REPUBLIC OF LEBANON
PRESIDENCY OF THE COUNCIL OF MINISTERS

Investment Development Authority of Lebanon

IDAL

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

Classification of Industries and Industrial Areas

Final Report

October 1996

Associated Consulting Engineers - ACE - Lebanon
in association with
Fugro Milieu Consult - The Netherlands

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1 An integral system

1.1 Inducement for the new approach

During the last decades, industrial development in Lebanon could hardly be controlled or regulated. One of the main reasons was the severe internal strives throughout the Country which attracted all attention and prevented the concerned authorities from carrying out their work. As a result industrial developments very often took place outside official industrial zones. Especially several coastal areas appealed to investors. On the other hand, the development of residential or tourist buildings took place inside the borders of some of the industrial zones. Such practice have created mutually unfavorable conditions for both residential and industrial areas and the situation in general has become quite problematic and in some places unbearable. To introduce corrective measures, prevent improper land use by all parties, and account for the environmental impact of industries on their surrounding, a proper and enforceable system of industrial zoning has become indispensable. For that reason, IDAL commissioned Fugro and ACE to develop a classification system.

• Contents of the system

This classification system should consist of the following elements:

- the classification of all present industry in Lebanon; based on environmental considerations;
- the classification of 41 existing (official and de-facto) industrial areas, based on potential threat to the environment and nuisance to surrounding areas;
- the integration of both classifications into the permitting procedure.

1.2 Objectives and the methodology of the system

• Long term goals of environmental zoning

With the new classification system, the Lebanese government wishes to develop a structured approach for its industry and creates favorable conditions for foreign investors to start up industrial activities in Lebanon. The classification system must lead to improvement of the present conditions to reach the desired situation in the shortest possible term. The classification system will have to contribute to the realisation of the following long term goals:

* *Realisation of a cost-effective infrastructure for industrial areas*
  By creating specific areas for industries, only these areas have to be equipped to deal with all aspects of industrial entrepreneurship, such as roads, sewer systems, waste disposal facilities, energy supply and water supply. By distinguishing different categories of industries according to their size, tailor made facilities can be created in each area.

* *Safeguarding the city of Beirut and other residential areas from pollution and nuisance*
  At present, almost half of all industries are located in Beirut or its direct surroundings. As a result heavy traffic congestions occur throughout the city and its suburbs. Further, several areas suffer from pollution and nuisance. By classifying the industries and industrial areas in a way that heavy industries are separated from residential areas and labour intensive industries are directed out of the city of Beirut, part of these problems can be solved.

* *Establishment of an attractive investment climate for (foreign) investors*
  Most industrial areas are presently poorly equipped with regard to basic facilities. By creating industrial areas for all classes of industry, investors will find an attractive climate to start up activities in which Lebanon can serve as a regional base for international firms.

* *Functional separation of industries to create a starting point for tourism*
  One of the basic assets of the Lebanese economy is a good and flourishing tourist industry, throughout the Country. Therefor one of the long term strategy of the classification system should aim at the separation of the tourist attractions (beaches, mountain areas and cultural heritage) from industries.

• Criteria for the system

Next to these long term goals, there are of course more practical considerations to establish a system for environmental zoning to remedy the shortcomings of the present situation. These considerations can be translated into five leading criteria which served as a basis for the development of the system:

* *Applicability*
  The system must be user friendly at all levels of the governmental organisation: the Ministries, the Mohafazats and the Cazas. The system should speak for itself, so it can be used at any level of the administrative organisation without reference to or consultation of other governmental bodies.

* *Flexibility*
  The system must make it possible to allow exceptions to the basic rules which will be stipulated. For example the system must be flexible with regard to the following aspects: the required time for permit issuing, the suitability of an area and the regulations which will be imposed. The system must allow the accommodation of local conditions particular to each of the areas.
  Flexibility also aims at undesired situations which occur due to the present location of certain industries. In chapter 6, special attention is paid to deal with such situations.

* *Effectiveness*
  At present several problems with regard to industrial developments, due to the uncontrolled growth described in paragraph 1.1, are still occurring. By applying the system and development regulations, these problems should be dealt with.

* *Efficiency*
  Present permitting procedures are complex and in certain ways ineffective: a draft permit is passing many desks before a decision on its approval is taken. The new system should serve as basis for efficient permitting.

* *Adaptability*
  The system must allow future improvement as industry in Lebanon develops in both production capacity and technical development.

• **Methodological structure**

The study was carried out in three steps:

1 Inventory of classification systems on industries and industrial areas in Europe (including an estimation of the feasibility of these systems for the Lebanese situation);
2 Evaluation of the present legal framework for the Lebanese classification system;
3 Development of the Lebanese classification system for industries and industrial areas.

The elements mentioned above all have their place in the structure of the classification system. For the development of the system (step 3), a methodological structure was developed. For each element of the structure, reference to its place in this report is given. The schedule shows that all given elements are required to obtain its outcome: a decision on a permit application for an industry. The structure is presented in schedule 1.1 below.

2 Environmental zoning in Western Europe

2.1 Introduction

Environmental zoning is one of the instruments which can be used to achieve a balance between environmental control and spatial planning. While planning industrial areas, environmental loads can be taken into account when industries are applying for a permit. In this way, environmental quality can be controlled beforehand. Other ways of controlling environmental quality are:

- source related measures (e.g., technical changes in production processes);
- transmission related measures (e.g., emission control devices);
- recipient related measures (e.g., double glazing windows);
- sanitation (e.g., soil remediation).

The first three measures can be used both as a preventive instrument as well as a solution for already existing environmental problems. Sanitation is only to be used if other measures cannot provide appropriate solutions, or as a remedy to previous damage.

Classification systems for industries and industrial areas are typical examples of instruments of environmental zoning for industries. Understanding the classification systems is only possible through an understanding of its framework: the environmental zoning system. Therefore, this chapter compares not only the various classification systems, but also draws some parallels regarding environmental zoning in the examined countries.

In Western Europe, extensive experience with respect to environmental zoning was gained during the last decades. This was the time in which the high field of tension between several claims on landuse became apparent. The situation in five countries is examined in this report, in order to integrate the most workable ideas into the Lebanese system and prevent undesired failures. The classification systems of the following countries were examined:

- The Netherlands
- France
- Germany
- United Kingdom
- Spain

The policy of the countries was evaluated on the following aspects:

- general policy information;
- environmental legislation;
- land use planning;
- inter-relation and classification systems.

Table 2.1 Strengths-weaknesses analysis of the European classification systems.

Subject → Country ↓	Strong points	Weak points
The Netherlands	• differentiated and integrated environmental law • system of vertical spatial planning with strategic plans on all levels • Industrial classification with branches of small/ medium sized industry, diversification within classes • environmental classification in six categories on the basis of various environmental aspects • area classification in three classes based on the industrial classification	• time demanding environmental permitting procedures • zoning on municipal level with limited national coordination • zoning system on qualitative parameters
France	• inclusion of risk aspects in environmental zoning • strong link between environmental classification and permitting procedure • environmental impact assessment included in permitting procedure	• no systematic approach to take into account environmental aspects to allow and locate industrial activities • no area classification on the basis of environmental aspects
Germany	• a direct relation between permitting and zoning • a solid industrial classification • the presence of a zoning system which incorporates buffer zones • distance ordinance only applicable to new situations	• classification mainly based on heavy industries • the land use plans have a general character • no general system regarding buffer zones (freedom of states)
United Kingdom	• an industrial classification which includes several small/medium sized industries; • a clear connection between industries and industrial areas in the zoning system • notifying system between authorities regarding planning applications for activities • the possibility to create environmental zones around industrial areas • systematic classification regarding noise pollution	• a permitting system with competencies on several levels • classification system on a high level of abstraction • no (integral) approach to eliminate or isolate environmental problems
Spain	• industrial allocation nearby natural resources on separate areas • an integral system, which takes also into account the topography and the wind direction	• regulations to prevent health-affecting, annoying and dangerous activities are only applicable to new activities • due to a decentralized system, not all municipalities set limits regarding odour and noise • weak relation between land use planning and environmental protection

2.3 Conclusions

All examined countries are working with some kind of system for environmental zoning in which industries and/or areas are classified. However, there appeared to be huge differences between the systems studied. The research aimed at finding strong points with regard to three aspects: industrial classification, area classification and environmental permitting. None of the countries appeared to have a system in which these three elements were integrated and fine-tuned in a balanced way.

With regard to *industrial classification*, the Dutch and English system bear the most useful elements for Lebanon. Both systems encompass several small and medium sized branches of industry, while for example the German system is paying a lot of attention to heavy industry and France does not have a structural approach to industry classification. The Dutch classification distinguishes 5 categories.

With regard to *area classification* each country is using a different structure. The French do not have an area classification. In Spain there is a weak relation between landuse planning and environmental protection. Germany is using a zoning system which includes the creation of buffer zones. The English system makes a connection between areas and industries, although this remains on a high level of abstraction. The Dutch system makes a clear connection between the area classification and the categories of industry; three area-classes are determined.

On *environmental permitting* none of the countries is using a univocal procedure in which both elements, the industrial and area classification, are integrated. The main reason is that in all countries, responsibilities are distributed on several levels of government. This necessitates the use of negotiations and presence of solid communication channels between the different government levels. The Dutch and German system bear the most fruitful elements.

Based on the above, elements out of primarily the *Dutch* and the *English* system are used to develop the system for Lebanon.

The complete inventory of the classification systems for industries and industrial areas of the five examined countries is given in ANNEX 4.

3 Industrial classification

3.1 Introduction

• Sketch of the lebanese industry

The Lebanese industrial sector can be characterized as a swiftly developing after war industry. The contribution to the Gross National Product GNP amounts 20%. Approximately 145.000 people are working in ca. 23.000 companies (average 6,52 employees/unit). The turnover of the industry is 3,72 billion American dollars (a company average of US$ 165,700).

Most of the industry can be typified as small sized, since 68% of the listed firms employ less than 5 people. Less than 4% of the industrial units employ more than 20 employees. The majority of the Lebanese industry is located in Mount-Lebanon, where approximately 45% of the industrial units of the country are situated. The main point is formed by the direct surroundings of Beirut. Only 2% (56 units) have foreign majority and 89 units have capital equally shared out between locals and foreigners. In the table below, an overview of some characteristics of the Lebanese industry is given.

Table 3.1 Characteristics of the Lebanese industry

Distribution of industry with respect to the number of employees	Number of firms	Workforce	Added value in US$ 1,822,881,264 (production in US$ 3,719,302,504)
from 1-9	87.7%	55.3%	40.3%
from 10-49	8.6%	21.7%	29.0%
form 50-249	0.7%	9.3%	15.1%
over 250	0.2%	10.9%	13.8%
Total	100.0%	100.0%	100.0%

The 'Report of industrial census' (Lebanese Republic; Ministry of Industry and Oil, Directorate of Industry; december 1995) gives a clear overview of the present industrial situation in Lebanon. The report gives an insight in the division of industry in the different branches and the share these branches have in the GNP and employment.

The major activities of Lebanese industries are distributed as follows :

- food and beverage 20.2%
- furniture 16.3%
- fabricated metal products 13.9%
- clothing 13.6%
- wood products 6.6%
- other fields of industry 29.4%

From the above data, it can be seen that over 70% of the firms are active in 5 major fields.

• Driving forces in industrial development

At present, several driving forces which determine industrial developments for the future can be distinguished. The following are the most important:

1. *Location*: This is the main driving force for future industrial developments in Lebanon. While recovering from the civil war, Lebanon is regaining its position as a main gate between Western Europe and the Middle East. Besides, Lebanon is an excellent base for Western companies to undertake economic activities in the Near and Far East. Furthermore, its location east of the Mediterranean basin can make it possible for Lebanon to become an important cargo transit country.
2. *Size*: Most Lebanese industry is small sized (the average number of employees is 6,52). This provides opportunities for foreign and national investors to start up large industries in several branches.
3. *Competition*: In Lebanon the competition for large industries is still limited. Only 3% of the firms have foreign capital of 50% or more. Foreign investors are showing more and more interest in taking shares in Lebanese industries.
4. *Wages*: The Lebanese wages level can be qualified as highly favorable in comparison with Western wages. In 1994 the annual wage was US$ 4,164.

These driving forces serve as a basis for the system of classification of industries and industrial areas and the revision of the permitting procedure. The system is developed in such a way that mentioned the driving forces will be strengthened.

Because of dense population it can be hard to find suitable areas for new industrial developments. At this moment, all the locations classified in this report provide space for new national and international industries within all the categories of industry.

more methodological approach is required to accompany a second phase of industrial growth. For environmental and health zoning, the use of Decree 4917 is limited. A division into only three categories has the restriction that the classification cannot be very specific. Therefore, a more detailed classification is required.

- **New classification**

The basis for the industrial classification is the division into branches and sub-branches as prepared by the Ministry of Industry and Oil. The Ministry of Industry and Oil uses the ISIC-code which is used all over the world to classify industries. The ISIC classification of the Lebanese industry is presently used to estimate all kinds of economic impact of the industrial sectors on the Lebanese economy (such as described in table 3.1). By using the ISIC-code for the industrial categorisation with regard to environmental and health aspects, uniformity in the approach of the Lebanese industry, and other aspects is emerging. The main advantage is that future figures for industry with respect to several aspects (size, number industries within a branch, turn-over, environmental aspects, location, etc.) can be interlinked, so that integral decisions can be made. The classification of the main industrial branches is given in table 3.2 which indicates all branches of ISIC classification focusing on the present Lebanese industry.

Table 3.2 Classification of the main industrial branches in Lebanon

A/B. Agriculture and fishery
0141 products of agriculture, hunting and related services
0200 products of forestry, logging and related services

C. Mineral production
13 Metal ores
14 Mining and quarrying products

D. Industry
15 Food and drinks industry
16 Tobacco products
17 Textile production industry
18 Clothes industry; preparation and painting of fur
19 Leather industry
20 Timber and furniture industry
21 Paper industry
22 Graphic and media industry
23 Oil and coal processing industry
24 Chemical industry
25 Rubber and plastic industry

26 Building and construction material industry
27 Primary metal industry
28 Metal production and electrotechnical industry
29 Machine production industry
30 Production of office machines and computers
31 Production of other electrical machines and equipment
32 Audio, video and telecommunication industry
33 Medical and optical instruments industry
34 Transport related industry
35 Transport industry
36 Furniture and other articles industry
37 Preparation for recycling

E. *Production and distribution of electricity, gas and hot water*
40 Production of electricity, gas steam and hot water
41 Winning and distribution of water

F. *Building industry and construction trade*
45 Building industry; construction trade

G. *Trade, reparation and consumer articles*
52 Trade
55 Hotel and catering

O *Environmental services, culture, recreation and other services*
93 Other services

• New categories of industry

The industrial sub-branches which are connected to the main branches in table 3.2 are classified with regard to the environmental aspects and their potential local disturbance. The newly developed categorisation presents a division into 5 categories. The classification is based on the criteria mentioned in the former paragraph and is in conformance with the main criteria as mentioned in paragraph 2.2.

Within the categories, there is a distinction between category 1, 2 and 3 on one hand and category 4 and 5 on the other. The industries with large impact on the environmental or health are categorized as category 1, 2 and 3 industries. **These industries are of major importance, because they have to be situated in the industrial areas.**

Industrial activities with lesser impacts on the environment or health are classified as category 4 and 5 industry. There are several reasons why these industries are classified after all. At first, by classifying them, a complete

Table 3.3 The present and new classification of industries into categories.

Decree 4917	New categories
cat. 1 →	cat. 1: serious threat to the environment and health
cat. 1 →	cat. 2: threat to the environment and health
cat. 2 →	cat. 3: limited threat to the environment and health
cat. 3 →	cat. 4: insignificant threat to the environment and health
cat. 3 →	cat. 5: no threat to the environment and health (in general)

A distinction has been made between category 1, 2 and 3 on the one hand and category 4 and 5 on the other. The industries with large impact on the environment or health are designated as category 1, 2 and 3 industries. **These industries are of major importance, because they have to be situated in the industrial areas.**

Category 4 industries which have insignificant threat to the environment are to be situated in the buffer zones of the industrial areas or in newly created buffer zones around residential areas.

Industrial activities with no impact on the environment or health are classified as category 5 industry. There are several reasons why these industries are classified after all. At first, such classification provides a complete overview of all Lebanese industry with their environmental impact. Secondly, The on-going development of environmental policy may call for a specific policy for category 5 industries. One of the options is to develop general application forms for each branch of industry to optimize the permitting procedure and streamline the process. Another option would be to develop specific legislation for category 5 branches. This approach is also possible for category 4 industries.

