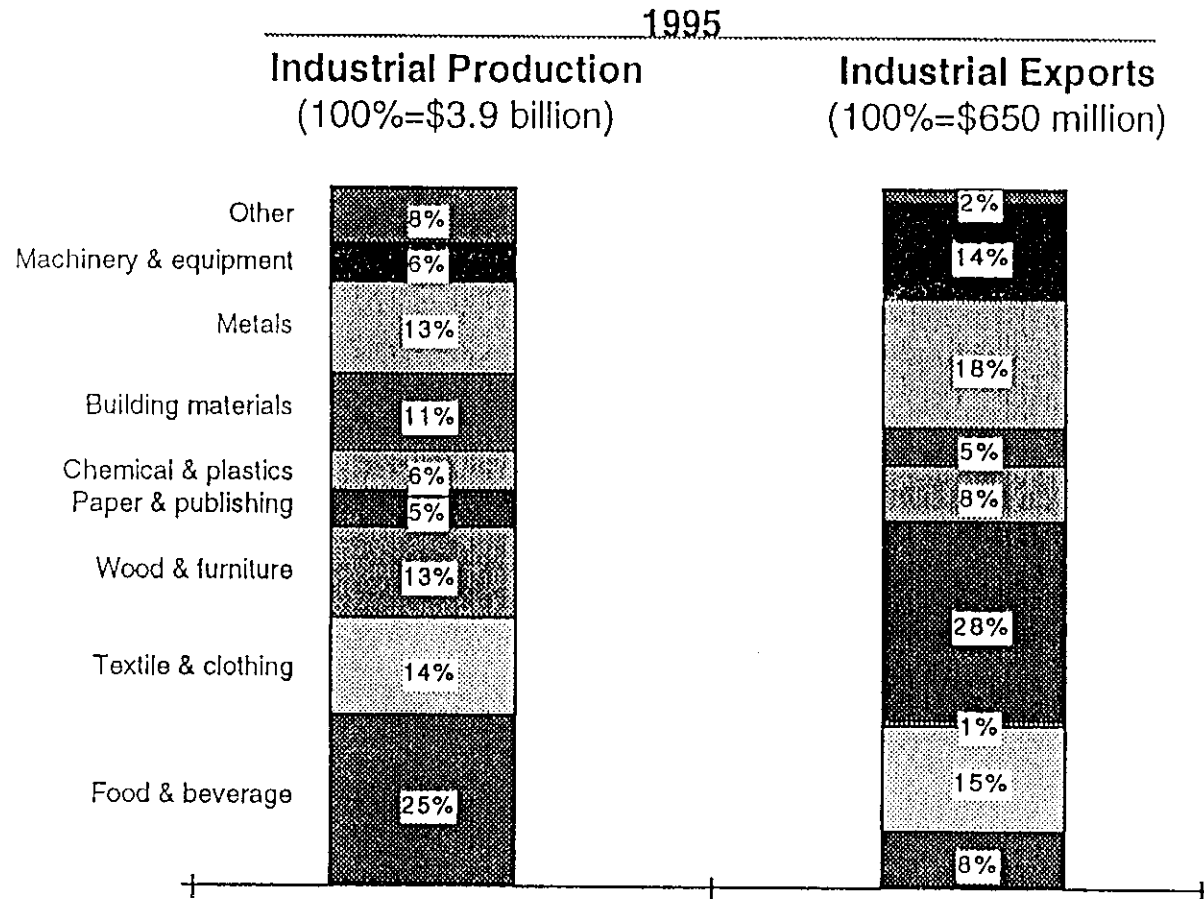
The industrial sector is fragmented: 12% of industrial units employ more than 10 workers; they account for 60% of production and 45% of industrial employment

Breakdown of Industrial Sector



Source: Industrial census - 1994

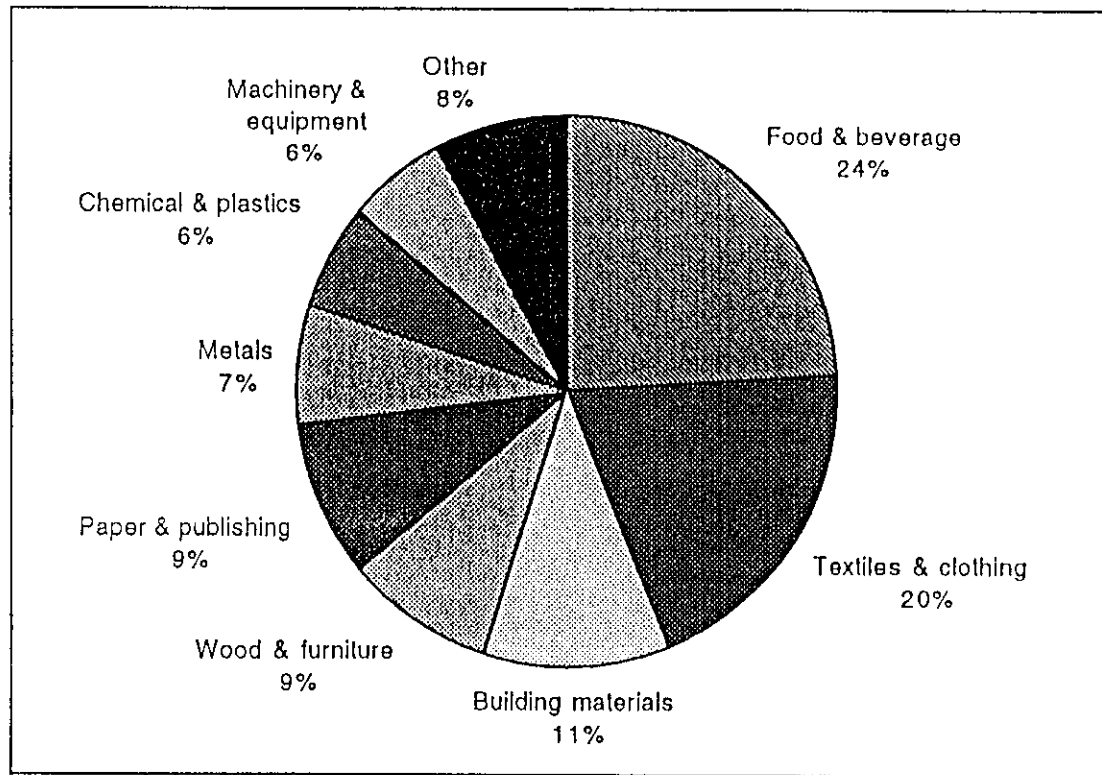
Food & beverage and clothing are the largest production sectors.
 Printing and metal sectors are the largest exporters.



Source: Industrial census - 1994; trade statistics

Food, clothing, and building materials account for more than half of the industrial workforce in factories

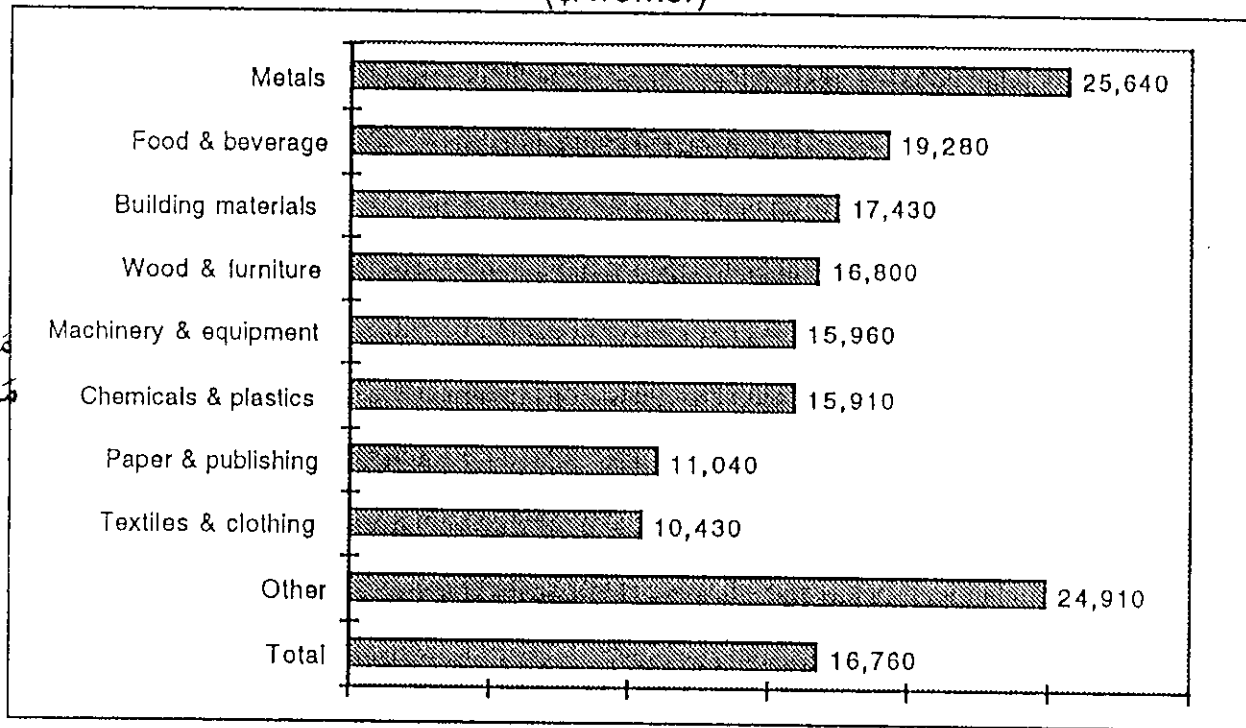
Distribution of Industrial Workers in Factories (Industrial Units >10 Workers)
(100% = 67 thousand workers)



