ENVIRONMENT AND DEVELOPMENT INDICATORS FOR LEBANON

Bellevue Palace Hotel, Broummana
September 21, 2000

WORKSHOP REPORT

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

LEDO Project
LIFETCY98/RL/136

plan bleu

Hanns Seidel Stiftung

undp

REPORT OUTLINE

Page

Annexes

III. Session 1: Progress and Orientation

Following the registration and opening remarks, the working sessions started by a presentation on the progress of the LEDO project since May 2000, time of the last national workshop. This session was then followed by defining the objectives of this workshop and introducing the importance of indicators as monitoring tools, and especially within the Lebanese context. This theoretical part was followed by a practical presentation of the list of compiled indicators for Lebanon, explaining the mode of completion of indicator data sheets and presenting an automated system in archiving, calculating, updating and extracting indicators.

LEDO Progress Brief, George Akl

The project has been working on defining indicators based on the priority environment and development issues that were identified during the May workshop. The project team defined a list of tentative indicators that were to be finalized during this workshop, in consultation with all the LEDO partners. Some of these indicators were common to the Mediterranean indicators defined by the Blue Plan and the MCSD Working Group on Indicators for sustainable development. Other indicators were specific to Lebanon.

The LEDO has also been working on the establishment of a database management system within the Ministry of Environment and completed work on digitizing the complete set of base maps for Lebanon. In addition to these activities, LEDO was trying to mobilise funds for the establishment of decentralized observatories at the level of the Governorates in Lebanon, and technically supporting the Tripoli Observatory in establishing a monitoring system based on defined indicators. Promoting the experience of Tripoli is important and generation of a success story from it is essential in terms of replicating the work in other regions in the country.

The LEDO set the terms of reference for the preparation of the State of the Environment Report for Lebanon, and this report is expected to be out towards the end of 2001.

For proper communication and dissemination of information, LEDO is working on the development of its web page, which will include details of the project, as well as information on all the qualitative, quantitative and mapped data, as well as all the indicators generated by the project.

LEDO had been coordinating and collaborating with all relevant institutions, be they public, international or academic for the compilation of needed data, and for determining data availability as well as gaps. For defining the indicators and setting the tentative list for Lebanon, the LEDO team was receiving technical support from Blue Plan Regional Activity Center, the institution that promoted observatories around the Mediterranean and helped in establishing the Lebanese Environment and development Observatory.

the classification of the developed indicators for Lebanon during the working sessions.

Priorities & Indicators for Sustainable Development in Lebanon, Waleed Nasr (Annex 6)

The purpose of this session was to introduce the mechanism that the LEDO team adopted for the generation of the list of Environment and Development Indicators for Lebanon, based on the priority issues that were identified by the LEDO partners. An example of several priority issues and their corresponding indicators was exposed, as well as an analytical comparison between the indicators developed by Blue Plan for the Mediterranean and the list of indicators for Lebanon.

The classification scheme of indicators was explained, and it included the categories and themes of the different identified indicators. In addition to that, the session elaborated on the indicator data sheets, the methodology through which it was developed as well as mode of completion of these sheets.

The LEDO team has been working on the compilation of several indicators for which data was available, and examples of these were exposed to make the matter more concrete for all partners.

To stress the importance of indicators in the decision-making process, a case study on the economic cost of environmental degradation was discussed, based on indicators related to air quality. Analogy to this case is possible for several indicators that LEDO is intending to work on.

Updating Indicators: An Automated Process, Ghassan Mina

The preliminary database management system of LEDO was exposed during this session and all the partners were introduced to the methodology that the observatory is following in order to generate easily accessible data bases and maps related to the indicators and all other data that the LEDO is working on.

The structure of the LEDO website was introduced as well as the means that would be used to access all the data related to the indicators and their data sheets. The partners were also familiarized with the mode of feeding in information for the periodic updating of the indicators.

IV. SESSION 2: WORKING GROUPS

During this session, all the participants (LEDO Partners) were divided among groups to agree on a final format for the indicator data sheet, verify/modify/adjust the definitions and units of the different indicators, suggest additional indicators that would better reflect the priorities set earlier and arrive at a final list of indicators for

Group D	Environment: Land, Soil and Biodiversity
Ali Talal Haidar	American University of Beirut - Geology Department
Wissam Abou Daher	Al-Shouf Cedar Society
Nizar Hani	Al-Shouf Cedar Society
Fadi Asmar	Ministry of Agriculture
Hassan Machlab	Agro-Biodiversity Project
Talal Darwish	National Centre for Remote Sensing
Samir Safi	Lebanese University
Wafa Khoury	Agro-Biodiversity Project

Group E	Sustainable Development Activities and Policies
Nazem Matta	Office of the Governor of Mount Lebanon
Giuseppe Papuli	UNIDO
Mahmoud Sraj	Ministry of Electric and Hydraulic Resources
Manal Nader	University of Balamand
Nazih Chlela	Lebanese Environment Forum
Raif Milki	Faculty of Health Sciences - American Univ. of Beirut
Mouna Haidar	American University of Beirut
Jaoudat Abou Jaoude	Council for Development and Reconstruction

V. COMMENTS AND RECOMMENDATIONS

During the general discussions, prior and after the working group sessions, the LEDO partners came up with suggestions and comments to be adopted in order to finalise the list of indicators, and recommendations to pursue work on compilation of the indicators. Most of these were related to the tentative list of indicators and included:

- Inclusion of additional indictors related to social equity;
- Elaboration on indicators related to gender issues;
- Modification of the title of the last category of indicators (Sustainable Development to become Sustainable Development Activities and policies);
- Modification of some of the units used for some indicators to better fit the Lebanese context;
- Omit few indicators that are not very indicative at the national level.

All of the comments of the LEDO partners were taken into consideration and the suggestions and modifications incorporated into the final list of Environment and Development Indicators for Lebanon, which is included in Annex 3.

ANNEX 1 WORKSHOP AGENDA

ENVIRONMENT & DEVELOPMENT INDICATORS FOR LEBANON
Bellevue Palace Hotel, Broummana
THURSDAY SEPTEMBER 21, 2000

WORKSHOP AGENDA

Opening Session

09:00-09:30	Registration	
09:30-09:45	Welcome Note	LEDO Project UNDP European Union Hanns Seidel Stiftung Ministry of Environment
09:45-10:15	Coffee Break	

Session One — Progress & Orientation

10:15-11:45

LEDO Progress Brief, Mr. George Akl
Workshop Objectives, Ms. Lamia Chamas
Indicators as a Monitoring Tool, Mr. Rami Abu Salman
Indicators: Categories, Themes, and Types, Mr. Rami Abu Salman
Priorities & Indicators for Sustainable Development in Lebanon, Mr. Waleed Nasr
Indicator Information: Development of Indicator Data Sheets, Mr. Waleed Nasr
Updating Indicators: An Automated Process, Mr. Ghassan Mina

Session Two — Working Groups

11:45-1:00 Orientation for Working Groups, Ms. Lamia Chamas

Working Group A	Population & Society
Working Group B	Economic Activities
Working Group C	Environment: Air & Water
Working Group D	Environment: Land/Soil & Biodiversity
Working Group E	Sustainable Development

1:00-2:30 Lunch

Session Three — Working Groups Presentations

2:30-3:45 Working Groups Presentations
3:45-4:00 Coffee Break

Session Four — Next Steps

4:00-5:00

Proposed Plan of Action
Adoption of Indicators
Recommendations
Wrap up

Lebanese Environment and Development Observatory
Workshop on Environment and Development Indicators - 21 September 2000
Participants List

No.	Name	Institution	Telephone
1	Abdo Bejjani	Meteorogical Services of Lebanon	03-945906
2	Abdullah Abdul Wahab	Tripoli Observatory	03-458680
3	Ali Talal Haidar	American University of Beirut - Geol. Dept	03-833499
4	Anwar Kozah	UNOPS/UNIRDP Baalbeck	03-842453
5	Berj Hatjian	Ministry of Environment	04-522222
6	Chafika Assaad	National Council of Scientific Research	03-254321
7	Christine Corbane	Saint Joseph University	04-401188
8	Dania Rifai	Urban Management Programme	03-214422
9	Edgard Chehab	SPASI Project	04-522222
10	Fadi Asmar	Ministry of Agriculture	03-259818
11	Farid Karam	Ministry of Public Health	03-643155
12	Gaby Khalaf	National Centre of Marine Research	03-303969
13	George Akl	Lebanese Environment and Devt Observatory	04-522222
14	Ghassan Mina	Lebanese Environment and Devt Observatory	04-522222
15	Giuseppe Papuli	UNIDO	03-525775
16	Habib Maalouf	Lebanese Environment and Devt Observatory	03-838504
17	Hassan Machlab	Agro-Biodiversity Project	03-773667
18	Hisham Abou Jaoude	Association of Lebanese Industrialists	03-412267
19	Jaoudat Abou Jaoude	Council for Development and Reconstruction	03-346890
20	Jocelyne Gerard	Saint Joseph University	03-918534
21	Joseph Haimari	Tourism Master Plan	03-649120
22	Lamia Chamas	Ministry of Environment	04-522222
23	Mahmoud Sraj	Ministry of Electric and Hydraulic Resources	03-303566
24	Manal Nader	University of Balamand	03-737128
25	Matilda Saliba	University of Balamand	03-547732
26	Mazen Hussein	Ozone Office	04-522222
27	Minerva Andrea	Ministry of Environment	04-522222
28	Mohammad Nahleh	Ministry of Transport	01-372767
29	Mouna Haidar	American University of Beirut	03-693022
30	Mounzer Dagher	Friends of Arz Tannourin	09-933146
31	Nadia Khoury	Industrial Research Institute	01-366509
32	Nadim Farajallah	Dar El-Handasah	03-536006
33	Nazem Matta	Governorate of Mount Lebanon	03-484735
34	Nazih Chlela	Lebanese Environment Forum	09-935172