Category 5 industries are mentioned in the classification (table 3.4), but are left out of this research subsequently.

3.4 Classification of industries

- **Explanation of the use of parameters**

Used abbreviations
In the classification of industries into categories, some of the industrial branches are subdivided. This subdivision is based on the following parameters:

Table 3.4 Classification of the Lebanese industry

Classification system; division into categories			Environmental aspects (index)			Local disturbance (index)				
ISIC code	description	total number	air index	water index	soil index	noise	odour	external danger	dust	category
A/B	Agriculture and fishery									
0 141	products of agriculture and related services, faming	3	3	3	3	*	IV	V	V	4
0 200	Products of of forestry, logging and related services, farming		3	3	3	*	V	V	IV	4
C	Mineral production									
1030	coal and lignite; peat		1	1	2	*	III	III	III	2
1110	crude petroleum and natural gas, services incidental to oil and gas		1	2	1	*	IV	II	IV	2
1120	extraction excluding surveying		3	2	1	*	IV	III	IV	3
13	metal ores		2	2	1	*	V	IV	IV	3
14	Mining and quarrying products									
1411	stone for construction	66	2	2	2	*X	IV	V	II	2
1412	limestone, gypsum and chalk	6	2	2	2	*X	V	IV	II	2
1413	gravel and sand	163	3	3	2	*	V	V	II	3
1440	salt extraction by evaporation		3	3	3	-	V	V	V	5
	other	26	3	2	2	*	V	V	V	4
1450	other mining and quarrying products n.c.e	6	3	2	3	*	IV	IV	III	3
D	Industry									
15	food and drinks industry									
1511	fresh and preserved meat, except poultry (including slaugher houses)	37	3	1	3	*	III	V	V	3

Classification system; division into categories			Environmental aspects (index)			Local disturbance (index)				
ISIC code	description	total number	air index	water index	soil index	noise	odour	external danger	dust	category
1512	fresh and preserved poultry meat (including slaughter houses)	6	3	1	3	*	III	V	V	3
1513	meat, poultrymeat products and meat processing	3	3	1	3	*	III	V	V	3
1520	processed and reserved fish and fish products	3	3	2	3	-	II	V	V	3
1531	processed and preserved potatoes	4	2	2	3	*	III	V	V	4
1532	fruit and vegetable juices [Refer to degree 108/83]	9	3	2	3	*	IV	V	V	4
1533	Processed and preserved fruit and vegetables n.c.e p.c. < 25.000 t/y	148	3	3	3	*	V	V	V	4
	p.c >= 25.000 t/y		3	2	3	*	IV	V	V	3
1541	crude oils and fats p.c < 100.000t/y (veg.)	56	3	2	2	*	III	IV	V	3
	p.c >= 100.000t/y (an.)		2	2	2	*X	III	III	IV	2
1542	refined oils and fats p.c < 250.000t/y	158	3	2	2	*	III	IV	V	3
	p.c >= 250.000t/y		2	2	2	*X	III	III	IV	2
1551	dairy products dried products p.c. >= 1.5 t/h	230	2	2	2	*	III	IV	III	3
	concentrated products damp capacity >= 20t/h		2	2	3	*	III	IV	IV	3
	milk products capacity < 25.000 t/y		3	2	3	*	IV	V	V	4
	milk products capacity >= 25.000t/y		3	2	3	*X	IV	V	V	3
1552	ice cream and other edible ice p.c < 25.000 t/y	125	3	3	3	*	V	V	V	4
	[Refer to degree 108/83] p.c. >= 25.000 t/y		3	2	3	*X	IV	V	V	3
1561	grain mill products p.c < 10 t/h	171	3	3	3	*	V	IV	IV	4
	p.c >= 10 t/h		2	2	3	*X	IV	IV	III	3
1562	starches and starch products p.c < 10 t/h	9	3	2	3	*	III	V	IV	3

Classification system; division into categories			Environmental aspects (index)			Local disturbance (index)				
ISIC code	description	total number	air index	water index	soil index	noise	odour	external danger	dust	category
	p.c >= 10t/h		2	1	3	*X	III	IV	IV	2
1571	prepared animal feeds for farm animals p.c. < 10 t/h	81	3	2	3	*	III	IV	IV	3
	p.c >= 10 t/h		2	2	3	*X	III	IV	III	2
1572	prepared pet food	2	3	2	3	*	III	IV	IV	3
1581	bread, fresh pastry goods and cakes process capacity < 2500kg flour/week	2141	3	3	3	*	V	V	V	5
	process capacity >= 2500 kg flour/week (factories)		3	2	3	*	IV	IV	IV	4
1582	rusks and biscuits, preserved pastry goods and cakes	113	3	2	3	-	IV	IV	IV	4
1583	sugar without sugar burning	8	2	1	2	*	III	V	V	3
	with sugar burning		2	1	2	*	II	V	V	3
1584	cacao, chocolate and sugar confectionery	195	3	2	3	-	III	V	IV	4
1585	macaroni, noodies, couscous and similar farinaceous products	3	3	2	3	-	IV	V	III	4
1586	coffee and tea coffee-burning	192	3	3	3	-	III	V	IV	3
	Retail shop (including raosting)		3	3	3	-	IV	V	V	5
1587	condiments and seasonings	19	3	2	3	-	III	V	IV	4
1589	other food products	44	3	2	3	-	III	V	IV	4
1591	distilled alcoholic beverages production < 10.000 l/y	100	3	3	3	*	IV	V	V	4
	production >= 10.000 l/y		3	2	3	*	III	IV	V	3
1592	elthyl alcohol	5	3	2	3	*	IV	III	V	3
1593	wines production < 10.000 l/y	5	3	2	3	-	IV	V	V	4
	production >= 10.000l/y		3	2	3	*	IV	IV	IV	3

Classification system; division into categories			Environmental aspects (index)			Local disturbance (index)				
ISIC code	description	total number	air index	water index	soil index	noise	odour	external danger	dust	category
	bottling		3	2	3	*X	IV	V	V	3
1596	beer made from malt	2	3	2	3	*X	III	V	V	3
1598	mineral waters and soft drinks	81	3	2	3	*	IV	V	V	4
16	tobacco products									
1600	tobacco products	10	3	2	3	*	III	V	V	4
17	Textile production industry									
1710	textile, thread, wool processing and spinning capacity < 25 kW	31	3	3	3	-	V	V	V	5
	capacity >= 25 kW		3	2	3	*	IV	V	V	4
	using flammable or chemical substances (e.g.dyeing and bleaching)		3	2	2	*	IV	IV	V	3
1720	textile fabrics (e.g. weaving) capacity < 25 kW	40	3	3	3	-	V	V	V	5
	capacity >= 25 kW		3	2	2	*	V	IV	V	4
	using flammable or chemical substances (e.g.dyeing and bleaching)		3	2	2	*	IV	IV	V	3
1730	textile finishing services	12	3	2	2	-	IV	IV	V	4
1740	made-up textile articles, except apparel capacity < 25 kW	184	3	3	3	-	V	V	V	5
	25 < capacity < 100 kW		3	2	3	*	V	V	V	4
	capacity >= 100 kW		3	2	2	*	IV	IV	V	3
1751	carpets and rugs capacity < 25 kW	59	3	3	3	-	V	V	V	5
	capacity >= 25 kW		3	2	3	*	V	V	V	4
1752	cordage, rope, twine and netting	6	3	3	3	*	V	V	IV	4
1754	other textiles n.c.e	115	3	3	3	*	IV	V	V	4
1760	knitted or crocheted fabrics	16	3	3	3	*	IV	V	V	4

Classification system; division into categories			Environmental aspects (index)			Local disturbance (index)				
ISIC code	description	total number	air index	water index	soil index	noise	odour	external danger	dust	category
1771	knitted and crocheted hosiery	21	3	3	3	-	V	V	V	5
1772	knitted and crocheted pullovers, cardigans and similar articles	171	3	3	3	*	V	V	V	5
18	Clothes industry; preparation and painting of fur									
1810	leather clothes (excluding processing)	3	3	2	2	*	IV	V	V	4
1821	workwear	4	3	2	3	*	V	V	V	4
1822	outwear	2836	3	2	3	*	V	V	V	4
1823	underwear	249	3	2	3	*	V	V	V	4
1824	other wearing apparel and accessories n.c.e	116	3	2	3	*	V	V	V	4
1830	furs, articles of fur	1	3	2	2	*	IV	V	V	4
19	Leather industry									
1910	leather (scarpping, tanning, forming, pressing and other processing)	190	2	1	2	-	III	IV	IV	3
1920	luggage, handbags and the like; saddlery and harness (excl. processing)									
	capacity <25kW	163	3	3	3	-	V	V	V	5
	capacity >= 25 kW		3	2	3	*	IV	V	V	4
1930	footwear (excluding processing) capacity < 25 kW	561	3	3	3	-	V	V	V	5
	capacity >= 25 kW		3	2	3	*	IV	V	V	4
20	Timber and furniture industry									
2010	wood, sawn or planed capacity < 100 kW	24	3	3	3	*X	V	V	IV	4
	capacity >= 100 kW		2	2	3	*X	IV	V	IV	3

Classification system; division into categories			Environmental aspects (index)			Local disturbance (index)				
ISIC code	description	total number	air index	water index	soil index	noise	odour	external danger	dust	category
	impreegnating using solvents		2	3	3	*	III	IV	IV	3
2020	board, particle board, fibre and other panels and boards capacity < 100 kW	26	3	3	3	*	IV	V	IV	4
	capacity >= 100 kW		2	2	3	*	IV	V	III	3
	impregnating using solvens		2	3	3	*	III	IV	IV	3
2030	builder joinery and carpentry, wood capacity < 100 kW	1040	3	3	3	*	V	V	IV	4
	capacity >= 100 kW		2	2	3	*	IV	V	IV	3
2040	wooden containers capacity < 100 kW	42	3	3	3	*	V	V	IV	4
	capacity >= 100 kW		2	2	3	*	IV	V	IV	3
2051	other products of wood capacity < 100 kW	356	3	3	3	*	V	V	IV	4
	capacity >= 100 kW		2	2	3	*	IV	V	IV	3
2052	articles of cork, straw and plaiting	43	3	2	3	-	III	V	IV	4
21	Paper industry									
2112	paper and paperboard	38	3	2	3	*	V	V	V	4
	p.c. >= 3-15t/h		2	2	3	*	IV	IV	V	3
	p.c. 15t/h		2	1	2	*	III	III	IV	2
2121	production of packaging materials out of paper and paperboard		2	2	3	*	IV	V	IV	3
2122	household and toilet paper and paper products	16	2	2	3	*	IV	V	IV	3
2123	papaer stationery	146	2	2	3	*	IV	V	IV	3
2125	other articles of paper and paperboard n.c.e.	38	2	2	3	*	IV	V	IV	3
22	Graphic and media industry									

Classification system; division into categories			Environmental aspects (index)			Local disturbance (index)				
ISIC code	description	total number	air index	water index	soil index	noise	odour	external danger	dust	category
2211	books printing	130	3	3	2	-	V	V	V	5
	printing, using gas drying		1	2	3	*	IV	V	V	3
2212	journals and periodicals, appearings at least four time a week	14	2	2	2	*	IV	V	V	3
2213	journals and periodicals, appearings less than four times a week	6	3	2	2	*	IV	V	V	4
2214	production of records, CD's and videos		2	2	2	-	IV	V	V	4
2215	postcards, greeting cards, pictures and other printing matter	19	3	2	3	*	V	V	V	4
2222	printing services n.c.e	211	3	2	3	*	V	V	V	4
2223	bookbinding and finishing services	49	2	3	3	-	V	V	V	5
2224	composition and plate-making services	10	2	2	2	-	IV	V	V	4
2225	other services related to printing	12	3	3	3	-	V	V	V	5
2231	reproduction services of sound recordings		2	3	3	-	V	V	V	5
2232	reproduction services of video recordings	3	2	3	3	-	V	V	V	5
23	Oil and coal processing industry									
2320	refined petroleum products	24	1	1	1	*X	I	I	III	1
24	Chemical industry									
2411	industrial gasses capacity >= 10t air/d	4	1	2	2	*X	III	II	V	2
	other gas factories		1	2	2	*	II	II	V	2
2412	dyes and pigments	2	2	2	1	*	II	II	V	2
2414	other basic organic chemicals	19	1	2	2	*	II	I	V	2

Classification system; division into categories				Environmental aspects (index)			Local disturbance (index)				
ISIC code	description		total number	air index	water index	soil index	noise	odour	external danger	dust	category
2523	builder's ware of plastic		37	2	3	3	*	IV	III	V	3
2524	other plastic products		198	2	3	3	*	IV	III	V	3
26	Building and construction material industry										
2611	flat glass	capacity < 100 kW	7	2	3	3	*	V	V	V	4
		capacity >= 100 kW		2	2	2	*	V	V	IV	3
2612	shaped and processes flat glass	capacity < 100 kW	102	2	3	3	*	V	V	V	4
		capacity >= 100 kW		2	2	2	*	V	V	IV	3
2613	hollow glass	capacity < 100 kW	9	2	3	3	*	V	V	V	4
		capacity >= 100 kW		2	2	2	*	V	V	IV	3
2615	other glass	capacity < 100 kW	3	2	3	3	*	V	V	V	4
		capacity >= 100 kW		2	2	2	*	V	V	IV	3
2621	ceramic household and ornamental articles	capacity < 100 kW	19	2	3	3	*	V	V	V	4
		capacity >= 100 kW		2	2	2	*	V	V	IV	3
2622	sanitary ceramic fixtures	capacity < 100 kW	5	2	3	3	*	V	V	V	4
		capacity >= 100kW		2	2	2	*	V	V	IV	3
2624	technical ceramic fixtures	capacity < 100 kW	5	2	3	2	*	V	V	IV	4
		capacity >= 100 kW		2	2	3	*	V	V	III	3
2626	refractory ceramic goods	capacity < 100 kW	4	2	3	3	*	V	V	V	4
		capacity >= 100 kW		2	2	2	*	V	V	IV	3
2630	ceramic tiles and flags	capacity < 100 kW	239	2	3	3	*	V	V	III	4

Classification system; division into categories			Environmental aspects (index)			Local disturbance (index)				
ISIC code	description	total number	air index	water index	soil index	noise	odour	external danger	dust	category
	capacity 100kW		2	2	2	*	V	V	III	3
2640	bricks, tiles and construction products in baked clay	160	3	2	3	*	V	V	IV	4
2651	cement portland cement for concrete	6	2	2	2	*X	IV	III	I	2
	p.c. < 50.000t/y		2	3	3	*	V	V	I	3
	p.c >= 50.000 t/y		2	2	2	*X	IV	IV	II	2
2652	lime p.c. < 50.000 t/y	6	2	2	3	*	V	V	III	3
	p.c >= 50.000 t/y		2	2	3	*X	IV	IV	II	2
2653	plaster p.c <50.000 t/y	27	2	2	3	*	V	V	III	3
	p.c >= 50.000 t/y		2	2	2	*X	IV	IV	II	2
2661	concrete products for construction purposes - without presses, tables or trem	772	2	3	3	*	V	V	IV	4
	- with presses, tables or tremblers		2	2	3	X	V	V	III	3
2662	plaster products for construction purposes	4	2	2	3	*	V	V	III	3
2663	ready-mixed concrete p.c < 50t/d	5	3	2	3	*X	V	V	IV	3
	p.c. >= 50t/d		2	2	3	*X	V	IV	III	3
2666	other articles of plaster, concrete of cement	199	2	2	3	*	V	V	III	3
2670	monumental or building stone articles thereof	222	3	2	2	*X	V	V	IV	3
2680	other non metallious minerla products		3	2	2	*X	IV	V	IV	3
2681	abrasive products	1	3	3	3	*	V	IV	V	4
2682	other non-metallic mineral products n.e.c.	5	3	3	3	*	V	IV	V	4
27	Primary Metal industry									