Source: Industrial census - 1994

Value added per employee is highest in the metals sector

Value Added Per Employee*
(\$/worker)

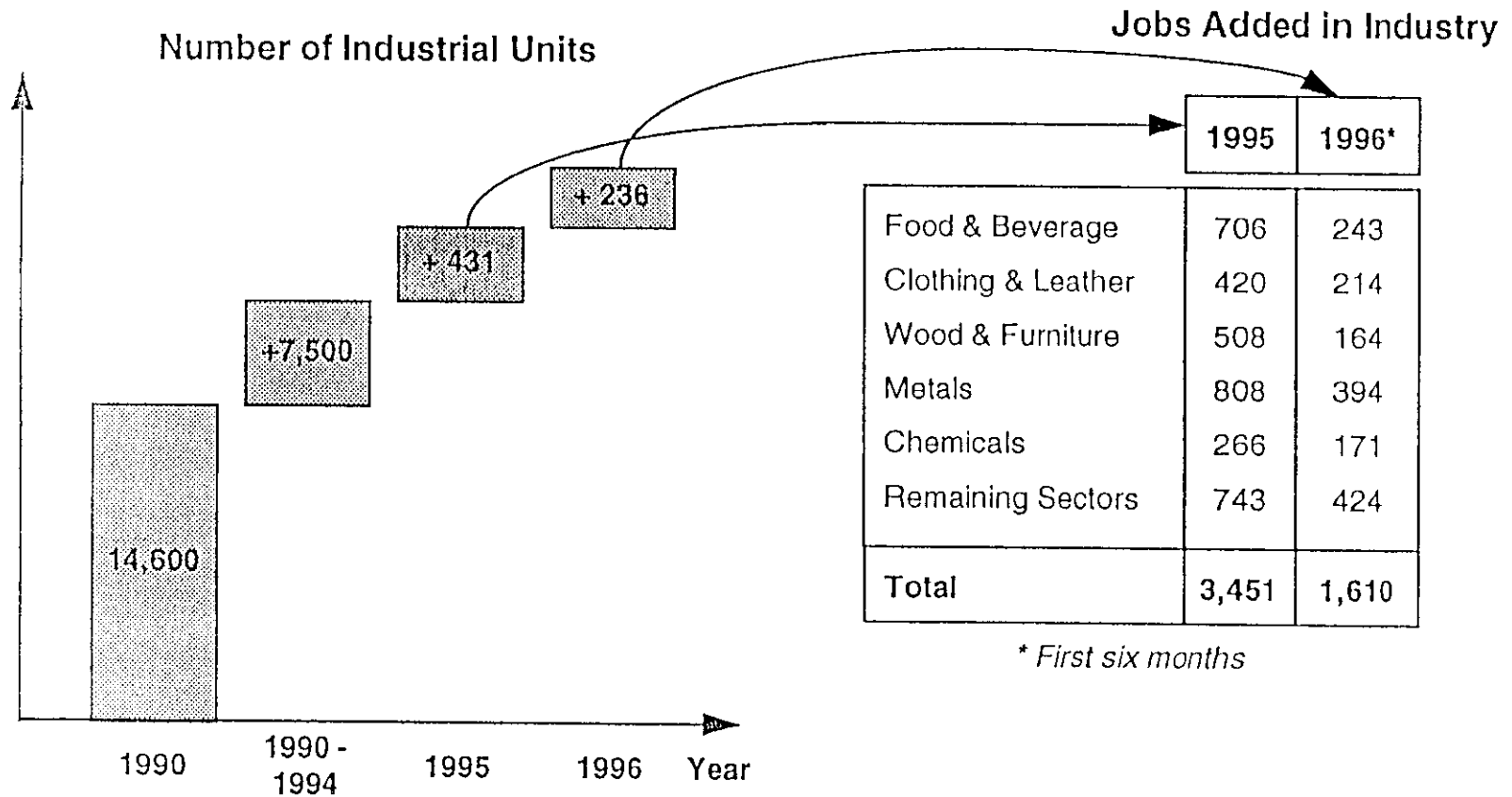


* Based on industrial units with more than 10 workers
Source: Industrial census - 1994

Value added per worker in Lebanon is low by international standards

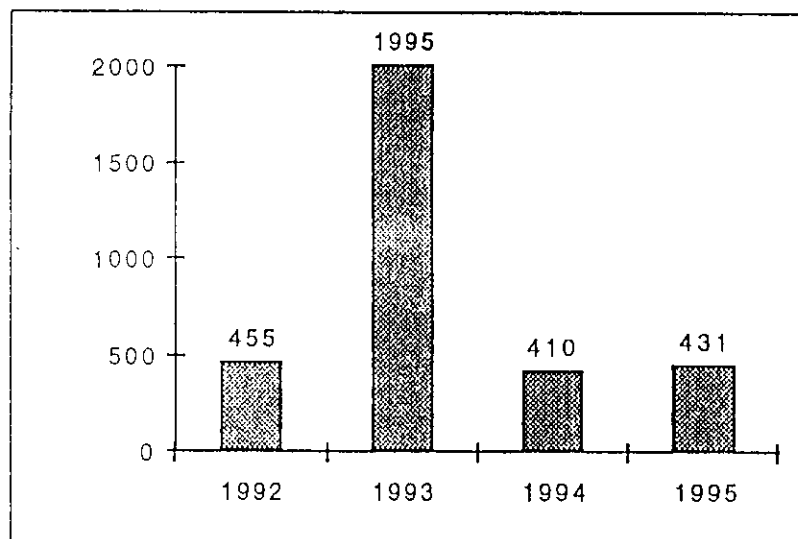
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The industrial sector has experienced significant growth over the last few years. Recent growth has mainly been in the food and metal sectors.

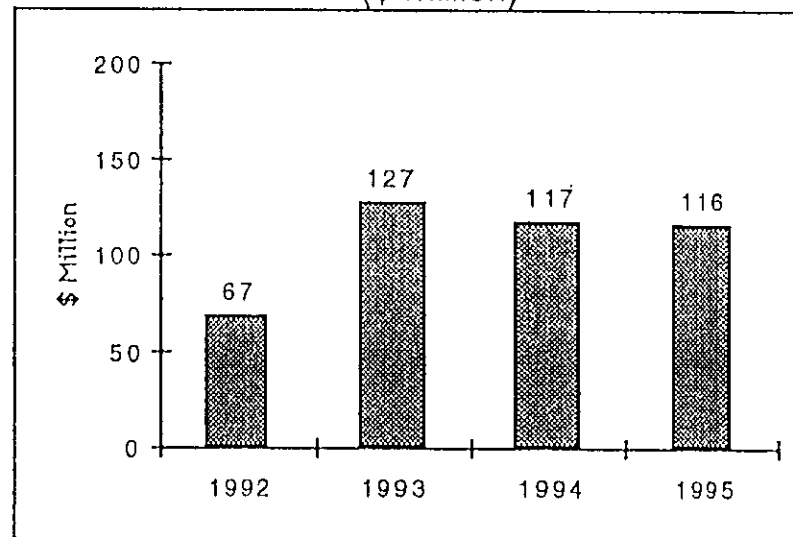


Significant new investments are being made in industry

Number of Industrial Licenses Issued



Imports of Industrial Machinery (\$ million)



Source: Ministry of Industry & Petroleum

Gross capital formation in industry is estimated to be around \$ 200 million per year

Industrial activity in the South is characterized as follows

	South Lebanon	% of Total Lebanon
Population (000)	258	8.3%
Industrial Workforce (000)	9	6.0%
Factories (Units > 10 employees)		
• Number of Units (1994)	120	4.5 %
• Labor (1994)	1,950	3.0 %
Industrial Land (million m ²)	3.2	7.7%
Main Industrial Sectors (# of industrial units)		
• Food & Beverage	535	
• Metals	372	
• Textiles & Clothing	<u>203</u>	
Total	2,260	9.6%

Al-Qreiah will contribute to developing the industrial base in the South

In the Chouf area surrounding QMIP, clothing and building materials are the leading industrial sectors

Sector	In the Chouf	
	Factories*	Workers
Clothing & Leather	20	727
Building Materials	26	697
Food & Beverage	23	550
Metals	10	341
Chemical Products	9	229
Wood & Furniture	8	156
Others	10	120
Total	96	2,820

* Includes only industrial units with > 10 workers

Industry in Lebanon is facing a number of hurdles

- Scarcity of adequate medium and long term financing
- Poor infrastructure in most of the existing industrial sites
- Scarcity of skilled / technically trained labor
- Low labor productivity which leads to cost inefficiencies
- Shrinking export markets and increasing domestic competition
- High tariffs on certain imported raw materials

Government initiatives are currently underway to overcome these difficulties

- Infrastructure is being rehabilitated and priority attention is being given to productive sectors
- Bilateral and multilateral agreements are being sought by the government to ensure better access to export markets
- The central bank has given initiatives for commercial banks to provide long term financing
- A comprehensive program to establish vocational schools around Lebanon is underway

The following long-term objectives for developing the industrial sector are being considered

Long Term Objectives*

	1995	2005	2015	CAGR*
GDP (\$ billion)	11.4	18.6	27.6	4.5%
Industrial output (\$ billion)	3.9	7.0	11.4	5.5%
Industrial value added				
• (\$ billion)	1.9	3.4	5.5	5.5%
• % of GDP	16.5%	18.2%	20.0%	
Labor employed (000)	150.0	245.7	382.1	4.8%

* Compounded annual growth rate

Source: ADL estimate

Our selection of industries suitable for QMIP was based on the following screening criteria