35	Nizar Hani	Al-Shouf Cedar Society	03-513845
36	Raif Milki	Faculty of Health Sciences - AUB	03-501723
37	Ramez Kayyal	UPP Project	04-522222
38	Rami Abu Salman	Lebanese Environment and Devt Observatory	04-522222
39	Rita Saroufim	Friends of Horch Ehden	06-561800
40	Said Chehab	ALMEE	03-278103
41	Salah Eddine Issa	Agricultural Research Institute	08-900037
42	Samar D. Hammoud	WHO	01-612970
43	Samir Safi	Lebanese University	03-394962
44	Samira Medawar	Ministry of Social Affairs	01-811559
45	Sanaa Abi Dib	Friends of Horch Ehden	06-561800
46	Silva Garabedian	Lebanese Environment and Devt Observatory	04-522222
47	Talal Darwish	National Centre for Remote Sensing	03-723471
48	Wafa Khoury	Agro-Biodiversity Project	03-721680
49	Waleed Nasr	Lebanese Environment and Devt Observatory	04-522222
50	Walid Atallah	UN Reint. & Socio-Econ. Rehab f. Displaced	03-662490
51	Wissam Abou Daher	Al-Shouf Cedar Society	03-505205
52	Ziad Abdallah	Central Administration of Statistics	01-365073
53	Ziad Haddad	University of Balamand	03-506458

INDICATOR DATA SHEET

Indicator:

Definition:

Other Definition:

Category:

Theme:

Type:

Unit:

Related Indicators:

Calculation Method

Data Needed	Source

Standard/Target:

Frequency for Updating:

Comments:

Graphical Presentation

Year	Value of the Indicator

Source of data/year:
Geographic coverage:

LEDO Reference: Blue Plan Reference:
Developed by: Date:

Indicators as Monitoring Tools

Lebanese Environment & Development Observatory (LEDO)

Ministry of Environment

LEDO Project
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Environment and Development in Lebanon: Current Challenges

- Degradation of the living environment
- Decline in living conditions
- Disintegration of human health care system
- Collapse of economic stability
- Failure of the development planning system
- Exhaustion of natural resources
- Depletion of biodiversity
- Destabilisation of social equity

Contributing Factors

- Inadequate environmental management
- Lack of inter-sectoral communication
- Rapid urbanisation
- Poverty and social inequity
- Unsustainable economic development
- Poor allocation or lack of resources
- Lack of dissemination and accessibility to information
- Absence of monitoring programmes

Needs for Improving Current State

- Tackling local problems in partnership with stakeholders and decision-makers
- Generating adequate information to guide decision-making
- Perceiving what the priority issues are to be able to address them
- Understanding how the different development sectors affect the environment, economy and health
- Basing decisions and planning programmes on information

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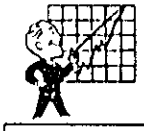
Mechanism for Improving Current State

Deriving an Assessment and Monitoring Tool to Guide all the Above Needs

What Tool to Use?

It should be scientific, measurable and based on quantitative data

It should provide a common base for information exchange among the different stakeholders



It should be able to monitor trends per a definite baseline

It should help in the development of coherent planning processes to address problems

It should be repeatable to allow for observing changing trends

Agenda 21 – Chapter 40: Information & Decision-making

"Indicators for sustainable development should be developed as tools to facilitate effective decision-making. These should be specific and targeted towards a policy and management concern"

Indicators for Sustainable Development

An indicator is a tool used to show the condition of a specific parameter.

Indicators help in measuring sustainable development through:

- Improving the quality of information and simplifying its interpretation and management
- Assessing environment and development trends overtime and in relation to goals and targets

Significance of Indicators

- Provide information to the general public as well as early warning information
- Help quantify the situation, highlight its significance, monitor progress and changing trends
- Help simplify the data and present it in a form directly relevant to the problem being addressed
- Guide decision-makers to the status of the current priorities
- Enable decision-makers to evaluate and compare the implications of their policies/choices
- Facilitate external scrutiny of decisions and policies, thus ensuring transparency and accountability

Working with Indicators

An indicator must be specific, measurable relevant, simple, and repeatable

An indicator must be reported and interpreted in the appropriate context, taking into account the ecological, geographical, social, economic and structural features of a country

The interpretation of an indicator is specific to each stakeholder in his own domain

To be useful, indicators need to be evaluated relative to a certain target, limit, legal requirement or international/ regional standard

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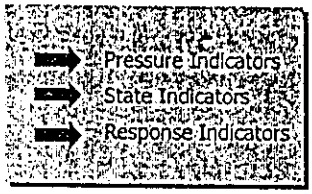
Types of Indicators



Pressure Indicators

- Pressure: Human activities that exert stresses or pressures on the environment and change it (i.e. population growth, use of pesticides, industrial releases into water,...)

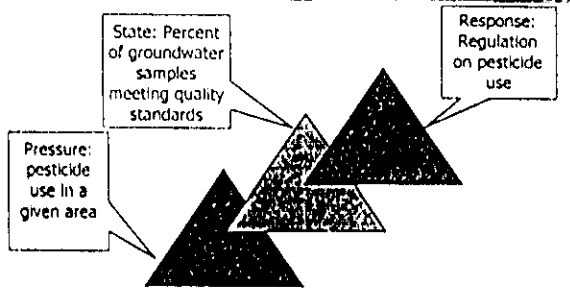
State Indicators

- State: The quality and quantity of natural resources and the quality of the environment (i.e. levels of air pollution, burnt area, forest area,...)

Response Indicators

- Response: The actions adopted (environmental, economic, institutional or sectoral policies) in response to changes (i.e. regulatory action, legislation, environment or research expenditure...)

Pressure – State – Response



Timeframe for Compilation of Indicators

Indicators can be compiled at

- Short term
- Medium term
- Long term

Short Term Indicators

These are:

- ▸ Available in the short term
- ▸ Can be calculated with a regular periodicity
- ▸ Have a standardised methodology to obtain homogeneous data
- * These will be compiled within the coming 2 years

Medium Term Indicators

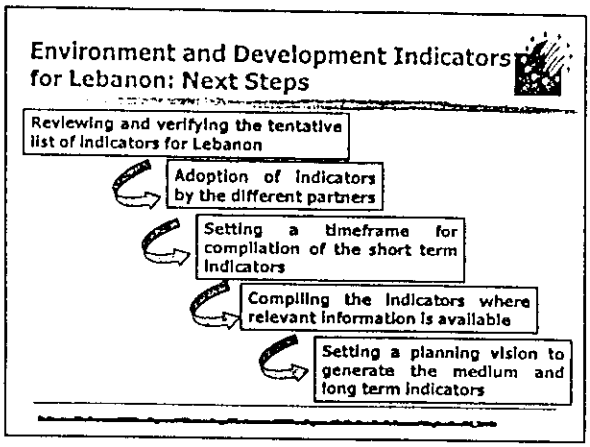
These are indicators that cannot be compiled or generalized over short term and for all regions due to:

- ▸ Scatter of data sources
- ▸ Non-homogeneous methodologies for information collection and monitoring
- ▸ Need for further work for estimation and specific data collection
- * These will be compiled within a period of 2-4 years