Classification system; division into categories			Environmental aspects (index)			Local disturbance (index)				
ISIC code	description	total number	air index	water index	soil index	noise	odour	external danger	dust	category
2710	basic iron and steel and ferro-alloys (ECSC) p.c. < 1000t/y	33	2	2	2	*	III	IV	II	2
	p.c. >= 1000t/y		1	1	1	*X	IV	III	IV	2
2721	tubes and tube fittings of cast iron p.a. < 1000m²	29	2	2	2	X	V	V	V	4
	p.a >= 1000 m²		2	2	2	*X	V	V	IV	3
2722	steel tubes and steel fittings p.a < 1000 m²	7	2	3	3	X	V	IV	V	4
	p.a >= 1000 m²		2	2	2	*X	V	IV	V	3
2731	cold drawn products p.a < 1000 m²	19	3	3	3	X	V	V	V	4
	p.a >= 1000m²		2	2	2	*X	V	IV	V	3
2732	cold-rolled or narrow strips p.a < 1000 m²	2	3	3	3	X	V	V	V	4
	p.a >= 1000m²		3	2	2	*X	V	IV	IV	3
2733	cold folded products of iron, non-alloy steel or stainless steel p.c < 1000t/y	9	3	3	2	X	IV	V	IV	4
	p.c >= 1000t/y		2	2	1	*X	III	V	III	3
2734	wire p.a <500m²	1	2	3	3	X	V	V	V	4
	p.a >= 500m²		2	2	2	*X	V	V	V	3
2735	ferro-alloys (NON-ECSC) and other iron and steel n.c.e p.c <1000t/y	1	3	3	2	X	V	V	IV	4
	p.c >= 1000t/y		2	2	2	*X	IV	V	III	3
2741	precious metals p.c.< 500t/y	31	3	3	2	X	IV	V	IV	4
	p.c >= 500t/y		2	2	1	*X	III	V	III	3
2742	aluminum and aluminim products p.c < 1000t/y	43	3	2	2	X	IV	V	IV	4
	p.c >= 1000t/y		2	1	2	*X	III	IV	III	3

Classification system; division into categories			Environmental aspects (index)			Local disturbance (index)				
ISIC code	description	total number	air index	water index	soil index	noise	odour	external danger	dust	category
2743	lead, zinc and tin and products thereof p.c < 1000t/y	5	3	2	2	*	IV	V	IV	3
	p.c >= 1000t/y		2	1	1	*X	III	IV	III	2
2744	copper products p.c < 1000t/y	45	3	2	2	*	IV	IV	IV	3
	p.c >= 1000t/y		2	2	1	*X	III	III	III	2
2745	other non-ferrous metal products p.c < 1000 t/y	6	3	2	2	*	IV	IV	IV	3
	p.c >= 1000t/y		2	2	1	*X	III	III	III	2
2751	casting services of iron	9	2	2	2	*	IV	V	IV	3
2753	casting services of light metals	23	2	3	2	*	IV	V	IV	3
2754	casting services of other non ferrous metals	8	2	3	2	*	IV	V	IV	3
28	Metal production and electrotechnical industry									
2811	metal structures and parts of structres	37	2	3	3	*X	V	IV	IV	3
2812	builder's carpentry and joinery of metal	2563	2	3	3	X	V	V	IV	4
2821	tanks, reservoirs and containers of metal	146	2	3	2	*X	V	V	V	3
2822	central heating radiators and boilers	22	2	3	2	*X	IV	V	V	3
2830	steam genrators, except central heating hot water boilers	2	3	3	1	*	III	IV	V	3
2840	forging, pressing, pounding and roll forming of metal services:	339	2	2	2	*	V	V	IV	3
2851	treatment of coating of metal services	1	2	2	2	*	V	V	IV	3
2861	cutlery	5	3	3	2	*	V	V	V	4
2862	tools	20	3	3	2	*	V	V	V	4
2863	locks and hinges	40	3	3	2	*	V	V	V	4

Classification system; division into categories			Environmental aspects (index)			Local disturbance (index)				
ISIC code	description	total number	air index	water index	soil index	noise	odour	external danger	dust	category
2871	stell drums and similar containers	11	2	2	2	*	IV	V	V	3
2872	light metal containers	20	2	2	2	*	IV	V	V	3
2873	wire products	10	2	2	2	*	IV	V	V	4
2875	other fabricated metal products n.c.e	63	2	2	2	*	IV	V	V	3
29	Machine production industry									
2911	engines and turbines except aircraft, vehicle and cycle engines	8	2	2	2	*	V	V	IV	3
2912	pumps and compressors	11	2	2	2	*	V	V	IV	3
2913	taps and valves	3	2	2	2	*	V	V	IV	3
2914	bearings, gears, gearing and driving elements	2	2	2	2	*	V	V	IV	3
2921	furnaces and furnac burners	25	2	2	2	*	V	V	IV	3
2922	lifting and haning equipment	27	2	2	2	*	V	V	IV	3
2923	non-domestic cooling and ventilation equipment	31	2	2	2	*	V	V	IV	3
2924	other general purpose machinery n.c.e	10	2	2	2	*	V	V	IV	3
2931	agricultural tractors	4	2	2	2	*	IV	IV	V	3
2932	other agricultural and forestry machinery	20	2	2	2	*	IV	IV	V	3
2940	machine-tools	32	2	2	2	*	IV	IV	V	3
2951	machinery for metallurgy	15	2	2	2	*	V	IV	V	3
2952	machinery for mining, quarrying and construction	36	2	2	2	*	V	IV	V	3
2953	machinery for food, beverage and tobacco processing	31	2	2	2	*	V	IV	V	3
2954	machinery for textile, apparel and leather production	8	2	2	2	*	V	IV	V	3

Classification system; division into categories			Environmental aspects (index)			Local disturbance (index)				
ISIC code	description	total number	air index	water index	soil index	noise	odour	external danger	dust	category
2956	other special purpose machinery n.c.e	23	2	2	2	*	V	IV	V	3
2960	weapons and ammunition	6	2	2	3	*	V	III	V	3
2971	electric domestic appliances p.c < 50t/y	62	2	2	2	-	IV	V	V	4
	p.c >= 50t/y		2	2	2	*	IV	IV	V	3
2972	non-electric domestic appliances p.c < 50t/y	36	2	2	2	-	IV	V	V	4
	p.c >= 50t/y		2	2	2	*	IV	IV	V	3
30	production of office machines and computers									
3001	production of office machines		3	2	2	*	V	V	V	4
3002	production of computers		3	2	3	*	V	V	V	4
31	Production of other electrical machines and equipment									
3110	electric motors, generators and transformers	200	3	2	1	*	III	III	V	3
3120	electricity distribution and control apparatus	71	3	2	3	*	IV	V	V	4
3130	insulated wire and cable	4	2	2	2	*	IV	V	V	3
3140	accumulators, primary cells and primary batteries production	4	2	2	1	*	IV	IV	V	3
	filling		3	2	2	-	III	III	V	4
3150	lighting equipment and electric lamps	16	3	3	2	-	III	IV	V	4
3161	electrical equipment for engines	1	2	2	3	-	IV	IV	V	4
3162	other electrical equipment n.c.e	10	2	2	3	-	IV	IV	V	4

Classification system; division into categories			Environmental aspects (index)			Local disturbance (index)				
ISIC code	description	total number	air index	water index	soil index	noise	odour	external danger	dust	category
32	Audio, video and telecommunication industry									
3210	electronic valves and tubes and other electronic components	15	2	2	2	*	IV	V	V	3
3230	production of recording or reproducing apparatus and associated goods	2	2	3	3	*	V	V	V	4
33	medical and optical instruments industry									
3310	medical and surgical equipment and orthopaedic appliances	17	2	3	3	*	V	V	V	4
3340	optical instruments and photographic equipment	1	2	3	3	*	V	V	V	4
34	Transport related industry									
3410	car production		1	2	2	*X	III	IV	II	2
3420	production of coachwork for motor vehicles; (semi-) trailers	62	2	3	2	*	III	V	V	3
3430	parts and accessories for motor vehicles and their engines p.c < 50t/y	285	3	3	2	*	V	V	V	4
	p.c >= 50t/y		2	3	2	*	IV	V	IV	3
35	Transport industry									
3511	ships	17	2	2	2	*	IV	V	IV	3
3543	invalid carriages	1	3	3	2	*	V	V	V	4
3550	other transport equipment n.c.e	1	2	2	2	*	IV	V	V	3
36	furniture and other articles industry									
3611	chairs and seals p.c. <50t/y	75	2	3	3	*	V	V	IV	4
	p.c >= 50t/y		2	2	3	*	V	V	III	3
3612	other office and shop furniture p.c < 50t/y	19	2	3	3	*	V	V	IV	4

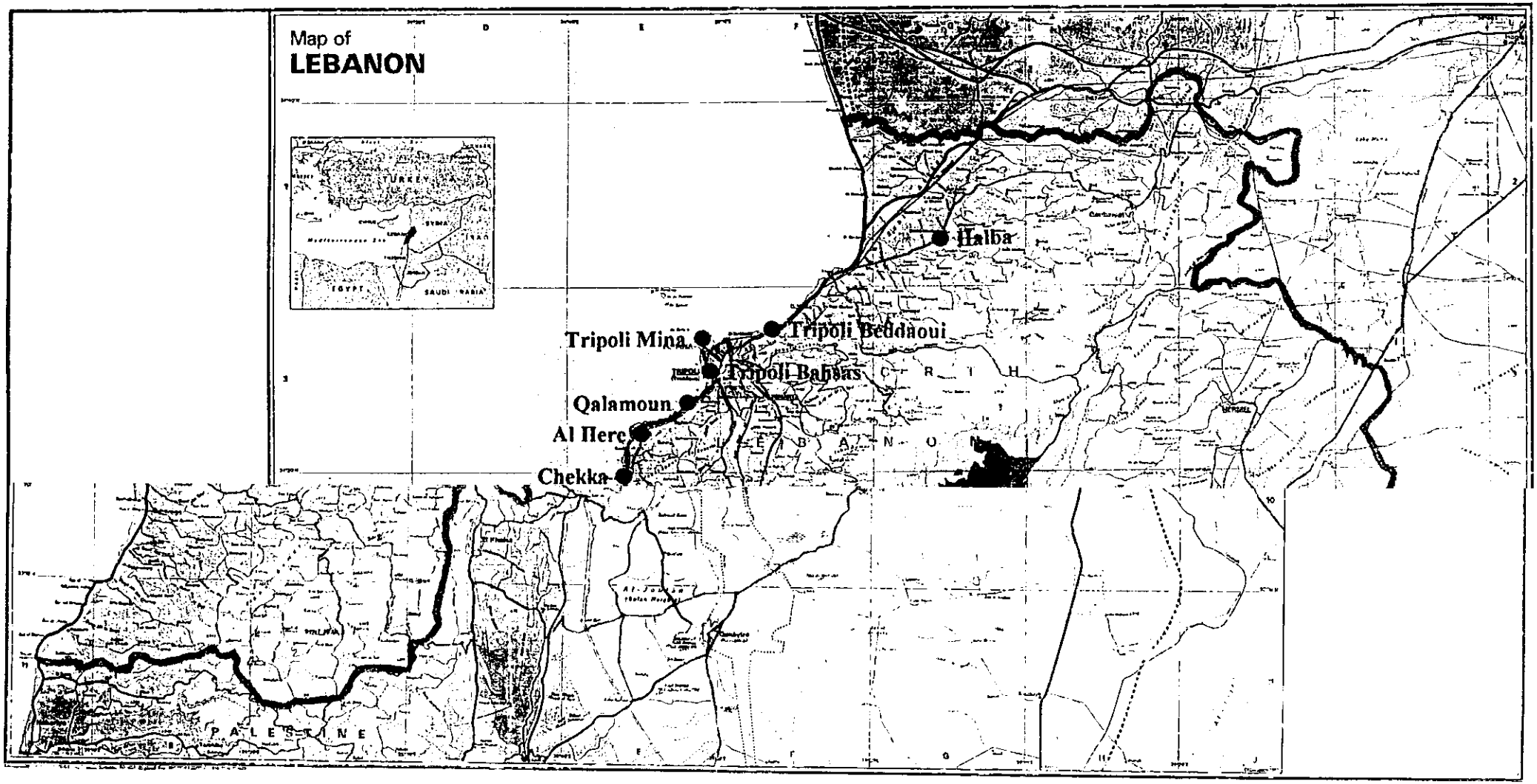

Figure 4.1 : Location of industrial areas

Classification system; division into categories			Environmental aspects (index)			Local disturbance (index)				
ISIC code	description	total number	air index	water index	soil index	noise	odour	external danger	dust	category
37	preparation for recycling									
3710	preparation for metal recycling		2	2	2	*	IV	IV	III	3
3720	preparation for waste recycling of other than metal		2	2	2	*	II	IV	III	2
E	Production and distribution of electricity, gas and hot water									
40	production of electricity, gas system and hot water									
4000	production of electricity, gas steam and hot water	3	1	2	3	*	II	III	IV	2
41	winning and distribution of water									
4100	winning and distribution of water [Min. of HEWR]		3	2	3	*	V	IV	V	4
F	Building industry and construction trade (Building industry is located at the building site)									
45	building industry; construction trade									
4511	demolition and wrecking of building work; earthmoving work	9	3	2	3	*	V	V	IV	4
N AND BASEMENT		5	3	2	3	*	V	V	IV	4
	FLOORS SECTIONS SHEET 1 / 3	344	3	3	3	-	V	V	IV	4
	civil engineering work									
4523	construction work for highways, roads, airfields and sport facilities	1	3	2	3	*	V	V	IV	4
4524	general construction work for water projects	3	3	2	3	*	V	V	IV	4
4525	other construction work involving special trades	51	3	2	3	*	V	V	IV	4
4531	installation work of electrical wiring and fittings	9	3	3	3	-	V	V	IV	4
4533	plumbing work	31	3	3	3	-	V	V	IV	4
4534	other building installation work	17	3	3	3	*	V	V	IV	4

Classification system; division into categories			Environmental aspects (index)			Local disturbance (index)				
ISIC code	description	total number	air index	water index	soil index	noise	odour	external danger	dust	category
4541	plastering work	33	3	3	3	-	V	V	V	5
4543	floor and wall covering work	24	3	3	3	-	V	V	V	5
4544	plaiting and glazing work	23	3	3	3	-	V	V	V	5
G	Trade, repration and consumer articles									
50	Trade and repair of cars									
5010	repair of cars p.a < 100 m²		3	3	3	-	V	V	V	5
	p.a >= 100 m²		3	2	2	X	V	IV	V	4
5020	body works and spray painting p.a < 160 m²		2	3	2	*	V	V	V	4
	p.a >=100 m²		2	2	2	*	IV	V	IV	3
5050	petrol and gas stations [Special law]		3	2	2	-	IV	III	V	4
51	Wholesale houses and trade mediation									
5120	wholesale house for agricultural products		3	3	2	X	IV	V	IV	4
5130	wholesale house food and drink articles		3	3	3	X	IV	V	IV	4
5140	wholesale house of other									
	article /products		3	3	3	X	IV	V	IV	4
	chemcial or flammable substances < 1000kg		3	2	2	-	V	III	V	4
	chemcial or flammable substance >= 1000kg		2	2	2	X	V	II	V	3

Classification system; division into categories			Environmental aspects (index)			Local disturbance (index)				
ISIC code	description	total number	air index	water index	soil index	noise	odour	external danger	dust	category
52	Retail trade and repair activities for private persons									
5210	non specialised retail trade		3	3	3	-	V	V	V	5
5220	specialised retail trade for food and drinks (e.g. warehouses)		3	3	3	-	V	V	V	5
5230	retail trade for pharmaceutical articles		3	3	3	-	V	V	V	5
5240	other specialised retail trade		3	3	3	-	V	V	V	5
5260	market trade		3	3	3	-	V	V	V	5
5270	repair shops for consumer articles (except cars and motorbikes)		3	3	2	-	V	V	V	5
55	Hotel and catering									
551/3/5	Hotel restaurants		3	3	3	-	V	V	V	5
5520	Assembly and leisure		3	3	3	-	V	V	V	5
93	Other services									
9301	Cleaning of clothes and textiles		2	2	3	-	V	V	V	5

• **Classification of agriculture**

Agriculture and farming, ISIC code 0141: 'products of agriculture and related services, farming', are classified as category 4. This implies that activities related to farming must be located outside industrial areas. This decision is made to preserve the scarce industrial space for industrial activities only. Nevertheless, activities placed under ISIC code 0141 can cause nuisance, especially odour and noise nuisance. Therefore, a special strategy regarding the location of these activities should be developed. The location of new activities near residential areas should be prevented. Existing activities which cause nuisance must undertake all required actions to minimize impacts on its surroundings. The acceptable distance to housing should be determined on the basis of the amount and type of animals which are present at each location. As a basis for the location strategy for farming, the present Decree 4917 can provide useful information.