- Water: away from industries that consume large amounts of water
- Pollution: away from polluting industries
- Labor skill: towards industries that do *not* need highly skilled labor
- Access to:
 - ⇒ Raw materials: away from industries that need to be close to sources of raw materials (e.g. agribusiness)
 - ⇒ Market: away from industries that require daily/frequent distribution to end markets (e.g. bakeries, milk/dairy products)
- Logistics: away from industries that need large trucks and generate heavy traffic
- Sector fit to Lebanon: towards industries that fit Lebanon's competitive advantages and have export potential

We initially screened out the following industries as they are clearly *not* suitable for QMIP

Sector	Main Reason for Rejection
<ul style="list-style-type: none"> • Petroleum products • Coal and lignite; peat • Mining and quarrying products (gravel, sand, salt,....) • Cement, lime, plaster • Construction stone, limestone, gypsum and chalk • Grain mill products • Alcoholic beverages • Bottling and distribution of water • Tobacco products • Leather processing (scrapping, tanning,...) • Pulp, paper and paper products • Pesticides and other agrochemical products • Explosives and ammunition • Industrial gases, dyes and pigments, fertilizers and nitrogen compounds, plastic in primary forms • Metal ores • Rubber tires and tubes • Metal recycling • Metal casting, forging, pressing; powder metallurgy • Transportation equipment • Production of engines and turbines 	<ul style="list-style-type: none"> • Lack of raw materials; pollution • No raw materials • No raw materials • Pollution • Space intensive • Space intensive • Water intensive • Water intensive • Government monopoly; space intensive • Pollution • Pollution; water intensive • Hazardous; pollution • Hazardous • Pollution • No raw materials • No raw materials • Pollution; energy intensive • Pollution; energy intensive • Space intensive • Not a target industry for Lebanon

Food & beverage, and paper production is generally not highly suitable to QMIP

High Suitability	Medium Suitability	Low Suitability
<p>Food & Beverage</p> <ul style="list-style-type: none">• Sweets, pastry, and cakes• Coffee and tea (roasting)• Condiment and seasonings <p>Paper & Publishing</p> <ul style="list-style-type: none">• Books• Records, CDs, videos	<p>Food & Beverage</p> <ul style="list-style-type: none">• Prepared animal feed• Prepared pet food <p>Paper & Publishing</p> <ul style="list-style-type: none">• Periodicals	<p>Food & Beverage</p> <ul style="list-style-type: none">• Fresh and preserved meat, poultry, and fish• Meat, poultry, fish processing• Processed and preserved fruits and vegetables• Fruits and vegetable juices• Oils and fats• Dairy products• Ice cream and edible ice <p>Paper & Publishing</p> <ul style="list-style-type: none">• Paper products

Textiles & clothing, and wood & furniture production is generally highly suitable for QMIP

High Suitability	Medium Suitability	Low Suitability
<p>Textiles & Clothing</p> <ul style="list-style-type: none"> • Apparel & clothing • Leather and fur • Luggage, handbags and the like • Footwear <p>Wood & Furniture</p> <ul style="list-style-type: none"> • Articles of cork, straw • Wooden containers • Builders joinery and carpentry 	<p>Textiles & Clothing</p> <ul style="list-style-type: none"> • Textile fabrics <p>Wood & Furniture</p> <ul style="list-style-type: none"> • Furniture • Kitchen furniture • Mattresses 	<p>Textiles & Clothing</p> <ul style="list-style-type: none"> • Weaving <p>Wood & Furniture</p> <ul style="list-style-type: none"> • Production of wood board

Chemicals & plastics production is generally suitable for QMIP

High Suitability	Medium Suitability	Low Suitability
<p>Chemicals & Plastics</p> <ul style="list-style-type: none">• Pharmaceuticals• Perfumes and toiletries• Plastic plates, sheets, tubes and profiles• Packaging products of plastic	<p>Chemicals & Plastics</p> <ul style="list-style-type: none">• Soap, detergents, and cleaning products• Building materials of plastic	<p>Chemicals & Plastics</p> <ul style="list-style-type: none">• Paints, varnish and similar coatings• Glues and gelatins• Photographic chemicals

Metals and machinery manufacturing is generally moderately suitable for QMIP

High Suitability	Medium Suitability	Low Suitability
<p>Metals</p> <ul style="list-style-type: none">• Jewelry <p>Machinery & Equipment</p> <ul style="list-style-type: none">• Electronic equipment	<p>Metals</p> <ul style="list-style-type: none">• Aluminum and copper products• Metal structures and parts• Heating radiators and boilers• Steel drums and metal containers• Treatment coating of metals <p>Machinery & Equipment</p> <ul style="list-style-type: none">• Bearings; gears; and driving elements• Furnaces and burners• Handling equipment• Air-conditioning equipment• Other industrial machinery• Compressors, pumps, valves and taps• Electric appliances• Electrical generators and transformers• Electric wire and control apparatus	<p>Metals</p> <ul style="list-style-type: none">• Wire <p>Machinery & Equipment</p> <ul style="list-style-type: none">• Agricultural tractors• Machinery for mining, quarrying, and construction• Batteries

Our estimate of future demand for industrial land was obtained as follows

- We considered “factories” - units that employ more than 10 workers - in order to use them as a base for our forecast
- We projected industrial output by sector over the next 20 years
- We then calculated the number of workers needed to achieve projected output
- Based on projected labor, we estimated overall land requirements - “Total Market”
- We then deducted labor and land requirements that correspond to industries that are not suitable to QMIP - “Addressable Market”
- Finally we estimated demand for QMIP land by assuming a range of target market shares - “Target Market”

In our analysis, we considered industrial units with more than 10 workers. Accordingly, our forecast base was the following

Profile of Industrial Forecast Base
(Units with more than 10 workers - 1994)

Industrial Sector	Units	Workforce ('000)	Production (\$ Million)	Space ('000 m ²)
Food and beverage	523	15.7	644	1,254
Textiles and clothing	680	13.0	299	456
Wood and furniture	394	6.0	214	535
Paper and publishing	156	5.7	161	228
Chemicals and plastics	143	4.0	142	398
Building materials	256	7.1	257	1,034
Metals	226	4.3	254	432
Machinery and equipment	118	3.7	140	334
Other	195	5.0	225	479
Total	2,691	64.5	2,336	5,150

Source: Industrial census - 1994

Industrial output is expected to grow 3 folds by 2015. Some sectors will experience faster growth than others.

Overall Industrial Output Forecast*

Industrial Sector	Rate of Growth	1994	2000	2005	2010	2015
Food and beverage	Above avg.	644	1,021	1,432	1,917	2,565
Textiles and clothing	Above avg.	299	476	667	893	1,195
Wood and furniture	Average	214	303	387	471	573
Paper and publishing	Average	161	229	292	355	432
Chemicals and plastics	Average	142	202	257	313	381
Building materials	Average	257	365	466	566	689
Metals	Below avg.	254	321	372	411	454
Machinery and equipment	Below avg.	140	177	205	226	250
Other	Below avg.	225	284	329	364	402
Total	5.5	2,336	3,378	4,408	5,516	6,941

* In fixed US dollars

Source: ADL estimates

Given this growth in output and assuming an improvement of labor productivity by 50% over the forecast period, the implied industrial workforce is expected to grow as follows

Forecast of Labor Requirements
('000 workers)

Industrial Sector	1994	2000	2005	2010	2015
Food and beverage	16	22	27	33	40
Textiles and clothing	13	18	23	27	33
Wood and furniture	6	7	8	9	10
Paper and publishing	6	7	8	9	10
Chemicals and plastics	4	5	6	6	7
Building materials	7	9	10	11	12
Metals	4	5	5	5	5
Machinery and equipment	4	4	4	4	4
Other	5	6	6	6	6
Total	65	83	98	110	126

Source: ADL estimates

The industrial space corresponding to projected labor levels will be the following

Forecast of Land* Requirements
(‘000 m²)

Industrial Sector	Industrial Land				
	1994	2000	2005	2010	2015
Food and beverage	1,254	1,896	2,553	3,281	4,217
Textiles and clothing	456	689	928	1,193	1,533
Wood and furniture	535	722	885	1,034	1,208
Paper and publishing	228	309	378	442	516
Chemicals and plastics	398	538	659	770	899
Building materials	1,034	1,397	1,712	2,000	2,337
Metals	432	521	580	614	651
Machinery and equipment	334	402	448	475	504
Other	479	577	642	681	722
Total	5,150	7,051	8,786	10,491	12,587

* Assuming that area of built space is equal to the area of land i.e. an FAR of 1
Source: ADL estimates

We have assumed that the capital intensity of manufacturing will increase over time. As a result, average space requirement per worker will increase gradually from 75m² (today's level) to 100m² (in 2015).