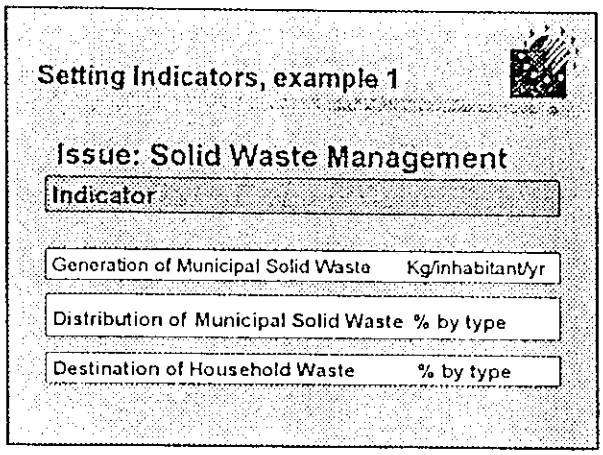
Long Term Indicators

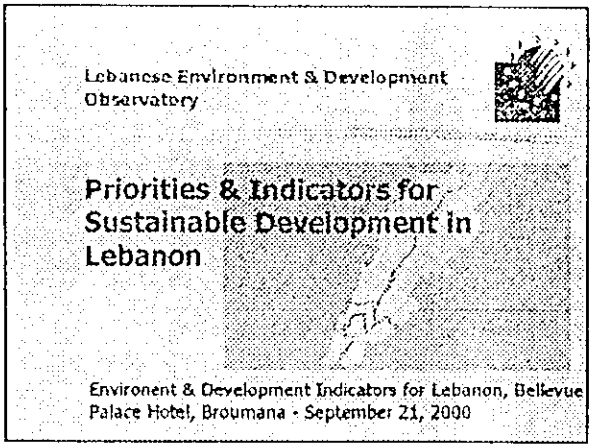
These are relevant and priority indicators but only available in the long term due to:

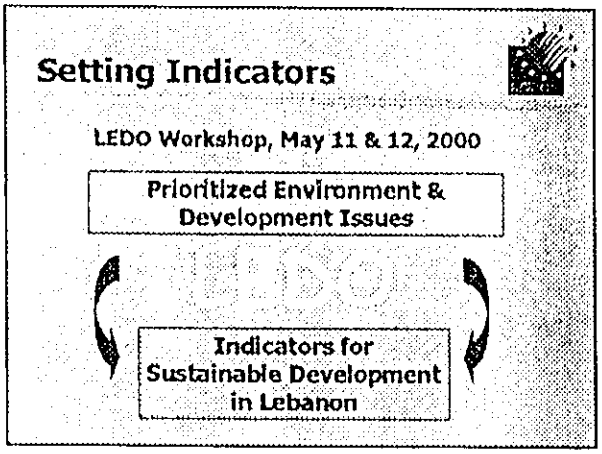
- ▸ Difficulty in data collection
- ▸ Problems of geographical coverage
- ▸ Absence of data
- ▸ Absence of monitoring systems
- * These will be compiled within a period extending beyond 4 years

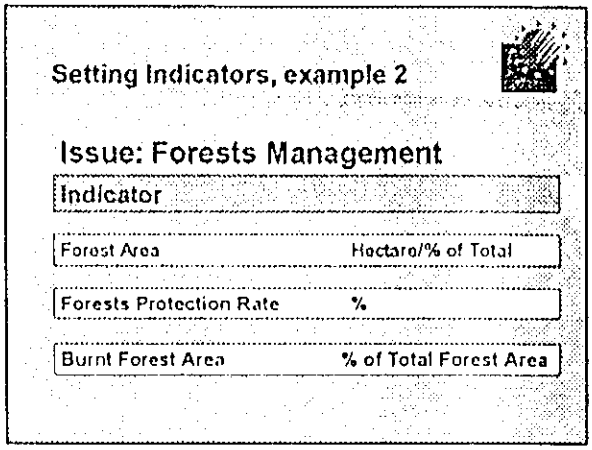


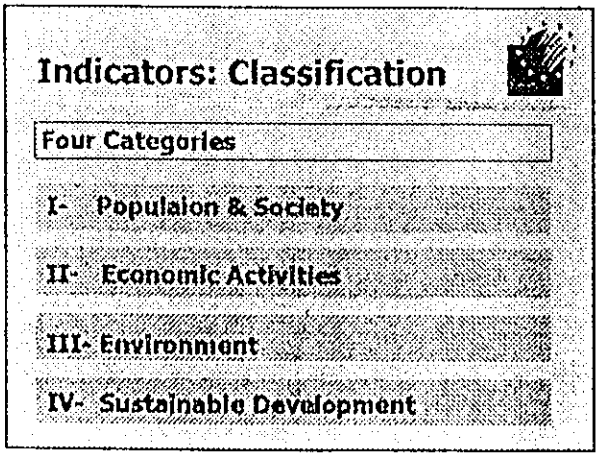
ANNEX 6 PRESENTATION ON PRIORITIES AND INDICATORS FOR SUSTAINABLE DEVELOPMENT IN LEBANON

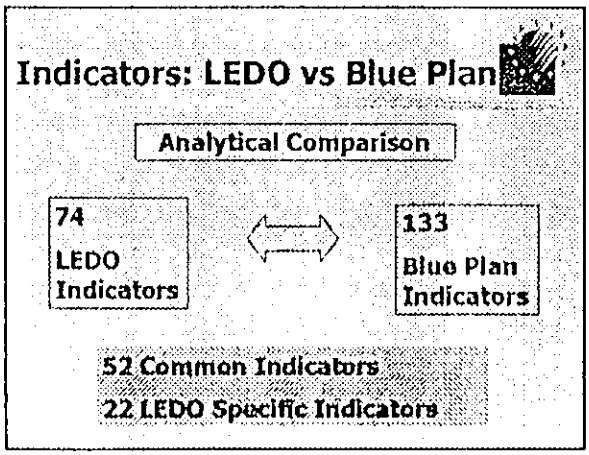












Indicators: Themes, 2

2- Economic Activities

- A- Agriculture
- B- Industry
- C- Energy
- D- Services
- E- Transport

Indicators: Themes, 1

I- Populaion & Society

- A- Demography
- B- Standard of Living
- C- Consumption/Production patterns

Indicators: Themes, 4

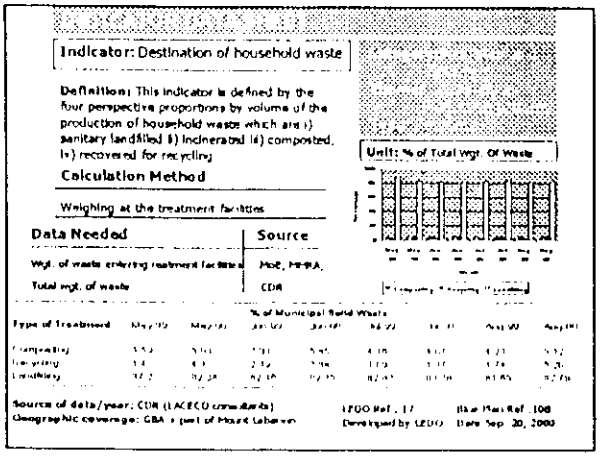
3- Sustainable Development

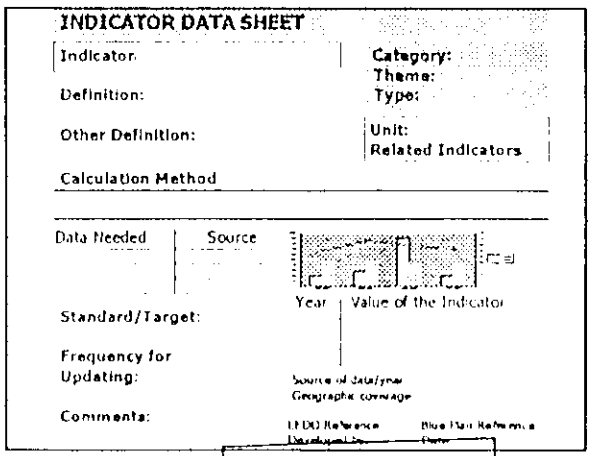
- A- Activities/Actors
- B- Policies/Strategies

Indicators: Themes, 3

3- Environment

- A- Air
- B- Water
- C- Land/Soil
- D- Biodiversity



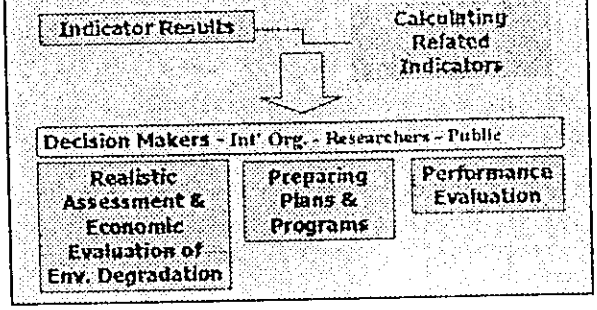


REPUBLIC OF LEBANON
Ministry of Environment

METAP III, MedPolicies Initiative Regional Policy

The Social and Economic Impacts of Mobile Source Pollution on Public Health in Greater Beirut, Lebanon

Indicators: Interpretation



Economic Impacts of Air Pollution on Health in Beirut (1)

Concentration-Response values used in analysis

⇧ 10μg/m³ in Particulates
- ⇧ 1% in total mortality
- ⇧ 2% in total hospital admissions
- ⇧ 2% in hospital resp. & card. adm.
- ⇧ 2% in emergency visits for resp. diseases

Estimated Levels of Pollutants in Beirut and the NAAQS Limits

	Beirut Level μg/m³	NAAQS μg/m³
Particulates	200	50
Ozone	400	235
NO_2	12-100	100
CO	30	10
Pb	1.7-13.3	1.5

Economic Impacts of Air Pollution on Health in Beirut (4)

A. Total Hospital Admissions
Total Hosp. Ad. in Beirut = 150,000 patients/yr
Av. Duration of Hosp.= Av. Restricted Act.: 3.32 days
Av. Daily Cost of Hosp.= $495; Daily Wage=$34
Estimated Excess Hosp. Ad.:
3000 patients (400 resp/card patients)
Total Cost of Hospitalization:
2600 x 3.32 x 495.25 = **$4,275,343**

Economic Impacts of Air Pollution on Health in Beirut (3)

Estimated Morbidity:

- **Direct Cost:** expenditures for prevention, detection, treatment, rehabilitation, research, etc.