• **Classification of industries bound to a location**

Several categories of industries are bound to a specific location. This is especially the case for Branch F Building industry and construction trade. Besides, several other industries, such as fruits and vegetables processing or mineral production are most effectively undertaken on site. Therefore, the option to allow these industries outside industrial areas is available most of the times. The classification into categories gives an indication of their potential threat to the environment which should be used in the permitting procedure. The right to allow industrial activities outside industrial areas is reserved to higher level governmental authorities.

• **Shift to other categories**

Table 3.4 presents the general classification of industries. However, there are many specific production processes and aspects which can modify the environmental impacts of an industry. A degree of latitude in classifying the industries was used to keep the classification as practicable and workable as possible. During the permitting procedure, the authorities responsible for classification have to deal with these exceptions in the following way[2]:

* *the (potential) threat to the environment of the industry is less than described in the applicable category* →
  In this situation, the responsible governmental organisation can decide to place the industry in a lower category. The basis for this decision must be

[2] More details on the permitting procedure and the authorities responsible for environmental permitting is given in chapter 5 and 6.

the permit application in which the production process, the use of chemical substances, the production capacity and the expected emissions to the environment are described.
Additionally, the applicant can request to be classified in a lower category. However, the final decision remains with the governmental organisation.

* *the (potential) threat to the environment of the industry is bigger than described in the applicable category →*
In this situation, the responsible governmental organisation must place the industry in a higher category. The base for this decision is again the permit application in which the industry has to give an insight in its production process, the production capacity, the use of substances and the expected emissions to the environment.

The place of the categorisation in the permitting procedure is elaborated in chapter 5.

• Classes of Industry

In table 3.5 an overview of all branches, classified on the basis of their categories is given:

Table 3.5 Branches divided into categories

Category 1
2320 refined petroleum products
2420 pesticides and other agro-chemical products

Category 2
1030 coal and lignite; peat
1110 crude petroleum and natural gas, services incidental to oil and gas

1411 stone for construction
1412 limestone, gypsum and chalk

1542 refined oils and fats (p.c. ≥ 250.000 t/y)
1562 starches and starch products (p.c. ≥ 10 t/h)
1571 prepared animal feeds for farm animals (p.c. ≥ 10 t/h)

2112 paper and paperboard (p.c. ≥ 15 t/h)

2722 steel tubes and steel fittings (p.a. < 1000 m2)
2731 cold drawn products (p.a. ≥ 1000 m2)
2732 cold rolled of narrow strips (p.a. ≥ 1000 m2)
2733 cold folded products of iron, non-alloy steel or stainless steel (p.c. < 1000t/y)
2734 wire (p.a. < 500 m2)
2735 ferro-alloys (NON-ECSC) and other iron and steel n.c.e. (p.c. < 1000 t/y)
2741 precious metals (p.c. < 500 t/y)
2742 aluminum and aluminum products (p.c. < 1000 t/y)
2744 copper products (p.c. < 1000 t/y)
2745 other non-ferrous metal products (p.c. < 1000 t/y)
2751 casting services of iron
2753 casting services of light metals
2754 casting services of other non ferrous metals

2811 metal structures and parts of structures
2822 central heating radiators and boilers
2830 steam generators, except central heating hot water boilers
2840 forging, pressing, pounding/roll forming of metal services; powder metallurgy
2851 treatment of coating of metal services
2871 steel drums and similar containers
2872 light metal container
2875 other fabricated metal products, n.c.e.

2911 engines and turbines except aircraft, vehicle and cycle engines
2912 pumps and compressors
2913 taps and valves
2914 bearings, gears, gearing and driving elements
2921 furnaces and furnace burners
2922 lifting and handling equipment
2923 non-domestic cooling and ventilation equipment
2924 other general purpose machinery n.c.e.
2931 agricultural tractors
2932 other agricultural and forestry machinery
2940 machine-tools
2951 machinery for metallurgy
2952 machinery for mining, quarrying and construction
2953 machinery for food, beverage and tobacco processing
2954 machinery for textile, apparel and leather production
2956 other special purpose machinery n.c.e.
2960 weapons and ammunition
2971 electric domestic appliances (p.c. ≥ 50 t/y)
2972 non-electric domestic appliances (p.c. ≥ 50 t/y)

3110 electric motors, generators and transformers (capacity < 15 MW)
3120 electricity distribution and control apparatus (capacity < 15 MW)
3130 insulated wire and cable
3140 accumulators, primary cells and primary batteries

3210 electronic valves and tubes and other electronic components

3420 production of coachwork for motor vehicles; (semi-)trailers
3430 parts and accessories for motor vehicles and their engines (p.c. ≥ 50 t/y)

3511 ships
3550 other transport equipment n.c.e.

3611 chairs and seats (p.c. ≥ 50 t/y)
3612 other office and shop furniture (p.c. ≥ 50 t/y)
3613 kitchen furniture (p.c. ≥ 50 t/y)
3614 other furniture (p.c. ≥ 50 t/y)
3615 mattresses (p.c. 50 t/y)
3640 sports goods (p.c. ≥ 50 t/y, using flammable or chemical substances)
3650 games and toys (p.c. ≥ 50 t/y, using flammable or chemical substances)
3663 other manufactured goods n.c.e.

3710 preparation for metal recycling

4100 winning and distribution of water

4511 demolition and wrecking of building work; earthmoving work

5020 repair, oil change, dismantling, tire repair, body works and spray painting (≥5 cars a week)

5120 wholesale house for agricultural products (≥ 25 tons)
5140 wholesale house of other articles/products (chemical or flammable substances ≥ 1000 kg)

Category 4 and 5 are not presented separately (see classification system). The relatively small industrial activity associated with categories 4 and 5 presents no serious threat to the environment and health. Examples of cat. 4 and 5 industries include for instance shipping agencies, banks, insurance companies, offices and public services. General conditions as formulated in the stipulation of Permit Conditions will be enough to guarantee a sound environmental and health quality.

4 Area classification

4.1 Introduction

A recent study[3] commissioned by IDAL investigated the present status of official and de-facto industrial zones. The study focused on the suitability of these areas for industrial developments, especially on the existing infrastructure and urban planning considerations. Furthermore the capacity of these areas to receive future industrial growth was also examined.

The study contains an estimation of the extent of development of each area, and percentage of built-up surface. For each area, the possibilities for extension were examined. The study indicated that several areas reached full capacity and require extension in order to receive additional industries while other areas are still unbuilt. However, the general impression was that the present available capacity within or close to industrial areas will not be enough to satisfy anticipated investments. New areas are therefore under investigation however only the 41 areas examined in the ACE / Urbi study were classified in this present report.

There are large differences between these selected areas with regard to their legal status, their location and their vulnerability and capacity to receive new industrial developments. For this reason, the areas are divided into classes. Three classes and buffer zone-areas are considered as indicated in the following table :

[3] In this report, the areas selected and determined in the research conducted by the ACE/Urbi combination are the basis for further classification.

*	**A-Area:**	Reserved for *Category 1 industries* which can cause serious threat to the environment and/or cause serious disturbance to its surroundings. Category 2 industries may be allowed in these areas if category 1 industries can not fill up the area.
*	**B-Area:**	Reserved for *Category 2 industries* which can cause threat to the environment or which can cause disturbance to its surroundings. Category 3 industries may be allowed in these areas if category 2 industries do not fill up the area.
*	**C-Area:**	Reserved for *Category 3 industries* which can cause no, or almost no, threat to the environment or disturbance to its surrounding. In these areas Category 2 industries can be allowed if they are presently operating in the area. New category 2 industries must be located in B or A Areas.
*	**Buffer-zones:**	Reserved for Category 4 industries which cause insignificant threat to the environment. These buffer-zones are located within the A, B, C industrial areas and around residential areas or other vulnerable places. In several towns or villages where industrial areas are non-existant, newly created buffer-zones will have to accommodate category 4 industries

4.2 Additional criteria for the area classification

In chapter 1, the general criteria for the classification system are given. In this paragraph, additional criteria which are required to classify the areas into the three categories are elaborated. The following aspects are elaborated:

- environment
- geography and planning
- economy

- **Environmental criteria**

▸ *level of pollution*
The level of pollution concerns long range and short range pollution. With regard to their potential pollution, the attention is focused on air pollution, water pollution, ground water pollution and waste. Special points of attention with regard to air pollution are wind direction and dust. The use of water or ground water for drinking water or processing water is of main importance. Further, the possibility to sewer into the sea in a direct way or via a river basin is of interest. With regard to waste, the possibilities for waste management and waste disposal are key.

▸ *disturbance for the surrounding area*
The disturbance for the surrounding area includes noise, odor, the external danger (the threat of calamities due to industrial activities) and visual hindrance. These kind of nuisance is reversible: when the industrial activity stops, the nuisance is terminated.

▸ *threat to vulnerable areas*
In classifying the areas, vulnerable areas deserve extra protection. Three kinds of vulnerable areas are distinguished:

* nature areas: areas designated by the government as a nature area or areas with comparable values (natural reservations).
* coastal zones: coastal zones at which no industries are present at the moment. Besides, the Mediterranean is regarded as a vulnerable area.
* cultural heritage: ancient remains which are important because of their cultural values and of their touristic values.

- **Geographic and planning criteria**

▸ *Safeguarding the city of Beirut*
At present, the city of Beirut is heavily affected by industrial activities at the outskirts of the city, and their impacts (pollution, local disturbance, traffic congestion). In the classification process, attention was paid to the possibilities of safeguarding Beirut from unnecessary pollution and disturbance as much as possible.

▸ *Distribution of categories*
In classifying the areas, the starting point was to divide the areas suitable for heavy and large industry equally among the different regions of the country. Where equal distribution appeared to pose major threat to the environment or the surroundings, preference was given to the environmental aspects. The distance between the

industries and their potential clients was also a point which was relevant in this decision. In this way unnecessary traffic movements can be avoided.

▸ *Accessibility of areas*
Many of the areas are located on or nearby the coastal road Tyr-Saïda-Beirut-Jounieh-Tripoli. the regional accessibility of these areas is good. However, on local scale many of these areas have access roads passing straight through residential areas. Large traffic movements on these roads will pose an enormous burden on the neighboring residential areas. This must be prevented where possible by setting limits to the areas. On the other hand, the same areas may have sufficient local accessibility. For some of these areas, the choice was made to allow category 2 industries.

▸ *Distance to housing*
During the last decades, several industries were established outside the borders of existing official industrial areas. On some locations, these industries cause no adverse consequences on the surroundings. When this is the case, procedures to approve these areas as official industrial zones were started (now known as so called defacto zones). These zones are part of the 41 selected areas. Industrial expansion outside official zones is not desired and for this reason will be discouraged. Later, industries outside the 41 selected areas have to be relocated to new sites. Construction of residential buildings inside official zones also took place in the past. Both of these aspects of illegal development served as a basis in developing the distance criteria.

- **Economic criteria**

▸ *Feasibility*
The feasibility criterium firstly points at the present situation. The main question is whether the proposed class of industry is allowable in the region under consideration. When the chosen class resulted in many displacements, sizeable infrastructural investments or too many measures for the industry, the dominant class for the area was adapted.

▸ *Financial liability regarding displacement of industry*
Despite of all flexibility, in some occasions, it is inevitable that due to the classification, a number of industries have to be displaced. Of course, displacement does not have to take place immediately. Guidelines for terms for displacement are given in chapter 6. When displacement was not found feasible, in some cases a higher class is proposed.

▸ *Financial liability regarding protective measures*
When an area is classified as Class B, under certain circumstances category 2 industry is allowed. By imposing strict permit regulations the environmental impact of these industries have to be limited. Where this is not expected to be feasible, the C-class for an area is proposed.

4.3 Classification of areas

• The use of the criteria in the area classification

Within the criteria as described in paragraph 4.3, a division can be made between the quantitative use and the qualitative use of these criteria. The environmental criteria are used in a quantitative way.

For each aspect, the potential threat to the environment (P.T.) is given:

- * : small effect
- ** : effect
- *** : serious effect

With regard to the geographical aspects and the economical aspects, a qualitative description is given. Besides, for each area, the specific points of attention as described.

Mount Lebanon

Industrial zone	Description	Class
1 **Ajaltoun/Achcout**	*Environmental aspects* P.T. poilution: air ** water *** soil *** P.T disturbance: noise ** odour * ext.dan * vis.hin. ** P.T. vulnerable areas: nature coast cult.her. *Geographic aspects* The area is located directly east from Ajaltoun. The accessibility of the zone is reasonable. The access road cuts through a residential area. The quality of the access road is not sufficient for further development of the Industrial Zone. The zone is situated in a valley between two hills and is almost completely surrounded by sparse housing. *Economic aspects* The area is unbuilt for the greater part. There are three medium sized industries accommodated. Further, small factories and some car repair shops are present. A large industry is under development. *Points of attention* The surrounding residential area is affected by noise pollution and short range air pollution. Further development of the area should be aimed at low emission small and medium sized factories.	C
2 **Aley**	*Environmental aspects* P.T. pollution: air * water ** soil ** P.T disturbance: noise *** odour ** ext.dan vis.hin. ** P.T. vulnerable areas: nature coast cult.her. *Geographic aspects* The area has access routes trough residential areas. The accessibility of the area is limited. Industries within the area are mainly local and providing services on a local level. The border of the area is near to housing. There is no residential construction within the area. *Economic aspects* At present most of the users are small shops and industrial workshops providing labour for the surrounding residential areas. The greater part of the area is still unbuilt. There is some industrial activity outside the zone, especially is the north-western part. *Points of attention* The present method of sewering is a threat to the environment and should be dealt with. Extension of the zone in north-eastern direction in feasible. Developments should be aimed at small and medium sized factories.	C

Industrial zone	Description	Class
3 **Amchit**	*Environmental criteria* P.T. pollution: air ** water ** soil * P.T disturbance: noise odour * ext.dan ** vis.hin. * P.T. vulnerable areas: nature * coast cult.her. *Geographic criteria* The area consists of two parts, a coastal part and an inland part. Due to the abundance of industry in the coastal zone, new industries should be limited to the inland part. The village of Amchit is located on a hill close to the industrial zone of Hosrayel. The access route to the inland area is through the private road of the chemical factory. Housing is located some 200 meters south from the zone. *Economic criteria* Three industries are located in the zone at present, of which one is closed. The chemical factory is the main industry. This industry is causing the odor nuisance in its direct surrounding. The greater part of the area is unbuilt. To smoothen further developments, the infrastructure has to be adapted. *Points of attention* Between the Amchit and the Hosrayel zones, there is a valley with natural value. For several months of the year, the valley serves as a water shed, and deserves further protection. Discharge of sewage on this valley should be avoided.	C
4 **Baabdah-Louaizeh**	*Environmental aspects* P.T. pollution: air * water ** soil ** P.T disturbance: noise ** odour * ext.dan * vis.hin. * P.T. vulnerable areas: nature coast cult.her. *Geographic aspects* The accessibility of the area is reasonable. Access roads are passing by residential areas. The distance to housing is small. The area includes some residential buildings. *Economic aspects* The area is presently used by four factories. The available space within the area borders is restricted. Future development should be restricted to small factories. *Points of attention* Further construction of residential buildings within the industrial zone should be prevented.	C

Industrial zone	Description	Class
5 **Baabdate**	*Environmental aspects* P.T. pollution: air * water * soil * P.T disturbance: noise * odour * ext.dan vis.hin. ** P.T. vulnerable areas: nature ** coast cult.her. *Geographic aspects* The area is nearby Baabdate. The access roads are crossing the southern part of the village. There is a buffer zone between the area border and the village of Baabdate. *Economic aspects* At present the area is used by two large factories. Besides, some medium sized factories are located near the western borders of the area. *Points of attention* The surroundings of Baabdate have touristic values, with pine tree forests. Although the area has a limited size, some medium sized and large industries could be allowed, only when the touristic values of the area are not threatened. The accessibility of the area could be improved.	C
6 **Baaqline**	*Environmental aspects* P.T. pollution: air * water ** soil * P.T disturbance: noise *** odour ** ext.dan * vis.hin. ** P.T. vulnerable areas: nature coast cult.her. *Geographic aspects* The accessibility to the area is reasonable. The northern part of the area borders on the village of Baaqline. *Economic aspects* This northern part of the area is constructed for the greater part. Several local factories, such as car repair shops are located in the area. Two medium sized factories are present. The area is providing labour mainly on a local scale. *Points of attention* The area is located close to a touristic region. Some buffer space should be kept between Baaqline and the area in the northern and western part. The western part should be reconsidered.	C