Removing from the overall projection land requirements for industries *not* suitable to Qurieh, we arrive to the following

Land for Industries Suitable for QMIP
(‘000 m²)

Industrial Sector	2000	2005	2010	2015
Food and beverage	569	766	984	1,265
Textiles and clothing	620	836	1,074	1,380
Wood and furniture	506	620	724	846
Paper and publishing	154	189	221	258
Chemicals and plastics	376	461	539	630
Building materials	698	856	1,000	1,168
Metals	260	290	307	326
Machinery and equipment	201	224	237	252
Other	289	321	341	361
Total	3,674	4,563	5,427	6,485

Labor for Industries Suitable for QMIP
(‘000workers)

Industrial Sector	2000	2005	2010	2015
Food and beverage	6.6	8.2	9.9	11.9
Textiles and clothing	16.3	20.5	24.6	29.6
Wood and furniture	5.2	5.9	6.5	7.0
Paper and publishing	3.6	4.0	4.4	4.8
Chemicals and plastics	3.5	4.0	4.3	4.7
Building materials	4.4	5.1	5.5	6.0
Metals	2.4	2.5	2.5	2.4
Machinery and equipment	2.1	2.1	2.1	2.1
Other	2.8	3.0	2.9	2.8
Total	47	55	63	72

More than sufficient land is available in Lebanon for industrial development

Industrial Zones	Million M ²		% Utilization
	Total	Available for Development	
Existing	41.6	27.0	35%
New*	2.3	2.3	-
Free Zones**	1.5	1.5	-
	45.4	30.8	32%

* Without Qreiah

** Excluding Tyre and Keserwan

What is needed is suitable infrastructure and good support services

At present, there are 45 industrial zones in Lebanon representing about 41 million m², roughly two thirds of which are available for development

Existing Industrial Zones
(million m²)

Industrial Zone	Class	Total	Available*	Industrial Zone	Class	Total	Available*
Mount Lebanon				North Lebanon			
Naameh - Damour	B	0.92	0.81	Halba	B	0.37	0.34
Choueifat-Bchamoun	B-C	5.10	2.20	Tripoli - Beddawi	A	5.00	1.60
Aley	C	0.68	0.63	Al Here - Chekka	B	4.30	3.32
Kfarchima	C	0.82	0.57	Other		1.80	0.80
Mkalles	C	1.35	1.01	South Lebanon			
Fanar-Ain Saadeh-Roumieh	C	2.40	1.44	Saida - Ghazieh	B	2.63	2.18
Zouk	C	1.02	0.51	Other		0.60	0.50
Amchit	C	0.38	0.36	Bekaa			
Nahr Ibrahim	C	0.37	0.28	Baalbeck	C	0.52	0.51
Hosrayel	C	0.58	0.53	Zahle - Taalbaya	B-C	4.23	3.74
Mazraat Yachouh	C	0.39	0.34	Majdel Anjar-Taanayel	B	3.59	2.99
Other		3.60	1.35	Other		1.00	0.96
		17.59	10.03			24.04	16.93
				Total			
				Available*			
				41.6			27.0

* Available for development

Class A: Reserved for industries that can cause serious threat to the environment

Class B: Reserved for industries that can cause disturbance to their surroundings or threat to the environment

Class C: Reserved for industries that can cause almost no disturbance to their surroundings or threat to the environment

The investigation conducted by ACE for the 45 existing sites has identified important weaknesses in infrastructure

- Electric power supply is not always reliable; private generators are often used
- Roads are, in most cases, in poor condition and rarely lit
- Waste disposal is typically inadequate
 - ⇒ Sewer systems, if any, are usually not sufficient
 - ⇒ No sewage treatment plants exist
 - ⇒ Solid waste disposal is undertaken by the industrialists
- Water for industrial use is typically available from wells

However, government initiatives are underway to improve the infrastructure in existing industrial zones

The majority of these sites are not properly planned

- Some sites are very close to residential or commercial neighborhoods
- Pollution is not effectively controlled
 - ⇒ Air/water pollution
 - ⇒ Noise pollution
- Zoning and other urban controls are not properly enforced
- Greenery and landscaping is rarely considered

No effective organizations exist to provide common services

- Land in existing industrial zones is typically owned as independent parcels
- Common services such as security, waste disposal, etc. are not available or inadequate
- Infrastructure in existing industrial zones is not properly maintained
- Some of the large zones have formed tenant associations. However these organizations are not yet very effective.

Land prices vary from a low of \$3/m² to a high of \$800/m² in attractive locations. In addition approximately \$200-300 per m² is needed for the construction of industrial facilities.

Sales Prices of Industrial Land

Industrial Zone	Sales Price (\$/m ²)	Industrial Zone	Sales Price (\$/m ²)
Mount Lebanon		North Lebanon	
Naameh - Damour	30-50	Halba	3-10
Choueifat - Bchamoun	250-300	Tripoli - Beddawi	3-10
Kfarchima	250-300	Al Here - Chekka	40
Mkalles	400-800	South Lebanon	
Fanar-Ain Saadeh-Roumieh	150-300	Saida - Ghazieh	30-150
Zouk	400-600	Bekaa	
Amchit	40-60	Zahle - Taalbaya	10-60
Nahr Ibrahim	40-50		
Hosrayel	30-60		
Mazraat Yachouh	200-250		

Pre-built facilities are available for annual rental prices ranging between \$20/m² to \$80/m²

Sample Prices of Pre-Built Facilities

Area	Sale Price \$/m ²	Annual Rental Rate \$/m ²
Mkalles	400-800	50-70
Nahr El Mot	500-800	65-80
Dekwaneh	300-400	50-60
Western Suburb	150-200	N/A
Ghazieh	N/A	20
Jounieh	150-200	N/A
Zouk	400-500	20-40

The Lebanese government is establishing new industrial zones as well as free zones

- 2.3 million m² of industrial land in Babliyah, Mazraat Bsafour, Makseh, and Simkanieh were recently zoned for industrial development
- 1.2 million m² of free zones at the Beirut Airport, Qlay'at, and Riyak are under tendering
- A new industrial zone in Batroun and four new free zones in Saida, Tyre, Metn, and Kesrwan are also under consideration

Two of the planned industrial zones are in the South

Planned Industrial Zones	Size (000 m ²)	Classification*	Price**	Distance to Beirut	Status
South Lebanon: Babliyah	800	B	30-50	70	Approved
Bsafour	585	B	30-50	80	Approved
Bekaa: Makseh	765	C	30-40	55	Approved
Mount Lebanon (Chouf): Simkanieh	200	B	N/A	45	Under consideration
North Lebanon: Batroun	N/A	Under consideration	N/A	50	Under consideration

* Classification:

Class B: Reserved for industries than can cause disturbance to its surrounding or threat to the environment

Class C: Reserved for industries that can cause almost no disturbance to its surrounding or threat to the environment

** Expected price

Seven free zones are also planned for Lebanon. Three are under tender for development under a BOT scheme.

Planned Free Zones

Location	Size (000m ²)		Rental rate*		Comments
	Gross	Net	Land	Factories	
Beirut Airport	200	150	-	75	Tendered (BOT basis)
Riyak	460	340	5	50	Tendered (BOT basis); expansion being considered
Qlay'at	520	390	5	50	Tendered (BOT basis); expansion being considered
Saida	150	100		50	Part of Saida Port. Completion beyond 2002.
Metn	200	150		N/A	Part of Linord development project. Completion beyond 2003.
Tyre, Kesrwan	-	-	-	-	Under consideration
Total	1,530	1,130			

* Expected

** Excluding Tyre and Keservan

These zones are likely to be attractive to foreign investors

Serious competition should be expected from new zones

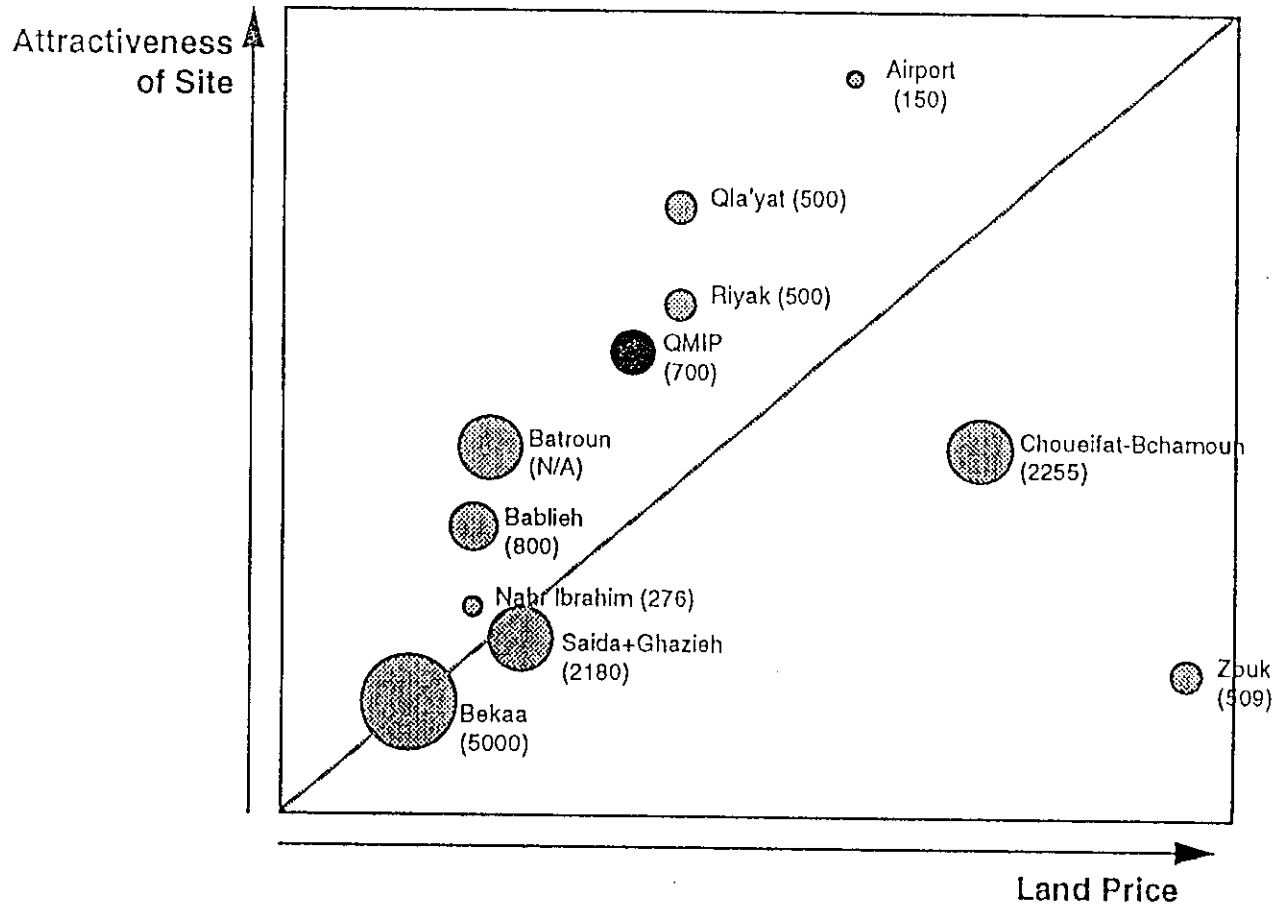
- Modern infrastructure will be developed
- New zones will be properly managed
- Most of these zones are large and are thus expected to be marketed aggressively
- Prices in new sites are expected to be competitive
- Some sites may offer industrialists options to rent/lease property
- Free zones are likely to receive government support and enjoy attractive incentives