- **Indirect Cost:** loss of output to the economy bec. of disability and cost of foregone opportunities.

Economic Impacts of Air Pollution on Health in Beirut (7)

Estimated Annual Social Cost of 10µg/m³ of Particulates in Beirut:

- Total Cost of Premature Mortality= $4,732,400
- Total Cost of Hosp. = $4,275,343.30
- Total Cost of Hosp. Resp & Card.= $955,729.16
- Total Cost of Emergency Visits = $212,912
- Total Cost of Restricted Activity = $481,426.40

TOTAL = $ 10,657,811

Annex V: DataBase

Indicator

Data View Data Entry

Indicators

I-Populmon and Society | II-Economic Activities | III-Environment | IV-Sustainable Development Activities Policies

A-Demography
B-Standard of Living
C-Consumption/
Production Patterns

Demography:

1-Population density
2-Urbanization rate
3-Urban population growth rate
4-Population density in coastal area
5-Population growth in coastal area
6-Population change in rural areas
7-Life Expectancy at birth

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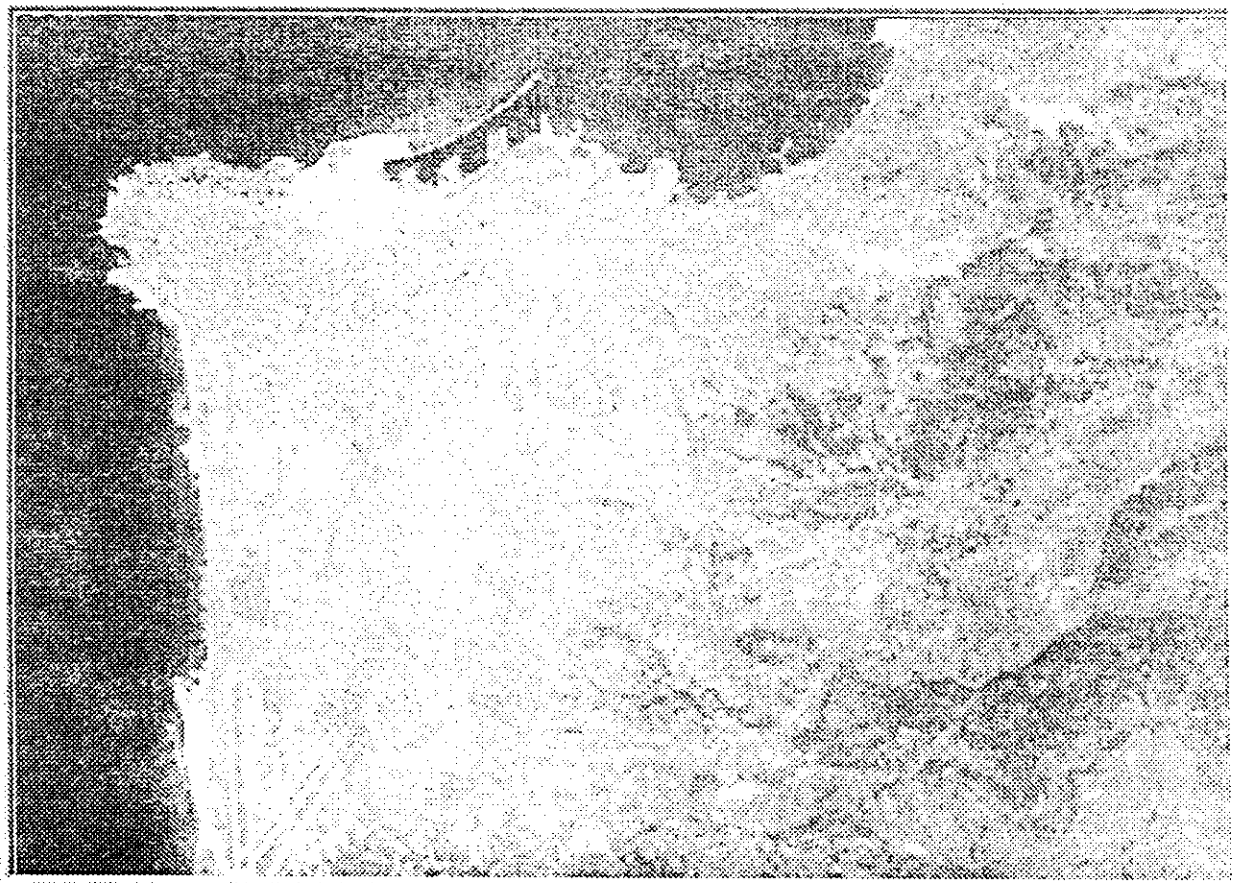
Indicators

I-Population and Society | II-Economic Activities | III-Environment | IV-Sustainable Development Activities _Policies

A-Demography
B-Standard of Living
C-Consumption/
Production Patterns



Environment Data Bank - [Industries]

Query Add Help

Number of membership at the Association of Lebanese industrialists

Categorie: Categorie

Telephonne: Fax:

Area:

Type: Type

Mouhafaza: Mouhafaza

Caza: Caza Village: Village

Email:

Web:

Adress:

Contact:

Name of industry:

Inspection: Inspection

Department: Department

Nb. of Employee:

Licenced: Report Nb:

CoodinateX: 000 CoodinateY: 000

CoodinateZ: 000

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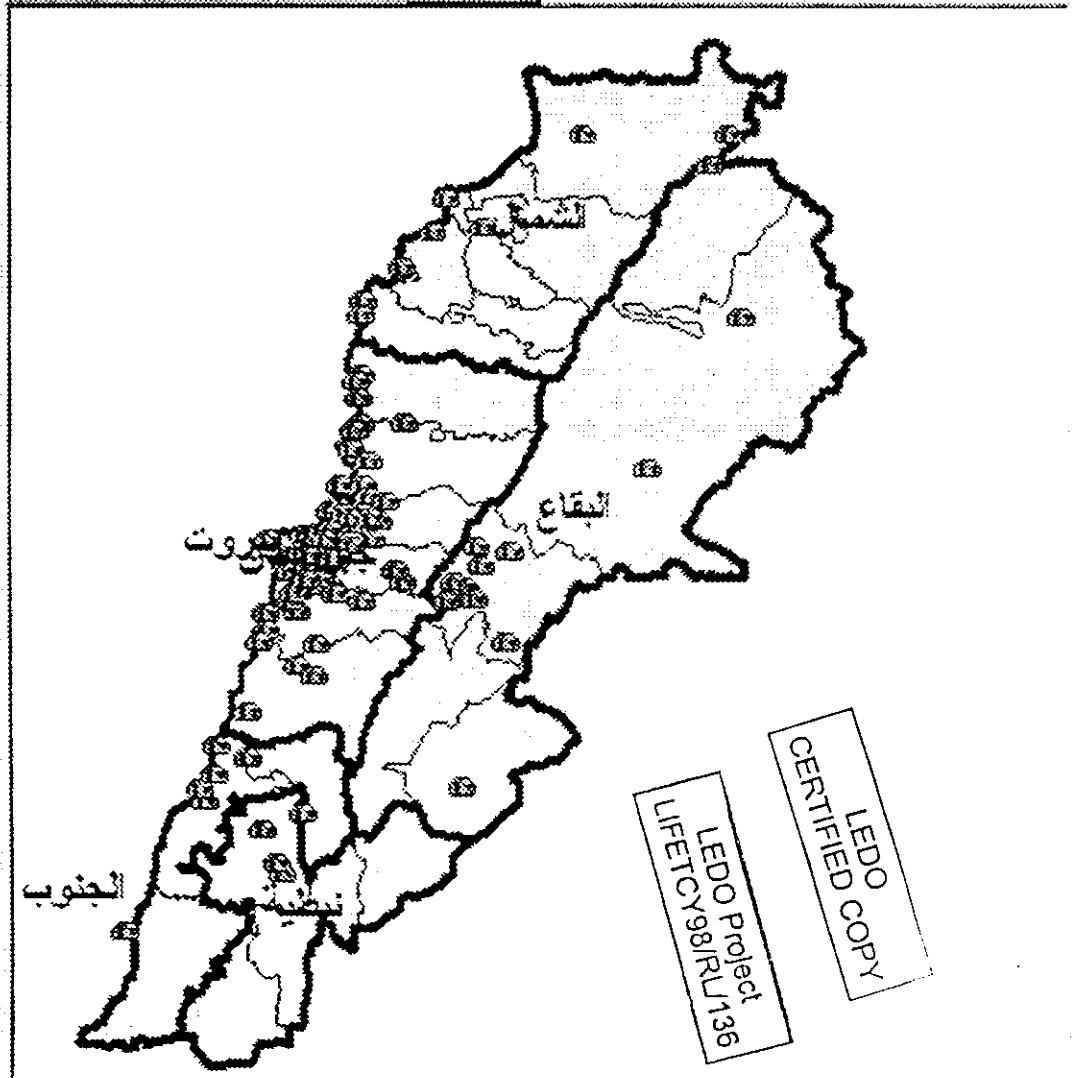
Print Map