Industrial zone	Description	Class
7 **Baouchrieh**	*Environmental aspects* P.T. pollution: air ** water ** soil ** P.T disturbance: noise ** odour ** ext.dan * vis.hin. * P.T. vulnerable areas: nature coast cult.her. *Geographic aspects* The accessibility to the main southern area and the small northern area, both located on the eastern border of Beirut, is good. However, the main road which runs parallel to the area in the north is jammed with traffic for the greater part of the day. The distance to housing all around the area is small. *Economic aspects* The area is almost completely built-up with small factories, mainly car repair shops and small metal works. At present, air pollution caused by car-paints and furniture factories is the main environmental impact of the area. The area was more or less designed for this kind of activities. The future method of working should prevent the greater part of the emissions to the air and should prevent oil spills which create ground water and water pollution. An adaption of the area-infrastructure to cope with environmental standards must be considered. *Points of attention* A buffer zone with the surrounding residential area should be maintained where possible.	C
8 **Bchamoun**	*Environmental aspects* P.T. pollution: air * water ** soil ** P.T disturbance: noise ** odour ** ext.dan * vis.hin. P.T. vulnerable areas: nature coast cult.her. *Geographic aspects* The area is located south from the Choueifat area. In the eastern part the area is bounded by the new residential developments of Bchamoun. In the eastern part the residential area is adjoining the industrial zone. *Economic aspects* The area can be considered as an extension of the economic activity of the Choueifat area. However, due to its primary state of development, the area can be developed as a small factory area, with a local an regional function. *Points of attention* A buffer zone between the residential area and the industrial area should be created and maintained. Extension of the area in western direction should be kept to a minimum.	C

Industrial zone	Description	Class
9 **Bourj Hammoud/ Jdaïde/Zalka**	*Environmental aspects* P.T. pollution: air ** water *** soil ** P.T disturbance: noise ** odour ** ext.dan *** vis.hin. * P.T. vulnerable areas: nature coast ** cult.her. *Geographic aspects* The area is located in the eastern part of Beirut and is jammed in between the sea and one of the main access roads to the city (Avenue Charles Helou). The accessibility to the area is good, although the area has only easy access coming from the north / eastern direction. The traffic coming in and out the area in contributing to the dense traffic on the adjoining highway. The residential area in the south is separated from the industrial area by the highway. Within the area, several residential buildings are present. South from the highway, some medium sized industries occur. Average distance to housing amounts to 150 meters. *Economic aspects* The Bourj Hammoud/Jdaïde/Zalka area is one of the main industrial area within the borders of Beirut and is therefore of importance for the economic activity of the city. The sea shore near the industrial area is also used as a major landfill for the city of Beirut. On average 2/3 of the area is constructed. Several new industries are under construction. *Points of attention* Due to the location of the area, industries causing short range air pollution should be kept of the area. The present landfill is causing severe problems (dust and water pollution) which should be dealt with as soon as possible. Further expansion of the area south from the highway should be prevented. New industrial developments should be controlled and avoided, and limited to Cat 3 activities.	C
10 **Dbayeh**	*Environmental aspects* P.T. pollution: air * water ** soil * P.T disturbance: noise ** odour * ext.dan vis.hin. * P.T. vulnerable areas: nature coast cult.her. *Geographic aspects* The area is located west from the highway Beirut-Jounieh/Tripoli. The accessibility of the area is reasonable/good. In the northern part, a zone of 100/200 hundred meters separates the area from Dbayeh. The southern part, which is mainly unbuilt, cuts through the northern part of Haret el Béllané. *Economic aspects* The five factories present within the area are mainly located in the west near the highway. Three of them are operating at the time. The greater part of the area is still uncultivated. The area can serve for local and regional purposes. *Points of attention* The southern part should remain unbuilt as far as possible. In this way, a buffer zone between the residential area and Haret el Béllané could be realized. Development in the area should take into consideration the importance of surface channels for the water supply.	C

Industrial zone	Description	Class
11 **Dekouaneh**	*Environmental aspects* P.T. pollution: air * water ** soil ** P.T disturbance: noise ** odour ** ext.dan vis.hin. * P.T. vulnerable areas: nature coast cult.her. *Geographic aspects* The area is located in the south-eastern suburbs of Beirut. The area consists of two separate parts. Both parts have a reasonable/good access, although the neighbouring roads have dense traffic with several congestions during the day. Residential areas are adjacent to both parts of the industrial area. *Economic aspects* The northern part is partially built with medium sized factories. The southern part is almost completely constructed with industries. The southern part also contains one of the important vocational institutes in Beirut. *Points of attention* Developments should be aimed at labour extensive industries to prevent further traffic congestions in this part of Beirut.	C
12 **Fanar-Ain Saadeh**	*Environmental aspects* P.T. pollution: air ** water *** soil ** P.T disturbance: noise ** odour ** ext.dan * vis.hin. * P.T. vulnerable areas: nature coast cult.her. *Geographic aspects* The area has one main access road. The general accessibility of the are is reasonable. The area is located in a valley 5 kilometers east from Beirut. The valley runs from the north-west to the south-eastern direction. The valley is for the greater part surrounded by housing. The average distance to housing is approximately 200 meters. A small part of the area is separated and is located apart in the south- west on another side of the hill. In that part, factories are mixed with housing. The accessibility of this part adverse. *Economic aspects* Some 15 factories are located in the main area. More than half of the area is built. The area provides products mainly on the regional level. Some factories with a broader market are also present. *Points of attention* Ground water and soil are polluted by septic tanks. Due to its location the local nuisance aspects (e.g. noise, odour, air pollution) should get special attention when new factories apply for a permit. The space between the two parts should be used as a buffer zone for housing. Extension of the area by connecting the two parts should not be considered. The south-west part on the other side of the hill should preferably be abandoned as an industrial zone.	C

Industrial zone	Description	Class
13 **Ghazir**	*Environmental aspects* P.T. pollution: air * water ** soil * P.T disturbance: noise ** odour * ext.dan vis.hin. * P.T. vulnerable areas: nature coast cult.her. *Geographic aspects* The area has reasonable accessibility and is situated 1 kilometer from the highway Jounieh-Tripoli and west from Ghazir. The distance to housing varies. In the eastern part the residential area is adjoining. Within the area, some residential buildings occur. *Economic aspects* At present, some five small factories are present within the area borders. The greater part of the area is unbuilt on. The factories are mainly providing labour on local level. *Points of attention* Between the area and Ghazir, a buffer zone should be maintained. Because of natural value of the area, integration of nature and industry should be taken into account.	C
14 **Kfarchima**	*Environmental aspects* P.T. pollution: air *** water *** soil * P.T disturbance: noise *** odour * ext.dan vis.hin. * P.T. vulnerable areas: nature coast * cult.her. *Geographic aspects* The Kfarchima area is part of the industrial area Kfarchima-Choueifat. The Kfarchima part is located in the foothills area. The accessibility of the area is reasonable/good. Residential developments are present inside the area. In the north and in the south the area is enclosed by housing. *Economic aspects* At present several heavy industries are present, next to a great number of smaller industries. Several industries are located outside the official borders of the area. The area is an important economic factor for the region. *Points of attention* Extension of the area is possible, however should be undertaken with great care. Due to the location near housing, only category 3 industries should be allowed.	C

Industrial zone	Description	Class
15 **Choueifat**	*Environmental aspects* P.T. pollution: air *** water ** soil ** P.T disturbance: noise ** odour ** ext.dan ** vis.hin. *** P.T. vulnerable areas: nature coast ** cult.her. *Geographic aspects* The Choueifat area is located directly south-east from the runway of Beirut International Airport. The accessibility of the area is good, and is likely to improve a great deal in light of new road developments in the area, the periphérique de Beyrouth, and the South Beirut Entrance. In the north, the area adjoins the southern suburbs of Beirut. *Economic aspects* The Choueifat area is a major economic factor in the region and in Lebanon. In total over 120 factories are located in two zones, and in other areas which are not regulated or zoned as industrial. Of these industries, 48 are considered as large. *Points of attention* Due to its location next to the airport, the western part of the area can cope with large industries which cause noise pollution and other local problems. Due to southern winds, the emissions to the air must be restricted by strict permit enforcement. Special attention should be paid to prevent visual emissions to the air to keep clear sight during take of and landing of airplanes. Due to the proximity of residential zones, namely the southern suburbs and Choueifat, it is proposed to establish a buffer zone north and east of the proposed extension. Cat. 2 industries will be restricted to the western and southern sections of the area, which will be classified as B zone. Cat 3 industries can then be located between the buffer zone and the Cat 2 area, in a zone classified A..	B
16 **Mkalles**	*Environmental aspects* P.T. pollution: air * water * soil * P.T disturbance: noise ** odour * ext.dan vis.hin. * P.T. vulnerable areas: nature coast cult.her. *Geographic aspects* The area is located near the eastern suburbs of Beirut. The accessibility of the area is good, although heavy traffic is jamming the streets in the morning and after closing time. The distance of residential areas is approximately 250 meters. *Economic aspects* The area accommodates a mixture of medium sized industries and is a major provider of jobs in the area. The present industrial zone is saturated. *Points of attention* Extension of the area is feasible, although the developments should be aimed at labour extensive factories. Leakage from septic tanks deserves special attention.	C

Industrial zone	Description	Class
17 **Naame**	*Environmental aspects* P.T. pollution: air ** water ** soil * P.T disturbance: noise ** odour * ext.dan vis.hin. * P.T. vulnerable areas: nature coast * cult.her. *Geographic aspects* The area is located east from Naame and Damour. The main part is located east from Naame. Two small parts which are unbuilt are located east from Damour. The Naame area is adjoining the residential part of the village. The accessibility is reasonable. All traffic must pass the residential area. *Economic aspects* The northern part near Naame has some medium sized industries. The greater part of the area is still unbuilt. The area should be developed as a provider of jobs for Naame and Damour. *Points of attention* Since the Damour areas are not in demand and they are adjoining the residential part of Damour, their viability can be questioned. This area could be abolished. In the development of the northern part, construction of new industries in a zone till 100 meters should be prohibited. Medium sized and large industries can be allowed, also to relieve the pressure off of Beirut.	B
18 **Roumieh- Nahr El Mout- Biaqout**	*Environmental aspects* P.T. pollution: air ** water ** soil ** P.T disturbance: noise *** odour * ext.dan vis.hin. ** P.T. vulnerable areas: nature * coast cult.her. *Geographic aspects* The area can be divided into two areas. The northern part, near to the coastal highway from Beirut to Jounieh, has a reasonable good access. The second southern part, covered with forests, is steep and has a difficult accessibility. The distance to housing varies. Especially is the northern parts several residential areas (Zalka, Biaqout) are adjoining the industrial zone. *Economic aspects* The area has over 60 factories, among which several large factories. The area is an important economic factor for the region. Part of the industries is located here because of the accessibility to quality rocks/stones within the area. *Points of attention* Local threat to the environment (disturbance) is serious. Factories sewering in the Nahr El Mout river, are causing severe noise nuisance and dust problems (asphalt patching, rock crushing). New developments in the northern part (especially class 2) should be discouraged. Developments in the southern part should aim at light industry (class 3)	C

Industrial zone	Description	Class
19 **Sin El Fil**	*Environmental aspects* P.T. pollution: air * water ** soil ** P.T disturbance: noise * odour * ext.dan vis.hin. * P.T. vulnerable areas: nature coast cult.her. *Geographic aspects* The area is located in the eastern part of Beirut, on the right border of the Beirut river. The distance to housing is nihil. In the north-east, the residential part of Bourj Hammoud is adjoining. The accessibility is reasonable. *Economic aspects* The area is almost fully constructed with small and medium sized industry. Outside the area, especially on the western border of the Beirut river, a long strip of small factories exists. Next to these factories are old railway tracks. *Points of attention* Further extension of industries outside the area should be prevented	C
20 **Zouk Mosbeh-Mikael**	*Environmental aspects* P.T. pollution: air *** water ** soil * P.T disturbance: noise ** odour * ext.dan vis.hin. ** P.T. vulnerable areas: nature coast ** cult.her. *Geographic aspects* The Zouk Michael area is intersected by the highway Beirut-Jounieh/Tripoli. The north-western part is bordering the sea-side on the left and a residential area on the right. The accessibility of the south-eastern part is problematic. Zouk Mosbeh is situated 2 kilometers from the coast. The distance to housing is at least 100 meters. The accessibility of this area is also problematic, using partially the same access roads. *Economic aspects* The north-western part of Zouk-Michael contains the largest power plant in Lebanon and some large industries. The south-eastern part is almost fully constructed. Zouk-Mosbeh contains some medium-sized factories. The largest part is unbuilt. Zouk-Michael is an important driving force for the Lebanese economy and should be developed further. *Points of attention* In the coastal area, south from the power plant occur several holiday resorts. This tourist developments should be stopped. The Zouk-Michael area could be enlarged along the seashore in southern direction with class 2 industries. Therefore this part is a *Class B* area. The south east part of Zouk Michael and Zouk Mosbeh are *Class A*.	B (mik) C (mos)

Industrial zone	Description	Class
23 **Halba**	*Environmental aspects* P.T. pollution: air **, water, soil * P.T disturbance: noise **, odour *, ext.dan, vis.hin. * P.T. vulnerable areas: nature, coast, cult.her. *Geographic aspects* The area is located north-west from Halba. The accessibility to the area is reasonable. The minimal distance to housing is about 150 meters. *Economic aspects* There are two factories using the industrial zone. There is very little demand on industrial estates with regard to this area. There are small industrial activities outside the zone. Nevertheless, the area is suitable for the accommodation of new medium sized and large industry. In the development of the area, the present agricultural use of the surrounding area and the adjoining residential area should be safeguarded. *Points of attention* Industrial activities should be placed strictly inside the area. A buffer zone should be maintained. To make the area suitable for larger industries, the road system requires improvement.	B
24 **Qalamoun**	*Environmental aspects* P.T. pollution: air *, water **, soil * P.T disturbance: noise *, odour *, ext.dan, vis.hin. * P.T. vulnerable areas: nature, coast, cult.her. *Geographic aspects* The area is intersected by the highway Jounieh-Tripoli. The accessibility of the area is good. The small and medium sized industries which are present at the area are interwoven with housing. *Economic aspects* The area contains small and medium sized factories which operate primarily on a local and regional scale. The area is almost completely filled with factories. *Points of attention* When new industries apply for a permit, only small sized industries should be allowed	C

Industrial zone	Description	Class
25 **Selaata**	*Environmental aspects* P.T. pollution: air *** water ** soil ** P.T disturbance: noise * odour * ext.dan * vis.hin. ** P.T. vulnerable areas: nature * coast ** cult.her. *Geographic aspects* The area is situated west from Selaata near the seaside. The accessibility of the zone is reasonable. There is a buffer zone between housing and the present industries. Only in the south, a small residential strip is adjoining the area. *Economic aspects* Several medium sized and large industries are located on the area. These industries are providing the regional and national market. Half of the area is occupied. The coastal zone near the area is under development for touristic purpose. Area is suitable for the development of medium sized and large industries. *Points of attention* Some of the present industries are posing a severe threat on man and nature. Stricter environmental standards should prevent unacceptable nuisance and damage for the direct surrounding and the regional environment.	B
26 **Tripoli Bahsas**	*Environmental aspects* P.T. pollution: air * water *** soil * P.T disturbance: noise * odour * ext.dan vis.hin. * P.T. vulnerable areas: nature coast cult.her. *Geographic aspects* The zone is intersected by the Beirut-Tripoli highway. The accessibility of the area is good. The area borders on housing in the west and in the north-east. The distance to the first residential area amounts 500 meters. *Economic aspects* The area is almost totally occupied with mainly small and medium sized industry *Points of attention* /	C