In terms of attractiveness, QMIP is expected to assume a middle position compared its direct rivals

	Proximity to Beirut	Water	Infrastructure	Management	Govt. Incentives / Support	Overall Rating
QMIP	**	*	****	****	***	***
Existing						
Saida + Ghazieh	**	***	**	*	*	**
Chouifat - Behamoun	****	***	**	**	*	***
Nahr Ibrahim	***	**	**	*	*	**
Zouk	***	**	**	*	*	**
Bekkaa	*	****	**	*	*	**
New Zones						
Bablich	**	**	***	***	*	***
Batroun	**	***	***	***	*	***
Free Zones						
Beirut Airport	****	***	****	****	****	****
Qla'yat	*	***	****	****	****	***
Riyak	*	**	****	****	****	***

Legend: **** High
 *** Above average
 ** Moderate
 * Poor

QMIP is expected to assume a middle position compared to its direct rivals (continued)



Note: The size of circles reflects the size of land in the site
Numbers in brackets are the gross sizes (in thousands of m²) of each site

QMIP may target to achieve 10-15% of incremental demand for land in the addressable market

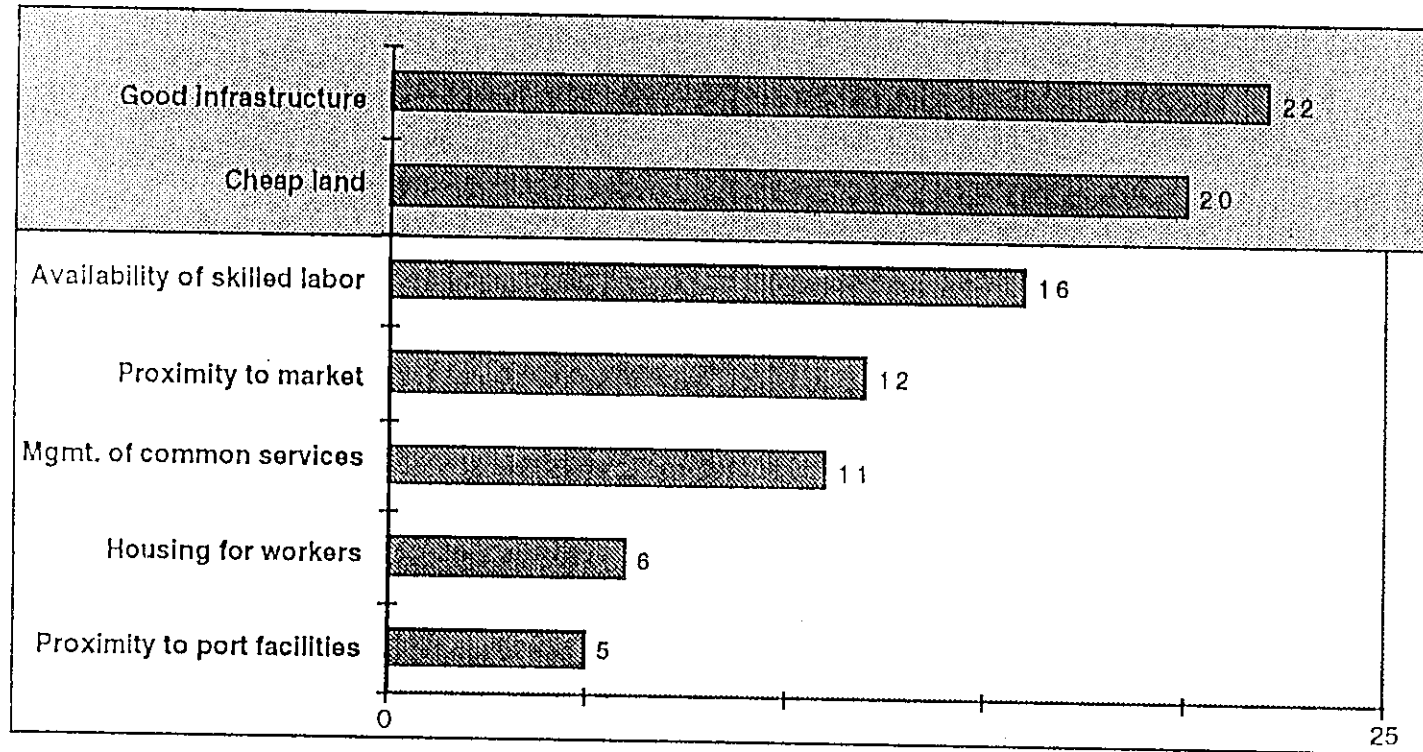
		1995-2000	2000-2005	2005-2010	2010-2015	Cumulative
Total Market	Incremental total demand for industrial land	1,901	1,735	1,705	2,096	7,437
Addressable Market	Incremental demand for industrial land from industries suitable for QMIP	981	889	864	1,058	3,792
Target Market	QMIP target					
	<ul style="list-style-type: none"> • @ 10% of "addressable" market • @ 15% of "addressable" market 	98 147	89 133	86 130	106 159	379 569

Source: ADL estimate

To assess the requirements of industrialists, we interviewed representatives from a sample of 32 factories

Industrial Sector	Factories Interviewed
Food & beverage	5
Textiles & clothing	7
Wood & furniture	3
Paper & publishing	3
Chemicals & plastics	6
Building materials	1
Metals	4
Machinery & equipment	3
Total	32

Good infrastructure and cheap land are the two most mentioned requirements identified in our survey

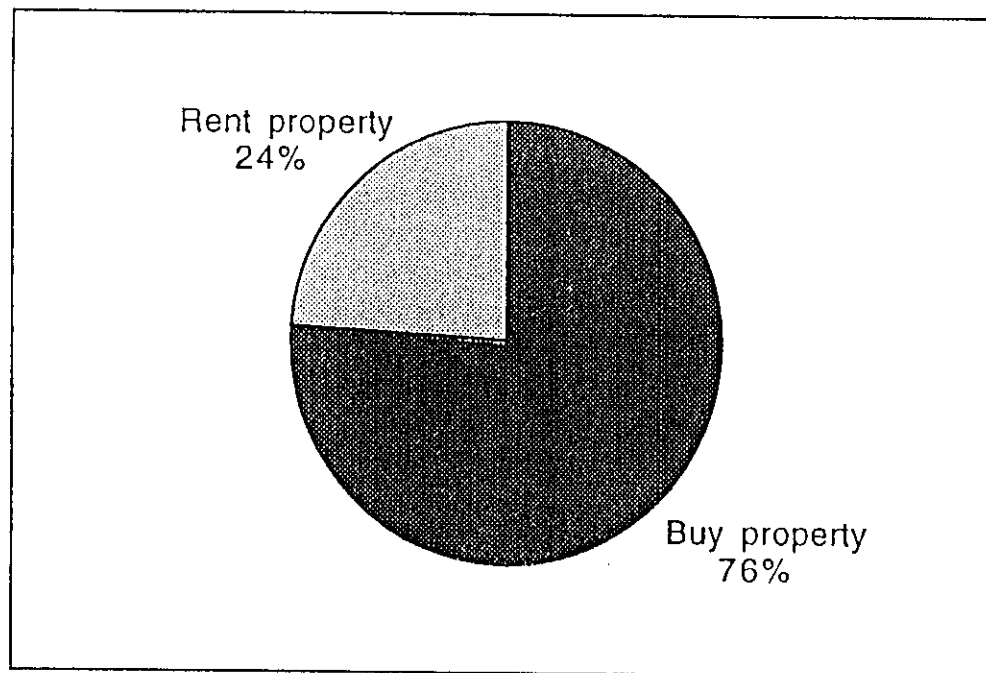


With respect to the management of common services, a private organization is the preferred choice

Management of Common Services	# of Answers	% of Total
Private company management	14	56%
Mixed private company & tenant organization	6	24%
Tenant association	4	16%
Government/municipality	1	4%
Total	25	100%

The majority of industrialists interviewed indicated a preference to buy property rather than to rent it