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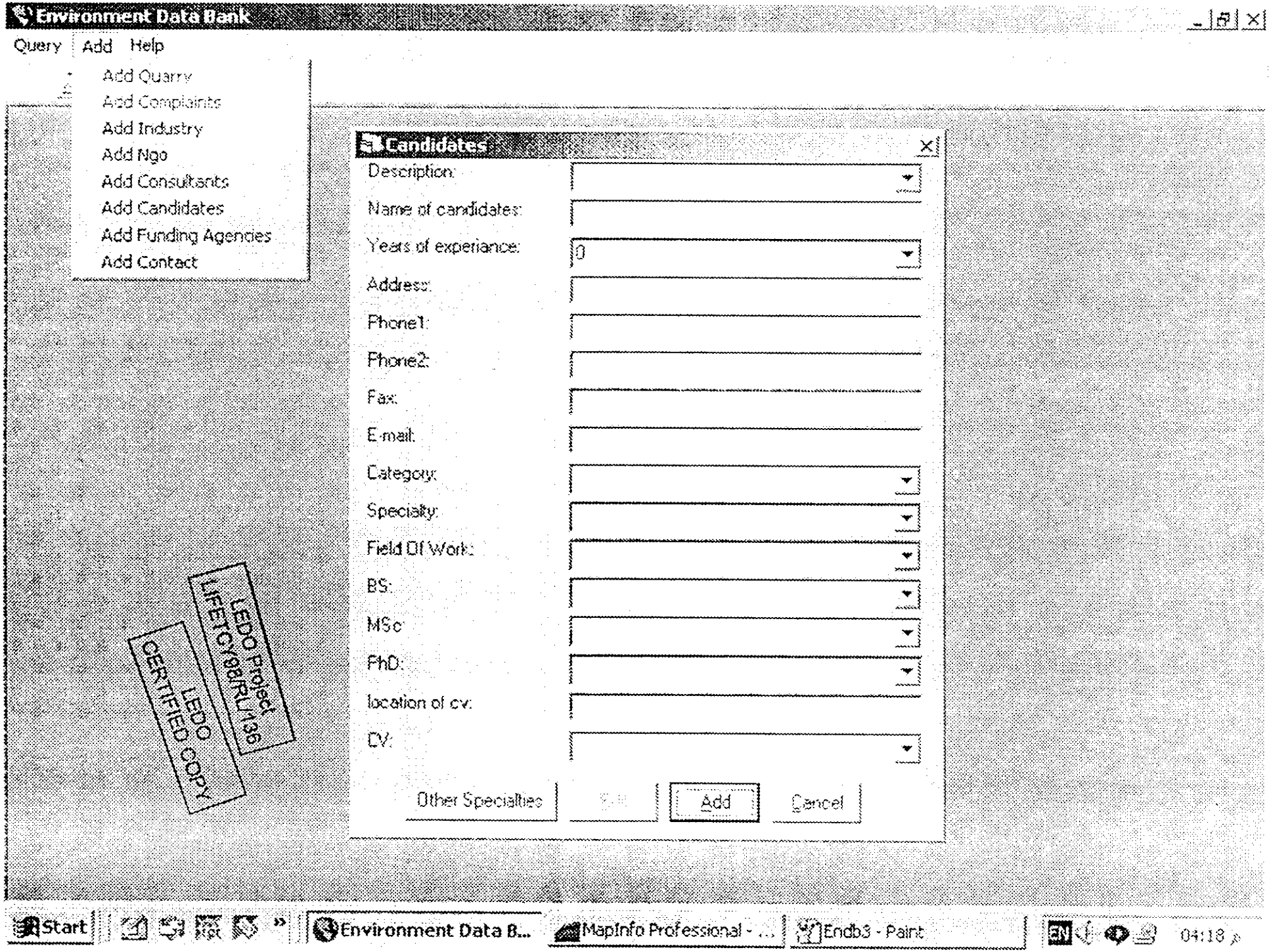
Environment Data Bank
Query
Add
Help
Add Quarry
Add Complaints
Add Industry
Add Ngo
Add Consultants
Add Candidates
Add Funding Agencies
Add Contact
Candidates
Description:
Name of candidates:
Years of experiance:
0
Address:
Phone1:
Phone2:
Fax:
E-mail:
Category:
Specialty:
Field Of Work:
BS:
MSc:
PhD:
location of cv:
CV:
Other Specialties
Add
Cancel
LEDO Project
LIFETCY98RU136
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Environment Data B...
MapInfo Professional - ...
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Environment Data Bank

Query Add Help

Industrial Waste

Close

Name of Company	MIC- Mechanical and Industrial Counseling company
Contact Person	Michel A. Raphael
Adress	Beirut-Lebanon
Telephonne	01 241 810/1 01 261 962/3
Fax	01 241 815
E-Mail	MIC@cyberia.net.lb
Website	
Office in Lebanon	
Phone-l	
Fax-l	
Email	
Contact Person-l	Michel A. Raphael - General manager
Catalogue	Available
Location	DG
CV	

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Industrial Waste

Soil	No	Electrical Eng	No
Air	Yes	Geology	No
Water	No	Mechanical Eng	No
MSW	No	Agriculture	No
Industrial Waste	Yes	Health	No
Hazardous Waste	No	Environment Science	No
Education/Awareness	No	Finance	No
Information Collection	No	Biodiversity	No
Planing	No	Archeology	No
EIA	No	Mining	No
Auditing/Monitoring	No	Env Engineer	No
Quality Control	No	Chemical Eng	Yes
Risk Management	No	Civil Eng	Yes
Env Management	No	Chemistry	No
Env Economics	No	Hydrogeology	No
Engineering	No	Business Administration	No
Consultation	Yes	Meteo	No
Emergency Response	No	Socio Economist	No
Clean Technology	No	Political Science	No
Petrochemichals	Yes	Wild Life	No
Development	No	Ecology	No
Supervision	No	Agronomist	No
General	No	Trade	No
Energy	No	Tourism	No
GIS	No	Population Studies	No
		Law	No