Industrial zone	Description	Class
27 **Tripoli Beddaoui**	*Environmental aspects* P.T. pollution: air *** water ** soil ** P.T disturbance: noise ** odour ** ext.dan ** vis.hin. ** P.T. vulnerable areas: nature * coast ** cult.her. *Geographic aspects* The area is situated in the northern part of Tripoli, along the seaside. The accessibility of the area is good. The distance to housing varies within the area. In the western part, housing borders on the industrial zone. In the middle part, the Palestinian refugee camp borders on the area. The area consists out of three parts: a western part with small and medium sized industry, a middle part with the refinery and an eastern part which is laying fallow. *Economic aspects* The area is dominated by the oil refinery, which is presently out of order. The western part contains many small and medium sized industry. The Beddaoui area is one of the main industrial area of Tripoli and is providing jobs on a regional scale. The eastern part is not used for industrial activities at present. Inland, an large extension of the present area is proposed. This part is presently used as a storage for fuel. *Points of attention* A partial re-zoning of the area south from the present area is feasible. However, the ongoing plans concerning tourist development in the eastern part of the zone is doubtful. The main reasons are visual hindrance and short range air pollution by industry, as long as Class C is proposed for this area.	A
28 **Tripoli Mina**	*Environmental aspects* P.T. pollution: air * water ** soil * P.T disturbance: noise * odour * ext.dan vis.hin. ** P.T. vulnerable areas: nature coast ** cult.her. *Geographic aspects* The area is situated on the north-western point of Tripoli. The accessibility of the area, by roads and by boat, is good. The zone is located nearby residential areas. *Economic aspects* Half of the area is occupied by industries. Most industries are medium sized. Also small industries occur. The area is of specific interest because of present harbour activities which could be expanded in the direction of Ras Borj en Nahr. *Points of attention* A solid waste dump is present near the river estuary. Precaution measures should be taken too prevent pollution to the water. New developments should preferably be stimulated in the eastern part of the area.	B

South Lebanon

Industrial zone	Description	Class
29 **Nabatiyeh**	*Environmental aspects* P.T. pollution: air * water *** soil * P.T disturbance: noise * odour * ext.dan vis.hin. * P.T. vulnerable areas: nature coast cult.her. *Geographic aspects* The area is located east from Nabatiye. The accessibility of the area is reasonably good. The distance to housing of the present industry is about 100/150 meters. However, the industrial zone borders to some residential sites in the north. *Economic aspects* At present, there are almost no industrial activities within the area. The zone can be developed as a local and regional supplier for jobs and products. *Points of attention* During further developments of the area, a buffer zone to housing should be maintained.	C
30 **Saïda**	*Environmental aspects* P.T. pollution: air * water ** soil * P.T disturbance: noise * odour * ext.dan vis.hin. P.T. vulnerable areas: nature coast * cult.her. *Geographic aspects* The area is located 1 kilometer south from the city of Saïda. The area is lightly populated. The distance to housing from the present industry amounts to 500 meters. The official zone is adjoining a residential area is the north-east. The accessibility of the area is good from the left entrances by the coastal road from Saïda to Tyre. *Economic aspects* The area is used by one industry only. The area has good potential to be developed as an economical interesting zone for small and medium sized industry from Saïda. *Points of attention* The roads within the area are in bad condition. The accessibility of the area should be improved. Sewering to the Nahr Satanik river should be avoided.	C

Industrial zone	Description	Class
31 **Saïda-Gazieh**	*Environmental aspects* P.T. pollution: air * water ** soil * P.T disturbance: noise * odour * ext.dan vis.hin. * P.T. vulnerable areas: nature coast ** cult.her. *Geographic aspects* The area is situated between the coastal road from Saïda to Tyre and the sea-shore, two kilometers south from Saïda. A small residential area exists in the middle part of the zone. Besides, occasional housing is bordering the area. The accessibility of the area is good. The coastal road has to deal with heavy traffic. *Economic aspects* The area is at present the main industrial zone in the neighbourhood of Saïda. The area is accommodating some 30 factories producing all kinds of products. The greater part is medium sized. *Points of attention* A small strip between the zone and the sea is used as an illegal waste dump. As a result, the sea is polluted with all kinds of rubbish. An effective waste collection should prevent further water pollution. Extension of the area is eastern direction will solve some of the landuse pressure in the area. Developments should primarily aim at medium-sized industry.	B
32 **Tyr (Sour)**	*Environmental criteria* P.T. pollution: air ** water *** soil * P.T disturbance: noise ** odour * ext.dan vis.hin. * P.T. vulnerable areas: nature coast cult.her. *Geographic criteria* The area is located north-east from the city of Tyr. The accessibility of the area is reasonable. Residential areas are bordering the western and eastern part of the zone. The residential area is separated from the industrial zone by a small road. *Economic criteria* The zone is the only industrial area in the surroundings of Tyr. The western part (El Bass) is mixed with housing. Some 10 medium sized factories are present. Besides, several small factories and shops are accommodated. The area should be developed for medium and small sized industries. Industries causing short range pollution must be rejected. *Points of attention* The unbuilt part in the east is partially used as a dumping site for waste and car materials. Strict enforcement has to solve these problems. Due to the construction of the new access road to Tyr, the industry between El Bass and Maachouk should be moved to the northern part.	C

The Bekaa

Industrial zone	Description	Class
33 **Baalbeck**	*Environmental criteria* P.T. pollution: air ** water * soil * P.T disturbance: noise odour ext.dan vis.hin. P.T. vulnerable areas: nature * coast cult.her. ** *Geographic criteria* The area is located 2 kilometers north from Baalbeck. The Quadi river is streaming through the zone. The present infrastructure of the area is inadequate. In the surroundings, the main activity is agriculture. *Economic criteria* At present, an agricultural storage is the only large activity within the borders of the area. Further, one small factory is present. The area has good potential to be developed for large and medium sized industries. The ongoing infrastructure has improved. *Points of attention* The presence of the Roman temples in Baalbeck poses restrictions on the development. Only low emission industries can be allowed. Preference is given to agricultural related industries. A buffer zone between the adjoining Roman Tomb should be preserved. The Quadi river has to be protected from direct sewerage.	C
34 **Taalbaya-Saadnayel**	*Environmental criteria* P.T. pollution: air ** water ** soil ** P.T disturbance: noise odour ext.dan vis.hin. * P.T. vulnerable areas: nature * coast cult.her. * *Geographic criteria* The area is situated 5 kilometers south-west from Zahlé. The accessibility of the area is good. The zone is located in a rich agricultural area with several orchards. The water supply is good. The adjoining area is unbuilt. The distance to Saadnayel is 300 meters. *Economic criteria* Five medium sized industries are present, among which marble and stone factories. The area is almost completely unbuilt There is very little demand on industrial real estate. The area is very near to Zahle and Barr Elias industrial zones. *Points of attention* The present size of the area should be reconsidered. Developments should aim at small industries. Agricultural interests must be key.	C

Industrial zone	Description					Class
35 **Zahleh. Maalka et Banlieue**	*Environmental criteria*					C (Zahle)
	P.T. pollution:	air *	water **	soil *		
	P.T disturbance:	noise **	odour *	ext.dan	vis.hin. *	
	P.T. vulnerable areas:	nature *	coast	cult.her. *		B (middle)
	Geographic criteria The area is located south-east from Zahlé. The area is the largest industrial zone in Lebanon (about 400 hectares). The accessibility of the zone is good. In the North-west, the area is interwoven with the city of Zahlé. The distance to housing varies. In the north-east part, the zone is adjoining a new villa park. *Economic criteria* The area is a combination of industrial and agricultural activity. The industrial activity evolves from the city of Zahlé to the vertical agricultural grounds. Only small factories are located within Zahlé. Large industries are located in the middle part. The south-east part is completely unbuilt and used for agricultural purposes. *Points of attention* A division should be made within the area. The zone located within Zahlé should remain for small factories with almost no-nuisance or environmental threat: *A-area*. The middle part can be further developed as a *B-area* with large industry. For this part also counts that low emission are preferred because of nearby housing in Zahlé and villa park and the cultural heritage of the Bekaa valley. The most southern part should be abandoned with regard to industrial activities, so the total zone should be decreased.					

Defacto Industrial Zones

Industrial zone	Description	Class
36 Majdel Anjar	*Environmental criteria* P.T. pollution: air ** water ** soil * P.T disturbance: noise odour ext.dan. vis.hin. * P.T. vulnerable areas: nature * coast cult.her. ** *Geographic criteria* The area, which is located west from the city of Anjar and north-west Majdel-Anjar. The accessibility of the area is good. The area is situated at the bottom of a steep area. There is some housing within the area. The distance from the residential area is 500 meters. *Economic criteria* The zone is adjoining one of the most fruitful agricultural areas in Lebanon. Within the zone, some agricultural experiments are undertaken, and two industries are established, one is closed at present, the other is related to present agricultural activities. *Points of attention* For further development, agricultural aspects should be the driving force. New industrial developments should be for the sake of the area, related to agriculture.	B
37 Barr Elias	*Environmental criteria* P.T. pollution: air * water ** soil * P.T disturbance: noise odour ext.dan vis.hin. * P.T. vulnerable areas: nature * coast cult.her. * *Geographic criteria* The area is situated in the middle of the southern part of the Bekaa Valley. The accessibility of the area is reasonable. In the nearby future, the highway from Beirut to Damascus will cross the area. There is no housing within the area. The distance to Barr Elias is about 200 meters from the proposed zone. *Economic criteria* At present there are five medium sized and large industries within the proposed area borders. Further the area is mainly used as an agricultural area with good accessibility to water. Two rivers are surrounding the zone. The development of the highway is determining the future use of the area. The highway will result in good accessibility for the transport of products and material from the industrial zone. Therefore, the development of large industry near by the highway can be allowed. *Points of attention* In the developments, special attention should be paid to the preservation of the two rivers. Especially, low emission industry should be encouraged, and the transport and agriculture related industry should be promoted.	B

Industrial zone	Description	Class
38 **Nahr Ibrahim**	*Environmental criteria* P.T. pollution: air ** water * soil ** P.T disturbance: noise * odour * ext.dan vis.hin. * P.T. vulnerable areas: nature *** coast * *Geographic criteria* Area located east from the Beirut-Tripoli highway. The accessibility of the area is reasonable. The greater part of the area is still unused. The area consists of two parts. Between the two parts, residential buildings of 5-6 stores are build and are still under construction. South-east from the area, the river valley was designated as a natural reserve. *Economic criteria* In the western part, the main industry is the cable factory Liban Cables. In total some 6 factories are present. Further developments must be aimed at small and medium sized non polluting industries. *Points of attention* On the south-eastern border of the zone, the nature reserve commences, which is located in the valley. For this reason, the southern part of the zone should not be expanded any further. Special attention should be paid to the prevention of short range air pollution and ground water pollution. Hindrance of noise, odour and smoke should be minimized.	C
39 **Mazraat Yashoua**	*Environmental criteria* P.T. pollution: air * water *** soil ** P.T disturbance: noise *** odour ** ext.dan vis.hin. ** P.T. vulnerable areas: nature coast cult.her. *Geographic criteria* The industrial zone is enclosed by residential areas from three sides. Only the northern side is not bordering to housing. The accessibility of the area is reasonable, although access must be gained through residential parts. *Economic criteria* The area contains some 28 factories. Most of them are small and medium sized. The greater part of the area is still unbuilt. Because of its location, the area is suitable to provide labour for the direct surrounding. New developments should be aimed at small and medium sized industries. *Points of attention* Within the area, some small dumping sites occur. These sites must be abolished as soon as possible. A buffer zone to the residential surrounding should be strictly maintained.	C

Industrial zone	Description	Class
40 **Hosrael**	*Environmental criteria* P.T. pollution: air ** water ** soil P.T disturbance: noise odour * ext.dan vis.hin. P.T. vulnerable areas: nature ** coast cult.her. *Geographic criteria* The area is divided into two parts. One north from Hosrael, and one on the west side. Both are located on the hills of the valley which separates the Hosrael zone from the Amchit zone. The infrastructure of the area is bad. The zone is only accessible by one small mountain road, which passes through the village of Hosrael. The distance to the residential ares of Hosrael is 300 meters. *Economic criteria* At the present time the area is mainly used by medium sized industries. The greater part of the proposed area is still unbuilt. Special point of attention is the use of the area between the two industrial zones by greenhouses for flowers. *Points of attention* The valley has nature values and should be safeguarded from pollution of the air and water. As a result, the western part of the proposed zone should be cautiously developed. The infrastructure needs improvement.	C
41 **Sibline**	*Environmental criteria* P.T. pollution: air ** water ** soil * P.T disturbance: noise * odour * ext.dan vis.hin. * P.T. vulnerable areas: nature * coast cult.her. *Geographic criteria* The defacto zone is situated north-west from Sibline. The accessibility of the area is reasonable, although traffic must pas through a lightly populated area. The distance to housing from the present industries amounts to some 300 meters. *Economic criteria* The area is used by 6 factories. Besides, some quarries are located in the direct neighbourhood. The area has a good potential, because of a safe distance to housing and available space for expansion *Points of attention* /	B

The division of the areas is summarized as follows:

Table 4.1 Categorisation of areas

C-Area (only medium sized industry is allowed (Cat. 3, and Cat 2 under restrictions)

- Ajaltoun/Achcout
- Aley
- Amchit
- Baabdah-Louaizeh
- Baabdate
- Baaqline
- Baouchrieh
- Bchamoun
- Bourj Hammoud/Jdeide/Zalka
- Dbayeh
- Dekouaneh
- Fanar-Ain Saadeh
- Ghazir
- Kfarchima
- Mkalles
- Roemieh- Nahr El Maout- Biaqout
- Sin El Fil
- Zouk Mosbeh
- Qalamoun
- Tripoli Bahsas
- Nabatiyeh
- Saïda
- Tyr (Sour)
- Baalbeck
- Taalbaya-Saadnayel
- Zahleh Maalka et Banlieue (Zahleh part)
- Nahr Ibrahim
- Mazraat Yashoua
- Hosrael

B-Area (medium sized and large industries are allowed (Cat. 2 and 3))

- Choueifat
- Naameh
- Zouk Mikhael
- Al Here
- Chekka
- Halba
- Selaata
- Tripoli Mina
- Saïda-Gazieh
- Zahleh, Maalka (middle part)
- Majdel Anjar
- Barr Elias
- Sibline

A-Area (all industries are allowed (Cat. 1, 2 and 3))

- Tripoli Beddaoui
- Zahrani[4]

[4] Suitability of Zahrani for Cat 1 industries is still under consideration. Zahrani is not included in the 41 areas considered in the ACE/Urbi study.

5 Integration of the classification into the permitting procedures

5.1 Overview of the present permitting procedure

Within the present permitting procedures, a clear distinction can be made between category 1 and 2 industries from Decree 4917 and category 3 from the same Degree.

Under the present regulation, category 1 and 2 industries apply for permits at the Mohafazat. At the Mohafazat office, an initial check is run to determine the completeness of the application, to start the permitting procedure. When the application is found to be complete, the file is split into two parts: a sanitary part and an urban planning part. The Caza or municipality where the industry will be located is asked for its opinion. Further, the permit application is advertised by the municipality or other local authorities. The duration for advertisement differs for category 1 and 2 industries (30 or 15 days respectively).

The permitting procedure includes a number of stipulations which can cause an application to be rejected temporarily, for example to request additional information. Finally, on the basis of health board decision, the Mohafazat will grant or reject the permit. The total procedure is given in schedule 5.1.

For category 3 factories, a short procedure is used. The application is filed with the Caza or municipality. After the precautionary steps are investigated the permit is granted or rejected. Schedule 5.2 shows the procedure for category 3 permitting.

Further, an operating permit is required for all industrial categories. The procedure for an operating permit is given in schedule 5.3.

5.2 Adaption of the present procedure

- **Responsibilities for environmental permitting**

Recently, the Prime Minister appointed by Decree a Committee for the issuing of permits for the establishment of industrial activities. This Decree concerns information with regard to responsibilities on environmental permitting. For this Committee, a central task for environmental permitting of industries is determined. This implies a shift of responsibilities from the Mohafazat level to the national level.

• **General responsibilities during the transition period**

The classification of industries and industrial areas and the ongoing integration of both classifications into the permitting procedure will pose a severe burden on the governmental organisations. To smoothen all developments and to develop standards which will be applied in the same way throughout the country, the tasks with regard to environmental permitting will be centralized for a limited period. In this transition period all permit applications should be addressed to the Government Committee. In table 5.1, the new division of tasks is described

Table 5.1 **Governmental organisations responsible for categories of industry**

* *Category 1 and 2 industries:* The application is addressed to the Government Committee. The Government Committee makes a recommendation to the Ministry of Industry and Oil (MIO) and provides general directives for the permit. The MIO takes an initial decision on the permit within 15 days. Next the granting of the permit is the responsibility of the Government Committee.
* *Category 3 industries:* The application is addressed to the Government Committee. The responsibility for the granting of permits is at the level of the Government Committee.
* *Category 4 and 5 industries:* The application is addressed to the Government Committee. The Committee assigns Cat 4 to a buffer-zone area. The responsibility for the granting of permits of category 5 factories is at the Mohafazat level.

Due to the re-division and centralisation of tasks during a transition period, the present permitting procedures as described in schedule 5.1, 5.2 and 5.3 have to be adapted. Before industries enter into an environmental permitting procedure, it should be clear to which category they belong and to which areas they can be allowed. Therefore, the information out of table 3.4 and 3.5, accompanied by additional information on industrial areas must be obtainable.