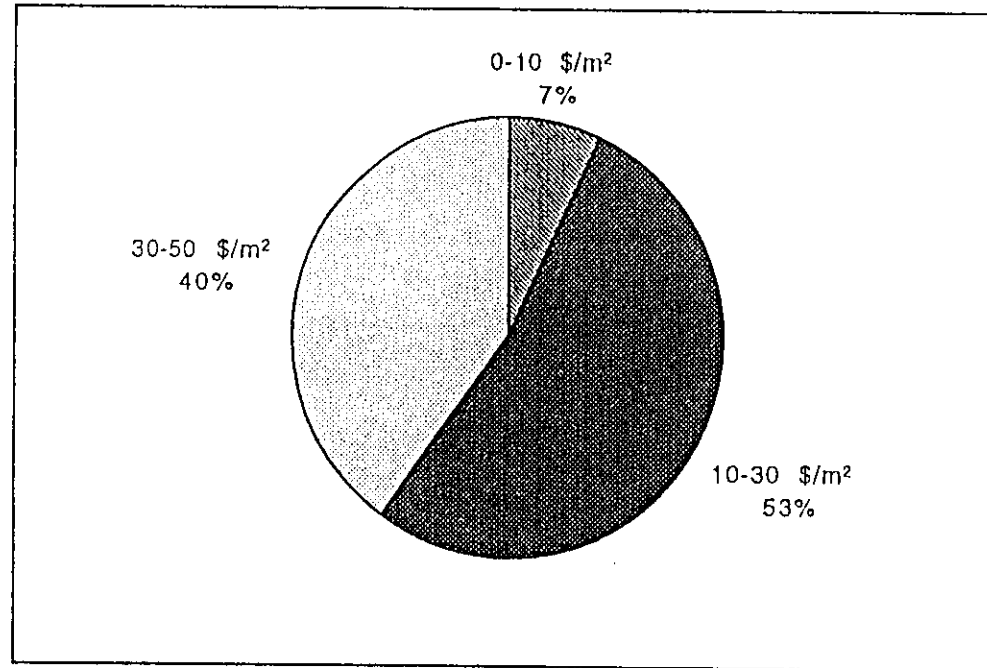
Preference of Industrialists



The concept of long term leases was well received by the industrialists interviewed

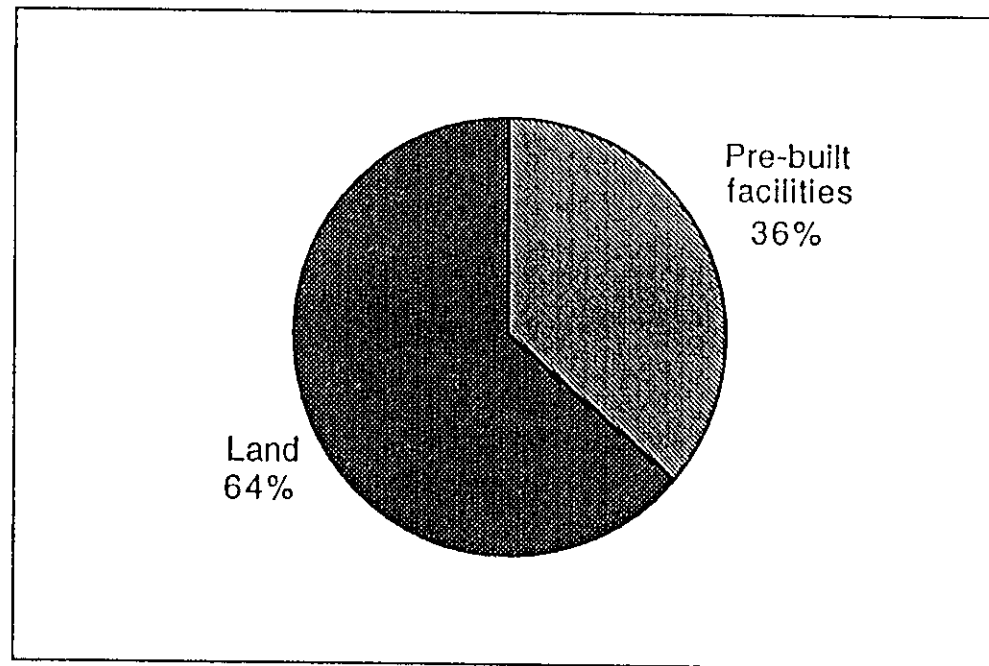
The top price that interviewed industrialists are willing to pay for industrial land is \$50/m²

Breakdown of Reported
Maximum Affordable Price of Land



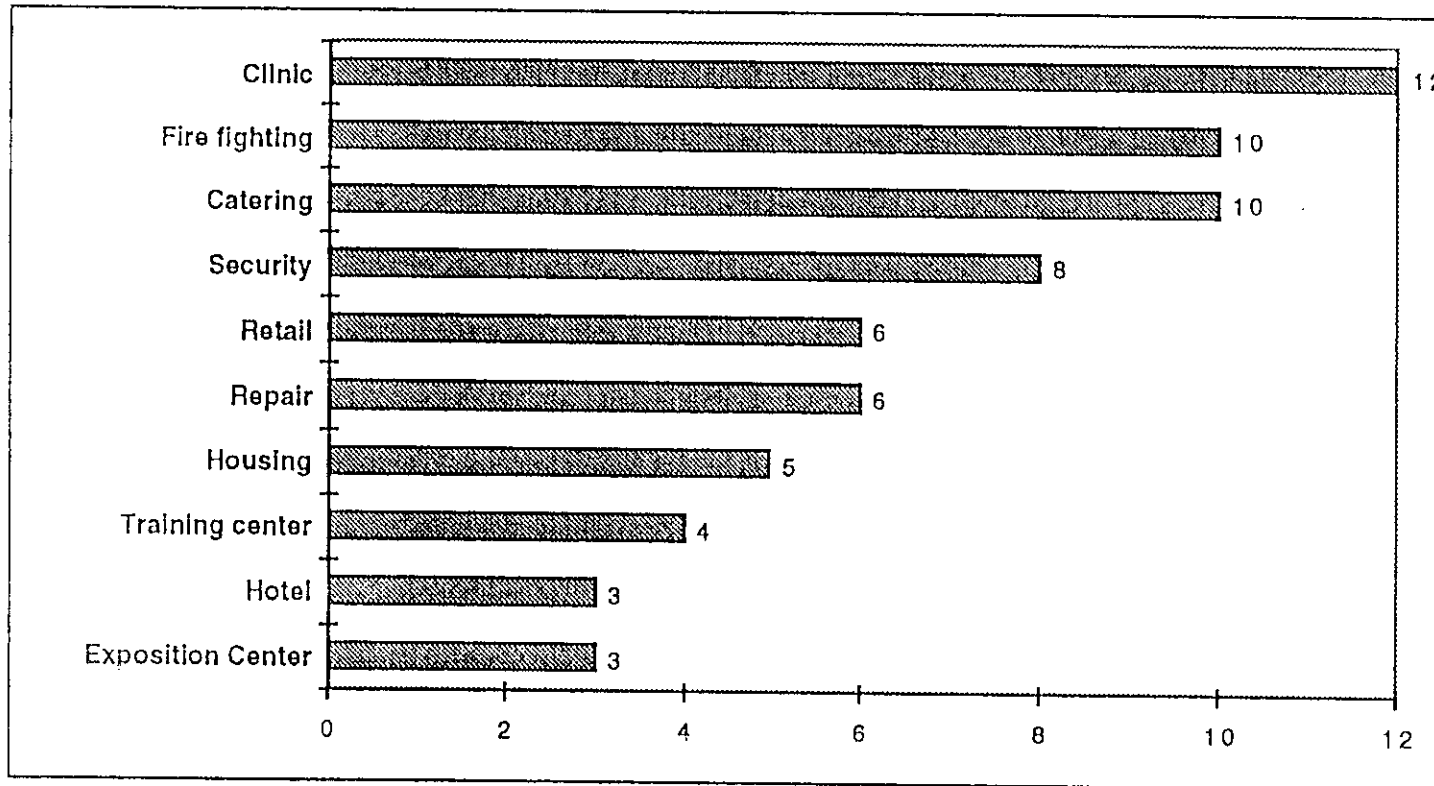
The majority of industrialists surveyed, mainly the larger ones, prefer acquiring land which they would develop themselves - rather than pre-built facilities

Preference of Property Type



A clinic and fire fighting facilities topped the list of requisite amenities

Amenities Required



Agenda

1	Executive Summary
2	The Site
3	Market Potential
4	Industrial Parks Elsewhere
5	Project Concept
6	Implementation Considerations

During our study, we reviewed the following

- The concept of the science park, and the review of an example of such park in Italy
- The concept of the business park, and the review of an example of such park in Germany
- The concept of the industrial estate, and a review of examples of such estates in the UK
- Industrial real estate facilities in Canada, Jordan, Saudi Arabia and other countries of the Gulf

The concept of “Science Parks” or “Technology Parks” is widely established in industrialized countries

- The main objectives of science parks are to
 - ⇒ Support research and development
 - ⇒ Support small and medium size innovative companies
 - ⇒ Leverage the transfer of information among tenants in the park and also from universities and research centers to industry
- Science parks are typically established near universities
- These parks enjoy significant government support. In Europe, a special EU fund has also been set to assist participants in science parks (by up to 70% of total investment).
- Science parks are used temporarily (2-5 years) by start up businesses that typically move to conventional industrial sites when they become established

This concept is not suitable for QMIP at this point in time

The typical features of a science park are the following

Typical Science Park Features

- Hosts leading R&D laboratories
- Their management is typically a joint effort between the government, universities, and industrialists on the park
- They are close to universities
- Their most common activities include
 - Information technology, media, and electronics
 - Biomedical engineering/technology
 - Industrial automation/instrumentation
 - Environmental technologies
- To qualify as a participant/tenant in a science park, the company/individual should
 - Have a highly innovative project
 - Have national or international level development objectives
 - Be self supporting and marketing oriented
 - Generate new qualified jobs
 - Secure the support of research bodies/universities
- Science parks have very high quality work environments with high standard facilities and landscaping
- They typically consist of pre-built space and offices which are rented
- Typically, they are fully serviced and maintained. Extensive communication and networking facilities are normally in place.