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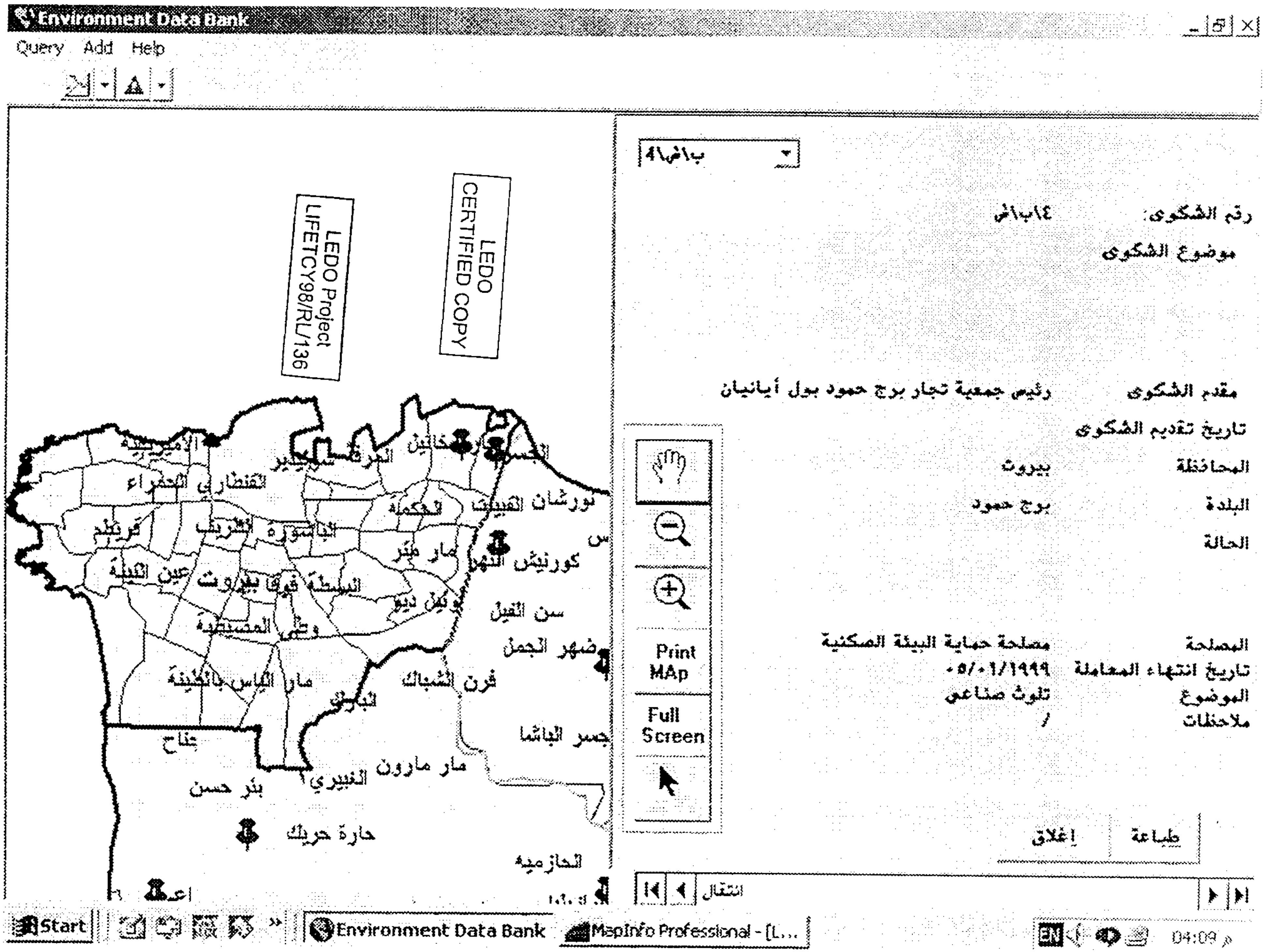
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تاريخ تقديم الشكوى
المحافظة بيروت
البلدة برج حمود
الحالة
المصلحة مصلحة حماية البيئة السكنية
تاريخ انتهاء المعاملة ٠٥/٠١/١٩٩٩
الموضوع تلوث صناعي
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برج حمود
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رأس بيروت
المزرعة
المصيطبة
ميناء الحصن
فرن الشباك
جسر الباشا
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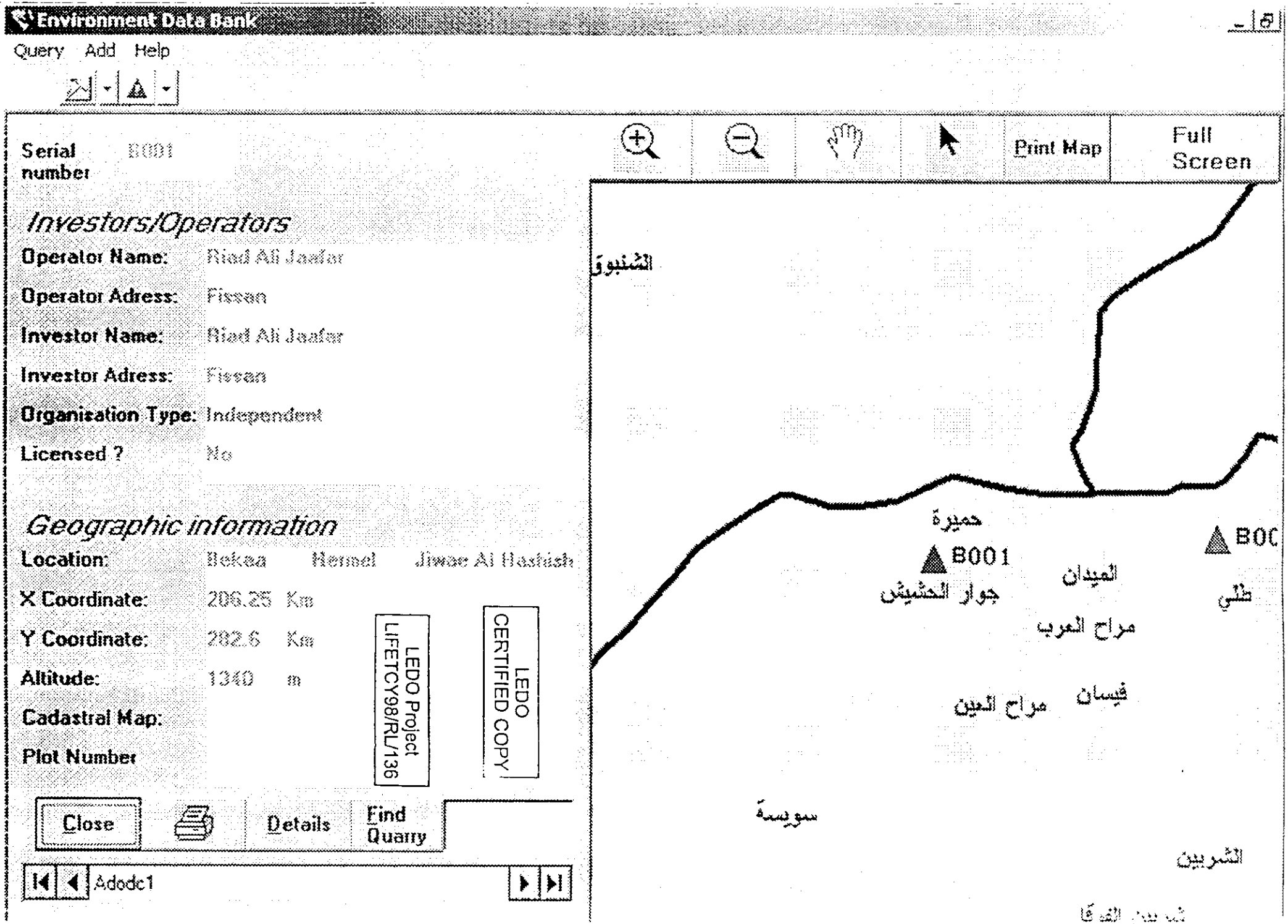
Environment Data Bank
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Serial number B001
Investors/Operators
Operator Name: Riad Ali Jaafar
Operator Adress: Fissan
Investor Name: Riad Ali Jaafar
Investor Adress: Fissan
Organisation Type: Independent
Licensed ? No
Geographic information
Location: Bekea Nemel Jiwar Al Hashish
X Coordinate: 206.25 Km
Y Coordinate: 282.6 Km
Altitude: 1340 m
Cadastral Map:
Plot Number
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فيسان
مراح العين
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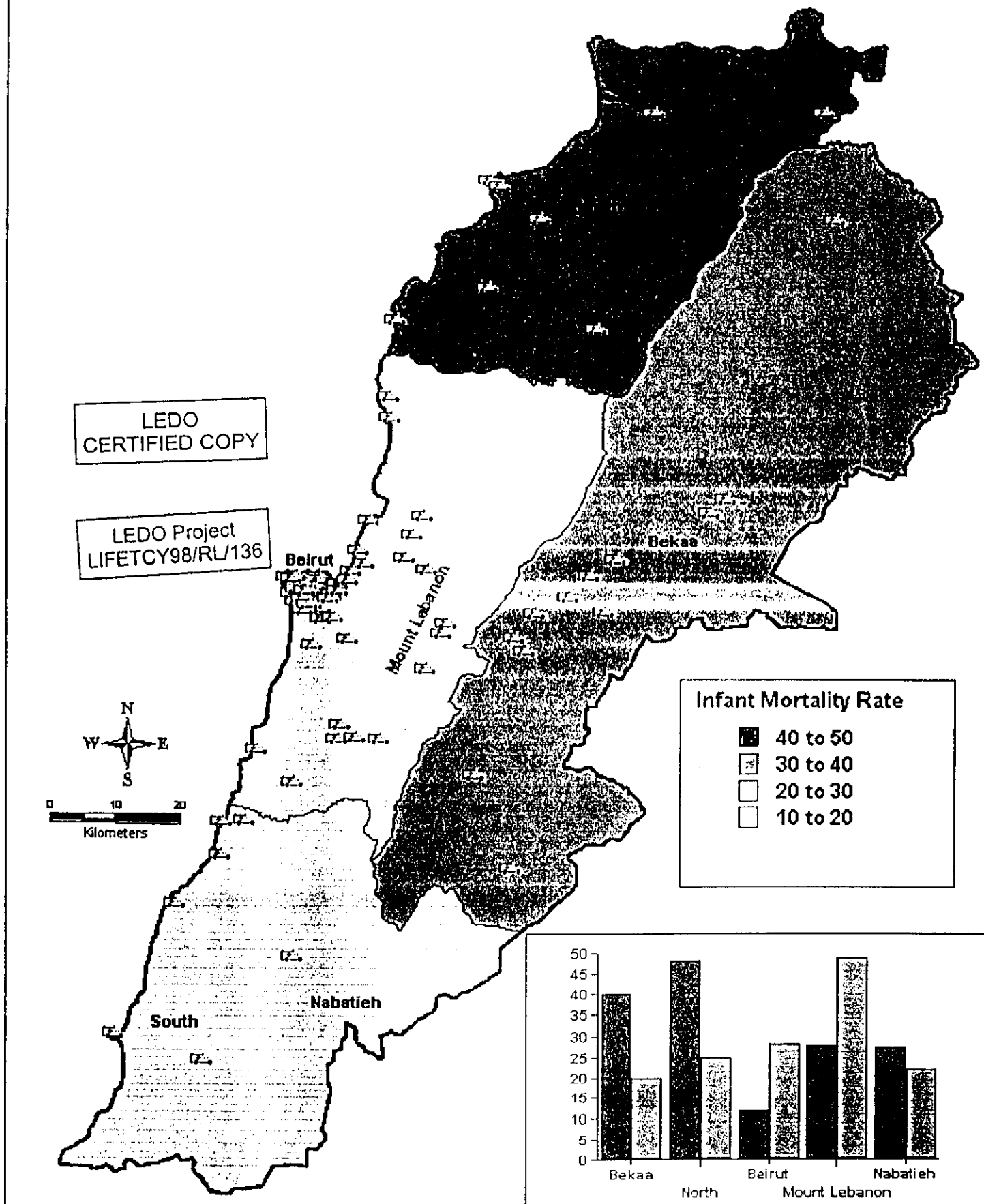
Annex VI: Maps