During the transition period, the Government Committee will have a key role on environmental permitting. This Committee should create its own implementing organisation, consisting of employees from the following ministries:

- Ministry of Industry and Oil
- Ministry of Environment
- Ministry of Municipal and Rural Affairs
- Ministry of Health
- Ministry of Public Works - General Directorate of Urban Planning

• General outline on industrial permitting during the transition period

In a very early stage of the permitting procedure, the Government Committee has to deal with the classification check. In short, the following steps should be a part of the permitting procedure:

▸ 1 When an application for a permit is received, the Government Committee checks if the application is generally acceptable. The application is not acceptable when the expected amount of pollution poses a serious threat to the sustainable development of Lebanon.

Further, the category to which the industry belongs is determined.

▸ 2 If the application is for a certain industrial area (cat 1, 2 and 3), its related feasibility is determined. If the application does not call for a specific area, then more than one suitable area will be proposed to the applicant to chose from.
If no space is available at all for the industry, the follow up depends on its size:

* *category 1 industry:*
  no space available in an A-area → the permit has to be rejected.
* *category 2 industry:*
  no space available in a B-area → the industry may be located in an A-area. A second choice would be to locate the industry in another B-area .
* *category 3:*
  no space available in a C-area → the industry can be allowed in a B-area or A-area.

For category 4, the committee studies the possibility of accpting an industry in the Buffer-zone. In exceptional cases, the Committee can decide to allow a category 4 industry outside a Buffer-Zone.
For caegory 5 industries, the area search is not required.

▸ 3 After selection of the area for the industry, the permit procedure for the five categories of industry is as follows:

** Category 1 and 2*

An Environmental Impact Assessment (EIA) will be required in Lebanon as part of the procedure for category 1 and 2 industries. An EIA globally consists of[5]:

- an executive summary;
- a description of the goals of the intended activity;
- a description of the intended activity, the way it will be undertaken (e.g., production process, factory layout, logistics), including reasonable alternatives;
- a list of applicable decrees, decisions and laws pertaining to the intended activity (e.g. present decrees and policy plans, oncoming legislation and policy plans including international legislation and conventions);
- a description of the present state of the environment, as far as the intended activity can influence this state;
- the expected effects of the intended activity on the environment and the expected effects of possible alternatives (including the justification of how these effects are determined);
- an insight into the lacking knowledge regarding the impacts on the environment.

After the EIA is executed and the intended activity is generally allowed, the permit will be issued by the Government Committee. Standard regulations on emissions and waste disposal, based on the ISIC code, will soon be available.[6] In this phase, special attention should be paid to the waste aspects of the industry. On the basis of the developed standards and the available EIA information, a draft permit is issued and advertised as part of public participation. During this period, other governmental agencies and other directly involved individuals and organizations can make objections on the draft permit. The final permit is granted by the Government Committee, taking into account all objections and participation reactions.

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5 Based on the EIA obligations in Europe.

6 Permit regulations and standards are presently under development within a study which is executed on behalf of the Ministry of Environment.

* *Category 3*

Based on the ISIC code, standard regulations on emissions and waste disposal will be available which will allow the Government Committee to issue the draft permit. This draft permit will be advertised as part of public participation. During this period, other governmental agencies and other directly involved individuals and organizations can make objections on the draft permit. The final permit is granted by the Government Committee, taking into account all objections and participation reactions. In this phase, special attention should be paid to the waste aspects of the industry.

* *Category 4 and 5*

The Government Committee will send available standards and environmental regulations, along with the permit application to the Mohafazat. The Mohafazat prepares a draft permit, which is issued and advertised as part of the participation period. During this period, other governmental agencies and other directly involved individuals and organizations can make objections on the draft permit. The final permit is granted by the Mohafazat, taking into account all objections and participation reactions. In this phase, special attention should be paid to the waste aspects of the industry.

Schedule 5.4 shows the proposed outline for industrial permitting.

• **Permit enforcement during the transition period**

At present, environmental permit enforcement is almost non-existent. During the transition period, enforcement on environmental permits will be undertaken by the Implementation Staff of the Government Committee. The following minimum number of enforcement inspection is proposed:

* Category 1: Four times a year
* Category 2: Twice a year
* Category 3: Once a year
* Category 4: Once every two years
* Category 5: Once every 5 years

In addition, automatic monitoring systems can provide continuous record on industrial emissions. Monitoring is especially relevant for the category 1 and 2 industries.

• **Environmental permitting and enforcement after the transition period**

Tasks with regard to environmental permitting and enforcement will be partially decentralized when the Implementation Staff gains experience with the new classification system and the revised permitting procedures. The decentralisation of tasks will take place when the following conditions are met:

* the classification and categorisation of industries is fine tuned;
* the present industries on the 41 industrial areas are included in an industrial / environmental data base;
* sufficient experience with the new classification system and permitting procedures is obtained;
* skills with regard to granting and enforcement of permits on the Mohafazat and Caza / Municipal level are developed;
* adequate proficiency in environmental permitting and enforcement is reached.

The minimum transition period is two years. After these two years, an evaluation will be conducted each year to determine if the above conditions are met in order to end the transition period.

6 Implementation of the methodology

6.1 Organisational aspects

- **Main direction**

It is expected that the number of industries applying for permits in Lebanon will increase. In anticipation of this development, the Government Committee on permitting was created. The Committee will be under the lead of the Ministry of Industry and Petroleum. IDAL, the Ministry of Environment and the Ministry of Public Works (Directorate General for Urban Planning) will be member of this Committee.

Within the present permitting procedure, the advisory role of governmental institutions is complex (see table 5.1). The classification of industrial areas is not included in the permitting procedures. In the near future, the division of tasks between governmental organisations with regard to permitting should be defined. One of the main goals must be a clear organisational structure which is effective and practical. Therefore, an Implementation Staff of the Government Committee should be established.

The Implementation Staff will be responsible for permitting category 1, 2 and 3 industries and will also screen category 4 and 5 applications. This organisation is composed of employees from the following ministries:

- Ministry of Industry and Petroleum
- Ministry of Environment
- Ministry of Municipal and Rural Affairs
- Ministry of Health
- Ministry of Public Works (Directorate General for Urban Planning)

At present, there is no effective enforcement structure in Lebanon. To regulate industrial emissions, an enforcement and monitoring structure must be established.

- **Recommendations**

- In short term, the present tasks and responsibilities of the governmental organisations and its advisory boards should be reconsidered. They have to be adapted to the needs and requirements of the new industrial classification and the changes in permitting procedures.

• **Recommendations**

- the introduction of the classification system must be undertaken step by step. The following general outline for an implementation programme is proposed:

  * first year:
    - feasibility study on permitting procedures and the Implementation Staff of the Government Committee.
    - start of the Implementation Staff
    - training of the employees of the Implementation Staff
    - Initiate adaptation of environmental laws
    - setting up and implementation of an information campaign on industrial permitting.
    - preparation of detailed planning on implementation.
    - creation of the database in which industries and industrial areas can be interlinked.

  * second year
    - follow up of all activities from the first year
    - training of employees of the Mohafazats, the Cazas and the Municipalities

  * third year:
    - round up of all activities initiated in the first year
    - first evaluation of the classification system to include amendments in the decrees
    - preparation of the first general directives for cat. 4 and 5

  * fourth year:
    - further development of general directives for cat. 4 and 5

6.4 Communicative aspects

• Main direction

By adopting the classification system, the Lebanese government will introduce a new system of environmental zoning. Industries will be located on areas most suitable from an environmental point of view. This new structural approach must be communicated. Some present industries will not be enthusiastic about the new system, and will even oppose it. Open and clear communication with present industries is indispensable. The message must contain the reason for the new classification system, the expected results, the advantages and the possible consequences which this new approach can have for the present industries.

The new system should also be communicated to new (foreign) investors. The system is meant to organise industrial developments in a cost-effective and environmental friendly way. This message, when it is clearly communicated to new industries, can contribute to a solid development of the Lebanese industries in a sustainable way.

Finally, the new system should be communicated to all governmental institutions. The time table, the planning and the division of tasks should be clearly stated.

• Recommendations

Before the classification system is implemented, an information campaign should be developed. This campaign should contain the following elements:

* communication to the present industries with regard to their status under the new classification system.

* information package for new investors in which possibilities and effects of the classification of industries and industrial areas are given.

* issuing a regular news letter giving latest information on the activities of the Government Committee and developments in permitting procedures, monitoring and enforcement, etc.

ANNEX 1 Members Steering Committee

- Dr. Y. Choucair	IDAL
- Mr. A. Bejjani	IDAL
- Mr. M. Ayoub	Ministry of Industry and Oil
- Mr. A. Baltagi	Ministry of Public Health
- Mrs. L. Taher	Ministry of Economic Affairs
- Mr. A. Chouiri	Ministry of Agriculture
- Dr. M. Kaissi	Chambre de Commerce
- Dr. S. Khaled	Directorate of Urbanism
- Mr. G. Mansour	Ministry of Municipal and Rural Affairs
- Dr. E. Matli	Ministry of Environment
- Mr. J. Sukkar	Customs
- Mr. H. Debs	URBI
- Mr. J. Naufal	ACE

ANNEX 3 Consultants Fugro Milieu Consult and ACE

Consultants Fugro Milieu Consult

- A.J. Krikke MSc BSc	Proj. manager/Manager Internat. Dep.
- M. Heijnen MSc	Industrial consultant
- H. van Nispen tot Pannerden MSc	Environmental consultant
- L.B. van der Giessen MSc	Environmental consultant

Consultants ACE

- F. Nakad MSc	Proj. coordinator / Environm. engineer
- J. Bouzerdan MSc	Civil engineer
- K. Zaarour MSc	Electrical engineer
- M. Haidar MSc	Civil engineer
- B. Hakim PhD	Hydrogeologist
- M. Hajjar MSc	Civil Engineer
- A. Selman MSc	Geologist
- E. Daoud MSc	Civil engineer

ANNEX 4 Inventory of environmental zoning in western Europe

1 The Netherlands

1.1 Context

The Netherlands is an industrialized country and with 15.000.000 inhabitants also densely populated. It is surrounded by industrialized neighbours as well. 50% of the air pollution and 80% of the surface water pollution comes from abroad. There are three administrative levels:

- central government	- enactment of laws
- 12 provinces	- implementation and enforcement of laws
- ~670 municipalities	- enactment, implementation of laws and enactment of more detailed regulations for environmental quality

In this century in the Netherlands the change form agriculture to especially energy-intensive industry was made, such as oil refining, petro-chemical industry and steel. In the 60's and 70's in particular these industrial activities were responsible for nuisance and health problems: noise, odour, industrial hazard, local air and water pollution and solid waste. Since then awareness has increased a great deal. Now most water and air pollution and noise nuisance are fairly under control. Harm from direct emissions has been reduced and harmful effects are prevented.

In 1989 the National Environmental Policy Plan (NEPP) was issued, inter alia because it was the opinion that many environmental problems required solutions at a higher level than a local or regional level. Especially it was recognized that effect-oriented measures are not always sufficient to guarantee good environmental quality. Additional source-oriented policy and physical planning policy appeared to be necessary.

Currently lack of space and conflicts between industrial land use and environmentally sensitive functions are becoming more apparent. This can be seen by increasing difficulty for industrial expansions without causing new environmental problems. On the other hand it becomes more and more difficult to find locations for residential or other environmentally sensitive developments with acceptable environmental quality.

1.2 Environmental legislation

Until a few years ago environmental legislation in the Netherlands comprised several sectoral laws. The most important one was the Nuisance Act. Small industries were obliged to apply for a permit on local (municipal) level. In a permit, conditions were set to limit environmental damage and nuisance. For larger scale industries permits were required in accordance to the Air Pollution Act, the Noise Abatement Act and the Waste Act. The provinces were the competent authorities for those industries with regard to these permits. Those industries also had to apply to the province for their Nuisance Act permit.

Since 1993 the legislation framework is integrated in the Environmental Management Act. Important elements of this act, besides the streamlining and integration of environmental law are:
- negative environmental effects have to be kept as low as reasonably achievable;
- permits (therefore) need to be evaluated on a regular basis;
- costs of current and future damage will be borne by those responsible;
- building permits can no longer be obtained before an environmental permit is granted;
- permits for larger scale industries still have to be granted by the province;
- one section in the act is provided for environmental zoning instruments.

The following elements of environmental legislation have a relation with environmental zoning. Municipalities are required to establish a noise zone around industrial areas with noisy industries. Categories of noisy industries are defined as A-establishments. Industrial areas with A-establishments are zonable. On the basis of an acoustic investigation a 50 dB(A) noise isopleth zone is set. Within this zone building new houses and other noise sensitive buildings in principle is not allowed. Houses already existing in noise zones have to be remediated if noise immission levels outside houses exceeds 55 dB(A). Special permissions can be granted in the following situations:
- for the building of new houses in or adjacent to industrial areas for noise levels outside/inside the house ≤ 60/35 dB(A);
- for existing situations in or adjacent to industrial areas for noise levels outside/inside the house ≤ 65/40 dB(A);

With regard to odour nuisance limits are set to the time (2% for existing and 0.5% for new sources) that 50% of the population can detect odour concentrations. Measuring and enforcing on the basis of these limits is not possible. Therefore calculation models have been developed and standardized, consisting of a dispersion model fed with figures from

activities. In 1992 the last update was made of the so called list of types of activities.

This list encompasses the following categories:

1 - Agriculture and fishery
2 - Mining and minerals
3 - Industry
4 - Public utilities
5 - Building industry and -contractors
6 - Trade, wood and restaurants, repair shops for consumer goods
7 - Transport- storage- and communication business
8 - Banking, insurance companies and trade services
9 - Other services

The classification system is an aid for the estimation of the environmental load of the various types of activities plus the necessary distances that should be kept between the environmental load and the environmentally sensitive functions. The Dutch classification system divides industrial companies in six categories. The categories are related to the distances that should be kept to environmentally sensitive functions (category 1: 0/10 m; 2: 30 m; 3: 50/100 m; 4: 200/300 m; 5: 500/700/1000 m; 6: 1500 m). Separate distances are given for odour, dust, noise and major hazard. The highest distance should be taken into account.

Category 1 companies are allowed in residential areas, whereas category 6 industries can only be allowed on a large distance from residential areas. In this way, industrial areas are divided in three categories:

- areas for light industries, mixed in or adjacent to residential areas (category 1 and in some cases also category 2);
- areas for light and medium heavy industries, adjacent or at some distance from residential areas (category 3 and in some cases also categories 1 and 2 or 4);
- areas with good infrastructure for heavy industries at a large distance from residential areas (categories 4, 5 and 6).

It should be avoided that classification rules are applied in different manners, resulting in differing categorizations for similar industrial companies. Therefore it is advised to use only the classification of the Association of Dutch Municipalities (Dutch abbreviation: VNG). On the other hand the classification system could easily lead to inflexible procedures in land use planning. In order to meet this objection it is possible to take into account the individual character

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The classification system already provides information on the necessity of flexible use of the category classification. First indices are given for potential pollution on air, surface water and soil, for attraction of traffic and for visual nuisance. Secondly each activity class can be marked having large diversity within its class. These two indicators do not only signify whether the classification should be applied more or less flexible, but also if distances should be kept higher or lower than the distance displayed in the list.

Permits have to be obtained from the prefect, who decides after:
- due consideration of the application;
- a public enquiry;
- taking into account the municipality's opinion;
- taking into account the environmental load and major hazard that an area can take.

In addition an environmental impact study (on the effects of emissions, including noise) has to be provided as well as a hazard assessment study. The permit contains a list of conditions on equipment, emergency contingency plans and emission levels. The prefect is authorized to set standards and limits for emissions even stricter than issued at state level. A permit can be refused if the environmental load or hazard is too high in relation to what the area can bare. Permits are granted on an individual basis.

Best technical means should be applied, with consideration of economic factors. The act also enables the prefect to review operating permits of existing installations. DRIRE can, on behalf of the prefect, recommend new conditions in line with the current environmental protection requirements.

Limits for pollution to water and air, as well as odour, are defined for specified materials. For major hazards the standards conform the post-Seveso Directive are applied. The approach is different from other countries. Risks are calculated on the basis of determination in stead of probability. The reason is that probability calculations are not accessible to the public, which is required by law.

A general, but not legally based rule is to establish the following zones from the risk source:
- 800 m radius: restricted extensions or modifications to existing houses and offices;
- 1500 m radius (around the 800 m radius): no allowance for high and/or public buildings.