The Area Science Park in Italy is an example of one of the successful science parks in Europe

Profile	Special Features
<ul style="list-style-type: none">• Location: Trieste, Italy• Establishment: 1982• Size: 23,000 m²• Managed by a committee comprising:<ul style="list-style-type: none">– Ministry of Universities– Municipality of Trieste– Universities of Trieste and Udine– National Research Council– Major local companies– Others• Includes<ul style="list-style-type: none">• 30 private/public laboratories• Training center• Conference hall, teaching labs, canteen, support services	<ul style="list-style-type: none">• Management Functions:<ul style="list-style-type: none">– Overseeing building laboratories and workshops– Providing and managing common facilities– Promoting the site to new tenants– Assisting tenants on administrative, contractual and legal matters– Securing contacts with external partners– Arranging for skilled labor and training– Pre-selection/evaluation of target tenants• Special services:<ul style="list-style-type: none">– Assistance and advice on civil engineering and safety matters– Waste disposal– Arranging press conferences– Assistance in securing EU financial support– Comprehensive maintenance of facilities and equipment– Provision of industrial supplies (e.g. gases)– Global networking with other centers

The concept of a business park may be characterized as follows

- Provide a combination of office (25 to 50% of available space) and warehousing/ manufacturing space (50 to 75% of available space)
- Alternatively designed buildings and open space/landscaping developed in a "park" like setting
- Close to urban areas
- Direct access and visibility to traffic to promote a corporate image for tenants in the eyes of consumers
- Range in sophistication between the basic manufacturing and office facilities to attractive, well planned centers featuring retail and other service facilities

Business parks are also becoming attractive to service companies

الجمهورية اللبنانية
مكتب وزير الدولة لشؤون التنمية الإدارية
مركز مشاريع ودراسات القطاع العام

Specific features of business parks include the following

Typical Features of Business Parks

- Developed by private investors
- Typical size 30,000 - 50,000 m², though expanding
- Distinctive atmosphere created through:
 - Good architecture and superior quality construction
 - Diversified structures
 - Inner country yards and unused spaces planted with trees and shrubs
- Multifunctional structures that allow for reserve building rights and possibility of future expansion
- Maximum flexibility for office and service areas to allow custom partitioning of space and size adjustment by tenants
- Premises delivered ready for immediate occupation on a rental or purchase basis
- Technical standards:
 - A recommended FAR not to exceed 1.0 and a TAR not to exceed 0.5
 - 1 parking space per 40 m² of offices and 100 m² of storage/manufacturing space
 - Clearance height of at least 3.5 m for service cars and 6.5 m for storage areas

The Gewebe Immobilien Park (GIP) in Germany is an example of a business park

The GIP Development at Postdam Germany

Profile	Special Features
<ul style="list-style-type: none"> • Location: Postdam, Germany • Establishment: 1985 • Size: 160,000 m² of land (25% developed so far) • Total Investment: \$ 230 million • Developer & Manager: GIP International • Rental Rates: <ul style="list-style-type: none"> – Offices \$ 165/m²/yr – Storage/mfg \$ 90/m²/yr • Other charges: <ul style="list-style-type: none"> – Maintenance \$ 12/m²/yr • Amenities: <ul style="list-style-type: none"> – Resturant – Gas station 	<ul style="list-style-type: none"> • Development Standards: <ul style="list-style-type: none"> – Heat insulated walls and roofs – High ceilings (up to 6 meters in storage buildings) – Low level loading docks, plus large ground level vehicle gateways provided – Extensive landscaping and lighting of site – Comprehensive power, water, communication services in place – Flexibly planned space • Management services: <ul style="list-style-type: none"> – Maintaining the park and its facilities – Providing house keeping services – Providing advice and contacts – Management is also responsible for the selection of tenants

More traditional concepts of industrial estates are characterized as follows

- Providing industrial land is mostly a government initiative as prevailing industrial land prices are usually too high for industry
- Infrastructure and enforcement of development/operation controls are functions of utilities and local authorities/municipalities. Against these services, tenants are charged utility charges and municipal taxes.

An example of an industrial estate development in the UK follows

The Aycliffe Industrial Park - Durham, UK

Profile

- **Location:** Durham, North East England
- **Establishment:** 1950s
- **Size:** 400 ha
- **Terms:** Land and ready built facilities available for long or short term (1-24 years) lease
- **Lease Rates:**
 - Land \$ 20/m²/yr
 - Built space \$ 25-50/m²/yr
- **Sale Prices:**
 - Land \$ 140/m²/yr
- **Municipal Tax (rates):**
 - 36 to 40% of rental value
- **Developers:** (all public organizations)
 - Sedgefield District Authority
 - English Partnerships
 - Helical Bar
- **Amenities:**
 - One-stop-shop for govt formalities
 - Business/conference center, training center
 - Bank, nursery, retailing

Special Features

- **Management:**
 - By developer for rented property (English Partnerships)
 - Maintenance of infrastructure is handled by the local authority; a private company is hired to maintain landscaped and open areas
 - Tenants are contractually bound (by the lease agreement) to share common maintenance fees
 - Enforcing pollution, development, and other controls is the responsibility of the government
- **Special Services:**
 - Assisting with physical development
 - Assisting in locating housing
 - Assisting in putting together financing packages and applying for grants

Another example of an industrial site in the UK is the Boldon Business Park

The Boldon Business Park - New Castle, UK

Profile	Special Features
<ul style="list-style-type: none"> • Location: New Castle-North East England • Establishment: 1988 • Size: 11.3 ha; 8.6 ha available • Property Rates: <ul style="list-style-type: none"> – Land (sale) \$ 11/m²/yr – Built space (lease) \$ 50/m²/yr • Maintenance charges: <ul style="list-style-type: none"> – Land \$ 0.04/m²/yr • Developer: English Partnerships (a government organization) • Terms: <ul style="list-style-type: none"> – Built facilities available on a 12-24 year full repairing leases – Land available on 125 year premium lease basis • Amenities: <ul style="list-style-type: none"> – Hotel – High-tech laboratory 	<ul style="list-style-type: none"> • Management: <ul style="list-style-type: none"> – By the developer – Maintenance costs are divided on a pro-rata basis among tenants (the developer bears the deficit until the site is full) • Interesting Features: <ul style="list-style-type: none"> – Land is available through a 125 year lease; this gives the developer control rights as he remains the landlord. – The park has set its own development/zoning standards (such as FAR, TAR, safety, etc..) – To avoid speculation, lease contracts are awarded only after development of facilities is complete – Lease prices are reviewed every 3 to 5 years

In North America, industrial sites are conventional in nature. No special site management services are required as such special services are provided by central state development authorities (organizations like IDAL)

- Existing sites are predominantly public
- Industrial land is abundant and cheap - \$ 20/m²
- Industrial parks are typically fully serviced with infrastructure
- Maintenance of industrial sites is undertaken by local authorities/municipality. No other services/assistance is provided to land users.

The following sites in Canada were reviewed

Yorkton Industrial Site - Canada

Profile	Special Features
<ul style="list-style-type: none">• Location: Yorkton City - Canada• Establishment: 1982• Size: 24 ha; 12 ha available• Property Rates:<ul style="list-style-type: none">• Land (sale) \$ 20/m²/year• Developer: Municipality• Terms: Only free land available exclusively for sale• Parcel sizes: 4,000 - 21,000 m²• Amenities:<ul style="list-style-type: none">– Retail, banking, housing (privately developed)– One-stop-shop (being developed)	<ul style="list-style-type: none">• Management:<ul style="list-style-type: none">– Infrastructure/maintenance by local municipality– Enforcement of standards by public authorities– No special support services• Interesting Features:<ul style="list-style-type: none">– The sale agreement allows the buyer of land a period of one year to start developing his facility. If this condition is not met, land is transferred back to the public authority.

The following sites in Canada were reviewed(continued)

Regina Industrial Estate - Canada

Profile	Special Features
<ul style="list-style-type: none">• Location: Saskatchewan - Canada• Establishment: 1960s• Size: 300 ha; (expandable to 1800 ha)• Fully serviced• Land parcels: 0.5 - 10 ha• Developers: Local authority• Land sale price: \$ 17/m²	<ul style="list-style-type: none">• Management:<ul style="list-style-type: none">– A government office manages the site– Site maintenance is provided by the municipality– Maintenance charges are collected by the municipality in the form of a tax on appraised property value (3-5%)• Interesting Features:<ul style="list-style-type: none">– Financing facilities (at the market borrowing rate of 7-8%) can be provided– Marketing through realtors with advertising in local newspapers and the Internet

Jordan has developed modern industrial estates

Industrial Estates in Jordan

Industrial Estates	Special Features
<p>Amman Industrial Estate (Amman)</p> <ul style="list-style-type: none"> • Size: <ul style="list-style-type: none"> – Total 250 ha (200 ha, net) – Available 4 ha • Property rates: <ul style="list-style-type: none"> – Land (sale) \$ 28.0/m² – Land (rental) \$ 2.1/m² – Factories (rental) \$ 16.8/m² <p>Al Hassan Industrial Estate (Irbid)</p> <ul style="list-style-type: none"> • Size: <ul style="list-style-type: none"> – Total: 43 ha (100% full) – Extension 50 ha (being developed) • Property rates: <ul style="list-style-type: none"> – Land (sale) \$ 28.0/m² – Land (rental) \$ 1.4/m² – Factories (rental) \$ 14.0/m² 	<ul style="list-style-type: none"> • Rent or sale of land. Standard built factory units are also available on a lease basis only. • Extensive amenities including, training center, fire station, clinic, banks, shops, cafeteria, post office, labor office, exhibition hall, social security office, Exports and Trade Center representation, insurance, advertising, and auditing offices • One-stop-shop for licensing • Management carried out by JIEC - a government agency for industrial estates • Special management services: <ul style="list-style-type: none"> – Assisting in obtaining development licenses – Providing financial and technical advice