REPUBLIC OF LEBANON
MINISTRY OF ENVIRONMENT

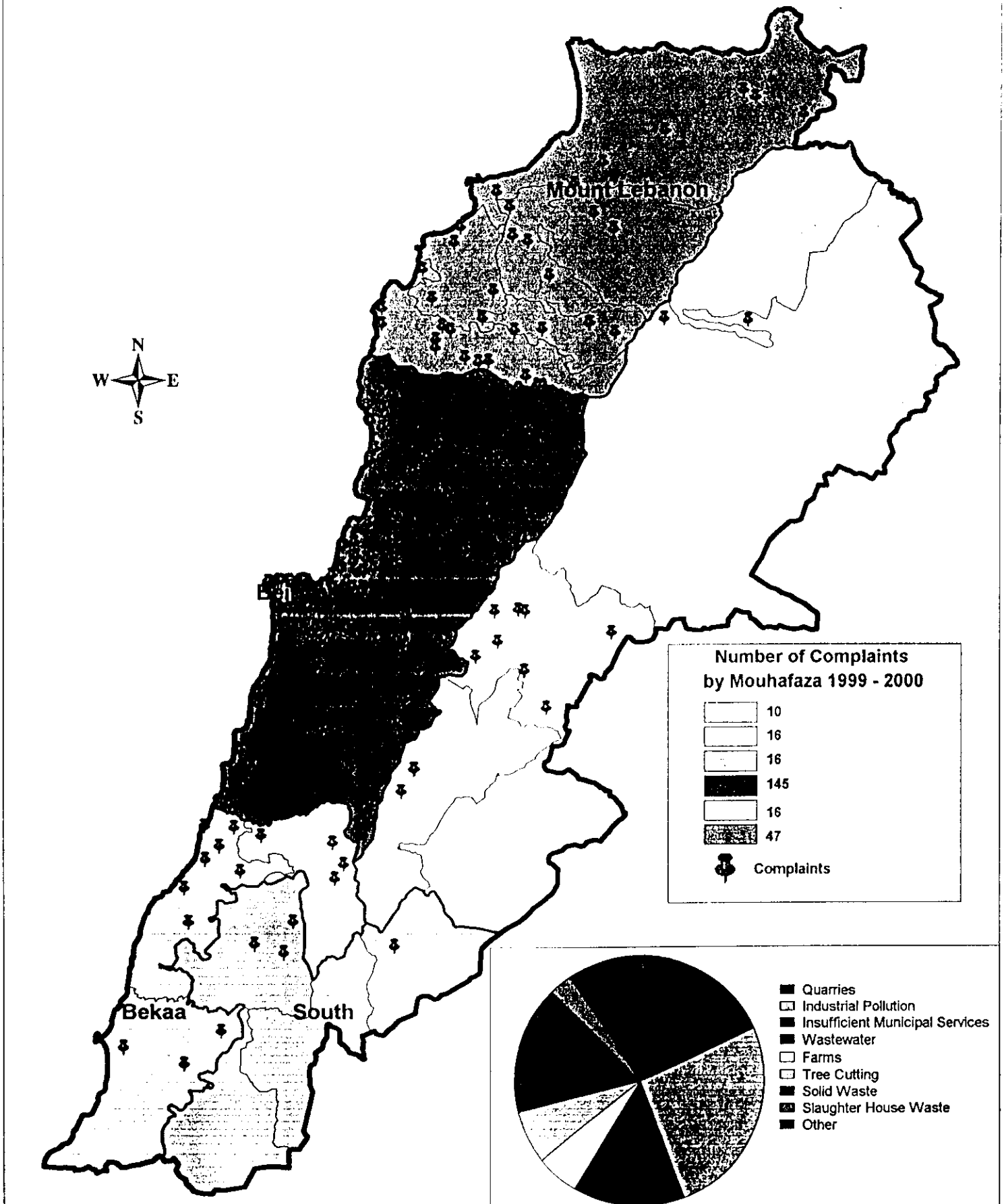
Infant Mortality Rate

Lebanese Environment & Development Observatory



REPUBLIC OF LEBANON
MINISTRY OF ENVIRONMENT

Lebanese Environment &
Development Observatory



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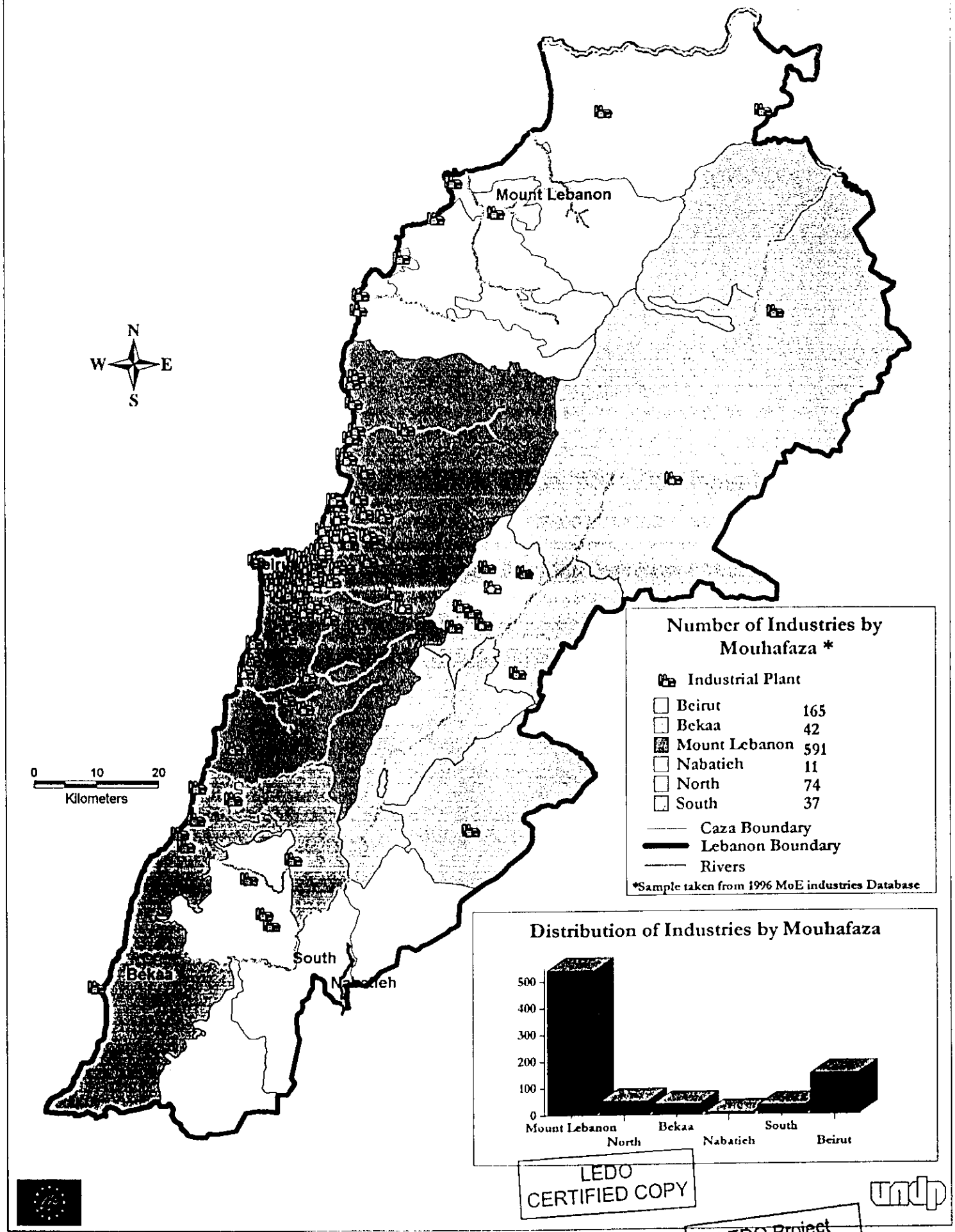
REPUBLIC OF LEBANON
MINISTRY OF ENVIRONMENT