The dimensions and contours of the radii can be challenged by the public and industries and can be ignored by the mayor, who will then risk appeal by the prefect at administrative court. The prefect cannot force allowance of industrial installations upon an municipality that refuses to have it.

Ambient noise limits for different areas are as follows:
- 35 dB(A) (30 dB(A) at night) at houses, schools, rest homes and hospitals;
- 45 dB(A) at other buildings;
- 55 dB(A) at buildings with no noisy installations (higher levels allowed if a

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- 45 dB(A) at other buildings;
- 55 dB(A) at buildings with no noisy installations (higher levels allowed if a

noisy installation is present);
- 70 dB(A) (60 dB(A) at night) at predominantly industrial areas.

2.3 Land use planning

At a national level, the land use planning is directed at national concerns such as parks, mountain and coastal management. On the base of 1982 legislation, further responsibilities for land use planning are decentralized to municipality level.

The planning responsibility lies with the municipalities, with at central and regional level supportive tasks regarding general aspects. In accordance with the Town Planning Code zoning plans are drawn up. In these plans the different types of land use are classified.

The zoning plans have the following characteristics:
- they show the intended use of land (on the one hand land use restrictions, farming and grazing land preservation, forests, landscape, natural and urban preservation, foreseeable natural and technological risks prevention and on the other hand permitting adequate allocation of areas open to construction of economic purposes and housing);
- they are binding on future land use approvals;
- they should take into account national and regional issues.
- detailed restrictions (based on risk), put into so called areas of concerted policy, should be included into the plan.

Implementation of the zone plan is through individual building permits from the mayor. Facilities under the Registered Installations Act need authorization by the prefect prior to this.

2.4 Inter-relation and classification systems

On the basis of the classification system for industrial activities, which is part of the Registered Installations Act, industrial developments are divided in those that need only a declaration and those that require a permit. As described, part of the permitting procedure is the evaluation of the environmental impacts, which forms the base for the permit.

The study can lead to land use restrictions which affect the classification of land use in the zone plan. Also other environmental aspects can affect land

use decisions, for instance on the recommendations of DRIRE concerning noise, odour or air pollution. Noise limit regulations do not result in the creation of abatement zones around facilities. Thus there is no systematic approach which encompasses a set of indices or quantitative instruments for taking into account these parameters in order to allow and locate industrial activities in defined areas.

one with remaining industry):
- energy and mining
- stone, glass, ceramics and building materials
- steel, iron and other metal working
- chemical processes, oil refinery and processing
- surface treatment with organic substances, treatment of synthetics and processing of plastics
- food processing (including agricultural products)
- waste treatment facilities
- storage, loading and unloading of various substances
- others

A permit, that can be submitted by the county or the district, cannot be refused if all standards are met, and is permanent when granted. An application should contain details of construction, lay-out and pollution control methods. The application is published with the possibility to object against it. As part of the permitting procedure an Environmental Impact Assessment is required for defined industrial activities.

Emission and immission standards for various air pollutants are set in an ordinance called Technical Guidelines on Air. Standards are stringent and in case of renewal normally a grace period of five years is applied to get in compliance with the new standards.

The states are required to keep an air quality register for immissions, including dust as well as for emissions. Larger industries have to monitor emissions internally and are obliged to hire an external agent every four years for analysis of air emissions. Part of the immission control is also a medical examination programme for people living close to heavily polluting industries. All data registers are used as a basis for generating plans for preventive policy.

There is only little consideration for odour nuisance. By law limits are set between 1 and 3 odour units (= the odour concentration that can be detected by 50% of the population) at the property boundary. Noise immissions are regulated in the Technical Guidelines on Noise. Standards range from 70 dB(A) at industrial areas down to 40 dB(A) (35 dB(A) at night) for housing adjacent to industries. A new operating license will only be granted if immission standards are not exceeded. If limits are already overstepped, noise levels may not increase the overall noise load.

Under the Regulation of Major Incident possibilities for incidents should be

minimized and emergency plans should be drawn up.

3.3 Land use planning

Land use planning at federal level comprises supervision and preparation of guidelines. Though not required by law most municipalities develop land use plans, which have a general character. A more concrete zoning plan, on the contrary, is relatively inflexible.
Different departments at municipal level have to agree with it. Zoning plans define uses like industrial, commercial and residential use. Buffer zones (mixed-use areas between residential and commercial areas and commercial areas between mixed-use and industrial areas) should ensure reasonable environmental quality at residential areas. A zoning plan needs to be published and objections can be raised against it by the public.

3.4 Inter-relation and classification systems

Different classification systems have their relation with environmental legislation as well as with land use planning. First of all the need for an environmental permit depends on the type of activities that will be employed at an industrial site. For that purpose the Law for Environmental Protection (BImSchG) provides a list of these activities. Also for the Environmental Impact Assessment there is such a list.

The Law for Environmental Protection links land use planning and environmental legislation in a qualitative manner, for it states that land use planning should be carried out in such a way that environmental impact on residential areas is avoided as far as possible. Zoning plans therefore need to be examined by environmental control officers of the same municipality. This gives opportunity to feed back environmental considerations into the plan. On the other hand the results of the Environmental Impact Assessment have to be in compliance with the sustained land use from the zoning plan.

The only state using a distance parameter in creating a buffer zone is Nordhrhein-Westfahlen. The minimum distance between industry and residential areas amounts 300 m. Depending on the type of industry this distance can increase. The Distance Ordinance takes into account noise and air pollution, broadly based on the Technical Guidelines on Air and on Noise. The ordinance can only be applied in new development situations. (A copy of this ordinance is not yet received)

4 United Kingdom

4.1 Context

The United Kingdom (UK) comprises England, Scotland, Wales and Northern Ireland. It has a central government, but Scotland has its own legal system. The UK will be encountered as one entity. Population density is relatively high, with a concentration in the south-east. Central government is added by local government, either based on counties and districts or metropolitan boroughs in large urban centres. The Department of the Environment (DoE) handles amongst others environmental affairs and town and country planning. The Health and Safety Executive (HSE) of the Ministry of Labour is responsible for specific issues relating to occupational health and major industrial hazard.

The industrial revolution started in the UK half of the eighteenth century, and industries chose location near to resources of coal and iron. This was in the Midlands and the northern part of England and southern Scotland. Many traditional heavy industries, including iron and steel industry and chemical industry, are still located there.

Many residential areas are close to polluting industries, firstly as a result of lack of environmental interests during the industrial revolution and secondly because of tight control over rural areas during the period afterwards. Awareness on environmental matters has increased, leading to more scrutiny of land-use decision-making and industrial planning proposals.

4.2 Environmental legislation

Enacting environmental laws and regulations is the responsibility of the DoE. Implementation and enforcement lies with authorities like Her Majesty's Inspectorate on Pollution (HIMP), the National Rivers Authority (NRA) and the Waste Regulatory Authority.

The Environmental Protection Act 1990 (EPA) introduced the concept of Integrated Pollution Control (IPC) for Part A industries. These include power generation, refining, major energy conversion projects, (petro) chemicals, iron and steel and non-ferrous metals, waste processing, paper and glass. Prescribed processes by Part A industries cannot be operated without authorization by HIMP. In licenses HIMP can set conditions, such as emission limits. These limits are not fixed, but are related to the total emissions to air,

water and land. In a branch to branch project acceptable emission criteria per industry are investigated.

Some less polluting industries are subject to a licensing procedure, with various possible licensing authorities. For air pollution this is the local authority (the environmental health departments that also concern public health), while for water pollution this is the NRA. The EPA 1990 places responsibility for the control of statutory nuisances (including odour and noise) by local authorities, through regulations and general requirements within licenses.

For air pollutants, several standards are used, such as the EU standards and the World Health Organization standards. For emissions of specific toxic or carcinogenic air pollutants authorities often use the $1/40^{th}$ or $1/100^{th}$ threshold limit value concentration that is used to regulate maximum occupational exposure and must not be exceeded outside factory boundaries at ground level.

Abatement notices on odour nuisance normally only are sent to the offender in case of complaints. Attempts to quantification are not undertaken because of the subjective nature of odour and the problems of mixed sources. Still the quantification may be stimulated by introduction of regulations administered by the HSE. Owners or occupiers of industries can use the defence that best practicable means have been employed, but cannot use the argument that problems are due to the encroachment of housing.

For noise nuisance outside property boundaries, basicly the same aspects play a role. A noise level of 5 dB(A) above background level is identified as the level at which complaints are likely to be received. Local authorities can point out noise abatement zones, with the purpose of long term noise control. A register of measured noise levels is to be kept by the authorities. Only consents in writing exceeding the registered noise level is no offence. The best practicable means defence is available.

The post-Seveso Directive was implemented in the UK for the prevention and limitation of consequences of major accidents. Depending on the type and quantity of hazardous substances kept or used at the site, a safety report and on-site emergency plans have to be drawn up, assisting the local authorities in preparing off-site emergency plans and informing the public. The HSE has to be notified of possible major hazards. Because there will always remain residual risk, the planning system can be used to restrict developments close to hazardous installations and to control the presence of hazardous substances and hazardous installations.

4.3 Land use planning

The framework for land use planning is provided by the Town and Country Planning Act 1990. Two important elements of the planning system are development plans and development control. Development plans consist of the following two elements:

- general policy and general structure: in case of counties this is called the Structure Plan; in case of metropolitan boroughs this is called the Part 1 Unitary Development Plan;
- detailed proposals for the use of specific areas of land: in case of districts this is called Detailed Local Plans; in case of metropolitan boroughs this is called the Part 2 Unitary Development Plan;

Development control is carried out through a permission procedure for approval of the detailed plans. Criteria for controlling hazardous substances and use of land around hazardous sites can be used. Permissions can be granted under restrictions.

Generally local authorities are advised to continue separating potentially polluting industrial developments from other developments, but without specifying separation distances or buffer zones. The HSE informs each local authority of the existence of any hazardous installation within its planning area and also suggests a "consultations distance" around the facility. The HSE on his turn has to be notified of planning applications of certain types in order to advise for or against the proposed development. This advice is unlikely to be ignored.

Regardless of whether development requiring planning permission is involved, proposals for storage or use of significant quantities of hazardous substances are assessed. Local authorities, together with the HSE advice, decide on sustaining the development or not.
Development of noise sensitive premises close to industrial is to be restricted. Areas are therefore classified according to the type of development permitted, ranging form category A (noise not likely to be of influence) to category D (noise likely to be of influence). Noise values for each category can be set individually by each local authority. These values can then be used to prohibit or approve developments.

4.4 Inter-relation and classification systems

Environmental aspects in land use planning are taken into account in several ways. Firstly environmental zones around industrial facilities can be created, limited to industrial hazards and (in future) industrial noise. Secondly several ways of assessing environmental effects, resulting in an advice, can affect the development and approval of both plan policy and detailed zoning plans. The integral assessment of environmental effects and integral control and abatement of pollution have become easier through new legislation, such as the EPA 1990.

For environmental permission and control practices for industrial activities, storage and usage of hazardous substances and emissions, various classification lists are in use. For planning purposes under the Town Planning and Country Act 1990 the Town and Country Planning (Use Classes) Order 1987 is used, which contains a classification for different types of land use, that can be permitted for specified areas. Though the classification has a relatively high level of abstraction it provides a basis for the licensing of plans for new (industrial) developments at a site and for making material changes in the use of land. A planning permit will only be granted if the new land use corresponds with the use class of the area in subject. Within the industrial use category 8 sub-categories are described in the Use Classes Order 1987. The total division in classes is the following:

Class A - A.1 *Shops* (small shops for the display or sale of goods and other small business)
A.2 *Financial and professional services*
A.3 *Food and drinks*

Class B - B.1 *Business* (offices and small business)
B.2 *General Industrial*
B.3 *Special Industrial Group A* (falling under the Alkali Works regulation act)
B.4 *Special Industrial Group B*
smelting, calcining, sintering or reducing ores, minerals, concentrates or mattes; converting, refining re-heating, annealing, hardening, melting, carbonizing, forging or casting metal or alloys others than pressure die-casting; recovering metal; galvanising; pickling or treating metal in acid; chromium plating.
B.5 *Special Industrial Group C*
burning bricks or pipes; burning lime or dolomite;

producing zinc oxide, cement or aluminum; foaming, crushing or heating minerals or slag; processing pulverized fuel ash by heat; producing carbonate or lime or hydrated lime; producing inorganic pigments by calcining, roasting or grinding.

B.6 *Special Industrial Group D*
chemical processes such as distilling, refining or blending oils; processes involving the use of hot pitch or bitumen; producing aliphatic esters of the lower fatty acids; producing rubber; processes in which chlorphenols are used; manufacturing acetylene.

B.7 *Special Industrial Group E*
processing animal substances such as boiling and burning bones; cleaning, adapting and treating animal hair; curing fish; drying skins; melting, refining or extracting fat or tallow.

B.8 *Storage or distribution*

Class C - C.1 *Hotels*

C.2 *Residential institutions*
e.g. hospitals, schools, training centres.

C.3 *Dwelling houses*

Class D - D.1 *Non residential institutions*
e.g. centres for health services, creche, libraries, churches.

D.2 *Assembly and leisure*
e.g. cinema, concert hall, casino, swimming pool

Class E - E.1 *Others*

5 Spain

5.1 Context

Spain, has one of the lowest population densities in the EU (about 39,000,000 inhabitants on 504,800 km²). It became a democracy in 1976 and has three levels of administration:
- state level
- 17 autonomous regions
- local level (provinces and municipalities).

Laws are enacted at state level. There is no ministry of Environment. The main environmental authority is the Secretary of State for Water Policy and Environment, which was created in 1991, as part of the ministry of Public Works and Transport.

The state has given different levels of responsibilities to the autonomous regions. Therefore environmental and industrial control can be implemented in different ways. Also provinces and municipalities have different responsibilities. As a result, there is a complex inter-relationship in legislation.

Generally, industries are concentrated in specific areas, close to natural resources. In 1960 to 1980 over six million people left their native areas and moved to industrial developing areas. Because already in 1950 the Spanish government had decided to create industrial polygons separated form residential areas, the expansion of the latter did not create many problems.

Problems which have occurred during the last 20 years are pollution caused by old industries in city centres and air pollution in industrialized areas where minimum hygienic levels were not met. Only since the creation of democracy people can freely complain about issues of concern, which has resulted in the solution of various environmental problems. In turn this has lead to a still growing public awareness.

5.2 Environmental legislation

The most important environmental regulation nowadays is the Regulation on Annoying, Health-affecting, Harmful and Dangerous Activities (Spanish abbreviation: RAMINP). It covers a wide range of factors, both to environment and human health. A restriction is that it only applies to new installations and

does not cover existing industries. These are under, sectoral legislation for control and enforcement. RAMINP takes into account air pollution, odours and noise. Based on this, an industrial classification system is part of RAMINP, including a list of maximum allowed concentrations (fumes, odours and noise) of the pollutants inside industrial facilities.

The permitting procedure studies each activity, for each of which specific rules are developed. Polluting activities are classified according to the type of effect they will cause, which is the responsibility of the autonomous regions. Examples are: health-affecting activities, harmful activities (with possible impact on certain natural resources) and dangerous activities (with possible impact on people or properties).

Permits under RAMINP are submitted by the municipality, where the industry wants to locate its facility. The application should contain the technical details of the industry, its processes, efficiency, safety measures and any remedial technology. Proceeding can be denied because of urban or municipal orders. After licensing, operating can only start after checking the installation by a representative of the city council or the autonomous region.

Municipalities are in control over atmospheric emissions if they have more than 50,000 inhabitants or if there is a Polluted Atmospheric Zone in their boundaries. At present there are no guidelines or standards in odour, while it is attempted to establish external noise limits. Only few municipalities have worked out the proposed limits in detailed municipal orders. The proposed levels are (in dB(A), 8.00-22.00 hours/22.00-8.00 hours): sanitary areas: 45/35, industrial and storage areas: 70/55, commercial areas: 65/55, housing: 55/45. It should be noted that most complaints are not related to industry and where this is the case, enforcement action is unlikely to result in an abatement demand by the municipality.

5.3 Land use planning

Though required, only few autonomous regions have developed plans with territorial ordination guidelines. These plans have to describe measures of protection in order to conserve land, natural resources and the improvement, development and renovation of natural environments. Most of the regions do have rules for territorial ordination.
At local level most municipalities have General Ordination Plans, which classify three types of land use:

- urban land: land with access, water and electricity supply, sewer or with