In the Gulf, Saudi Arabia has been the leader in developing industrial estates

Industrial Estates in Saudi Arabia

Industrial Land	Description
<ul style="list-style-type: none"> • Industrial Cities <ul style="list-style-type: none"> – 3 in Central Region 1,775 ha – 2 in Eastern Region 995 ha – 3 in Western Region <u>1,090 ha</u> Total: 3,860 ha Still available 240 ha 	<ul style="list-style-type: none"> • Fully serviced with infrastructure • Managed by the Ministry of Industry • Include extensive amenities
<ul style="list-style-type: none"> • Jubail and Yanbu 1,2400 ha 	<ul style="list-style-type: none"> • Managed by the Royal Commission of Jubail & Yanbu
Costs	
<ul style="list-style-type: none"> • Land rental \$ 0.02/m²/year • Power \$ 0.03/kwh • Water \$ 0.03-1.60/m³ • Natural gas \$ 0.50/million btu 	

Other industrial sites in the gulf include

الجمهورية اللبنانية
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Country	Total Size	Costs
Bahrain (10 sites)	800 ha	<ul style="list-style-type: none"> • Land: N/A • Water: \$ 0.80-1.06/m³ • Power: \$0.03/kwh
Kuwait (8 sites)	7,970 ha	<ul style="list-style-type: none"> • Land: \$ 0.25-0.50/m²/year • Water: \$ 0.19/m³ • Power: \$0.03-0.07/kwh
Oman (4 sites)	700 ha	<ul style="list-style-type: none"> • Land: \$ 0.65-1.30/m²/year • Water: \$ 1.71/m³ • Power: \$ 0.04-0.06/kwh
UAE* (6 sites)	2,300 ha	<ul style="list-style-type: none"> • Land: \$ 0.9-5.5/m²/year • Water: \$ 1.02-1.20/m³ • Power: \$ 0.04/kwh

* Excluding Jebel Ali

Prices of industrial facilities in Lebanon have to be competitive relative to international property

1995 Rental Prices for Industrial Property*
(\$/m²/year)

Countries	Rental Rate	Countries	Rental Rate
Europe:		Middle East/Gulf:	
Germany	75-105	UAE	45-60
France	60-100	Jordan	15
Italy	50-80	Turkey	50
Portugal	70-120		
Spain	75-85	Asia:	
UK	65-145	Hong Kong	220
North America:		Japan	275
Canada	30-40	Taiwan	80
US	40-65	Singapore	195

* Built-up space

Agenda

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The project should be developed as a model industrial park clearly differentiated from existing industrial zones through the following characteristics

- Properly planned and landscaped with special attention paid to preserve the surrounding environment
- Served by quality infrastructure and amenities
- Supported by effective services
- Land and ready-built facilities available for sale, rent and long term leases

The business park concept has become very popular in Europe and may be considered for QMIP

- It would encompass blocs of buildings of 5,000 to 12,000 m² each including industrial areas as well as supporting offices (usually 25% offices; 75% manufacturing/warehousing)
- They would be developed in a “park” like setting
- Building facades are made to look attractive
- They are designed to ensure a high degree of flexibility and adaptability to a wide range of industrial uses
- Space can be tailored to the needs of tenants
- Warehouses are equipped with ramps and ground-level vehicle entrances
- Sufficient parking is provided for staff and visitors

The park should be effectively planned and landscaped to preserve its pleasant surrounding environment

- The land needs to be effectively subdivided to take full advantage of the hilly terrain and cater for the most demanded sizes of industrial facilities
- To match international standards, site coverage should not exceed 50% and floor area ratio should not exceed 1.0
- A good quality access and internal road system should be established with proper lighting for safety and security as well as landscaping
- Provisions should be made for pedestrian traffic to and from central amenities/ facilities
- Adequate parking facilities should be planned for both cars and trucks
- Regulations should be established to ensure facilities built blend well with the environment

Infrastructure

5

Quality infrastructure should be provided, including

- Electricity distribution system
- Water storage and distribution system
- Telephone network
- Sewage treatment facilities
- Land fill for solid waste disposal, if needed

The following preliminary infrastructure requirements were estimated by ACE

- Water: Around 5,000-7,000 m³/day
- Power: About 20,000 kva for industry and site services (e.g., lighting). Accordingly 20 x 1,000 kva transformers with an estimated cost of \$ 450 thousand will be needed.
- Waste treatment plant: A 4,000 to 6,000 m³/day facility will be needed. The estimated cost of such a facility is \$ 4-5 million.

ACE should confirm whether such facilities are required, in the light of industries selected for QMIP

Amenities should be provided to enhance the project's attractiveness, for example

- Fire station
- Clinic / pharmacy
- Shopping / eating facilities / bank / bus terminal / exhibition center
- Workshops for maintenance / support and vehicle repair services
- Vocational training center
- Day care center
- Offices for administration, security and industrial support services (e.g. graphic design; information center; accounting; etc.)

Provisions may also be made for staff and labor housing

Services

Common services should be provided, for example

- Cleaning, security and maintenance of public spaces
- Operation and maintenance of infrastructure
- Basic training services
- Operation of support facilities (e.g. shopping center; offices; day care center; etc.)
- One-stop-shop to assist tenants with the following
 - ⇒ Assessment of feasibility of investment / identification of potential partners
 - ⇒ Processing government formalities
 - ⇒ Identifying sources of labor as well as other resources
 - ⇒ Promoting the site and its tenants

Ready built facilities should be considered

- Lebanese industrialists are used to buying land for industrial development
- Ready-built facilities may be considered for QMIP to differentiate the site and enhance its attractiveness. These facilities would be for the following uses
 - ⇒ Factories/offices
 - ⇒ Warehouses (individually used or shared)
 - ⇒ Workshops supporting industrial tenants in the park
- These facilities would be available for sale, rent or long term lease

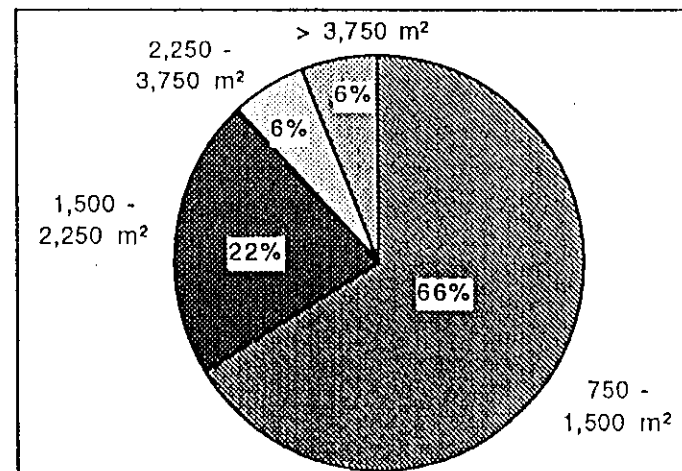
Size of Existing Industrial Facilities

The average size of industrial facilities in Lebanon is 1,900 m² approximately

Average Size of Industrial Facilities

Sector	m ²
Food and beverages	2,340
Textiles and clothing	660
Wood and furniture	1,730
Paper and publishing	1,620
Chemicals and plastics	2,220
Building materials	4,200
Metals	2,230
Machinery and equipment	2,740
Overall	1,870

Distribution of Factory Units



Source: Ministry of Petroleum and Industry; ADL estimates

Preferred Sizes of Industrial Facilities

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We expect the required sizes of industrial facilities (i.e. built space) to expand over time with increased investments in machinery and equipment. Accordingly, the following sizes of facilities may be considered for QMIP

- Minimum size 1,000 m²
- Median size 2,000 m²
- The site would be subdivided to allow maximum flexibility - i.e. adjacent sites or facilities may be combined to form larger units

Agenda

1	Executive Summary
2	The Site
3	Market Potential
4	Industrial Parks Elsewhere
5	Project Concept
6	Implementation Considerations

Development Costs

The maximum development and financing costs which may be assumed by a private developer is likely to be in the neighborhood of \$ 25 million, based on the following assumptions

- The land which could be cost effectively developed is about 720 thousand m² gross
- This land will yield about 500 thousand m² net
- The maximum price for land which tenants are likely to pay is \$30 to \$50/m²; hence the total cost - including financing - should not exceed \$15 to \$25 million.

IDAL should decide whether the land should be made available for sale or long term lease

- The concept of long term leasing is not very well developed in Lebanon
- However, it has proven attractive for industry elsewhere in the world
- Our suggestion is that only large tracts of land (say 50,000 m² minimum) should be available for sale, either for development by the tenant or to be developed for lease or rental by private developer(s)

IDAL needs also to decide who will assume the cost of infrastructure development - the private developer or the government. These costs include

- Access roads
- Internal roads / street lighting and landscaping
- Power lines to Jiyeh; substations at Qreiah
- Power distribution within the site
- Telephone connection/distribution network
- Water connection/distribution system
- Sewage collection network/treatment facility

Some of the costs will need to be assumed by the government to make the project financially viable for private sector investment

Also, a decision is needed with respect to the entity (entities) responsible for

- Operation and maintenance of infrastructure
- Provision of common services

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مركز مشاريع ودراسات القطاع العام

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