Lebanese Environment & Development Observatory
LEDO



Number of Industries by Mouhafaza *

Industrial Plant

Beirut	165
Bekaa	42
Mount Lebanon	591
Nabatieh	11
North	74
South	37

Caza Boundary
Lebanon Boundary
Rivers

*Sample taken from 1996 MoE industries Database

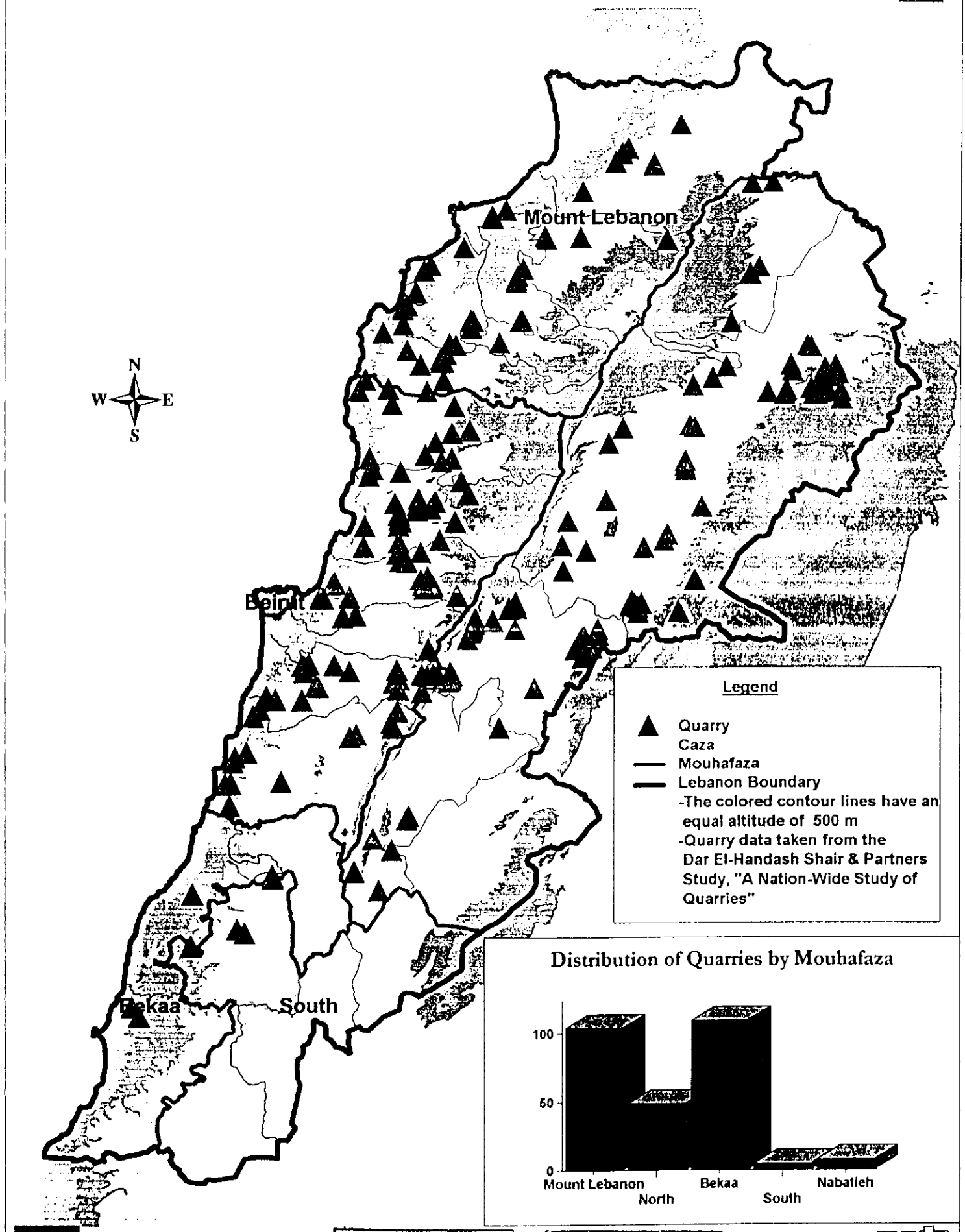
Distribution of Industries by Mouhafaza

undp

LEDO Project
LIFETCY98/RL/136

REPUBLIC OF LEBANON
MINISTRY OF ENVIRONMENT

Lebanese Environment & Development Observatory



Distribution of Quarries by Mouhafaza

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LIFETCY98/RL/136

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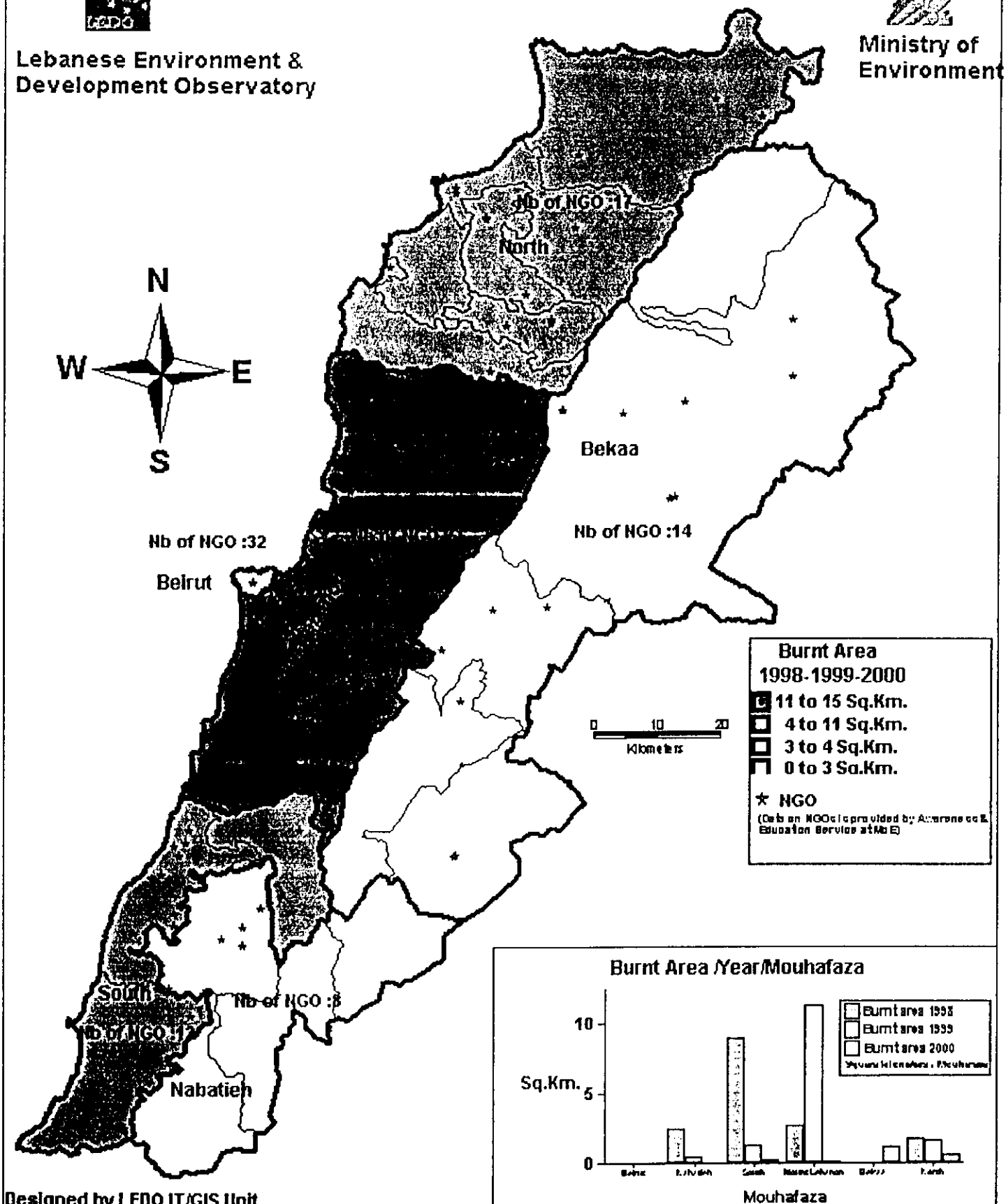
Total Burnt Area in 1998-1998-2000 & Distribution of Non-Governmental Organizations (NGOs)

Lebanese Environment & Development Observatory

Ministry of Environment



Designed by LEDO IT/GIS Unit

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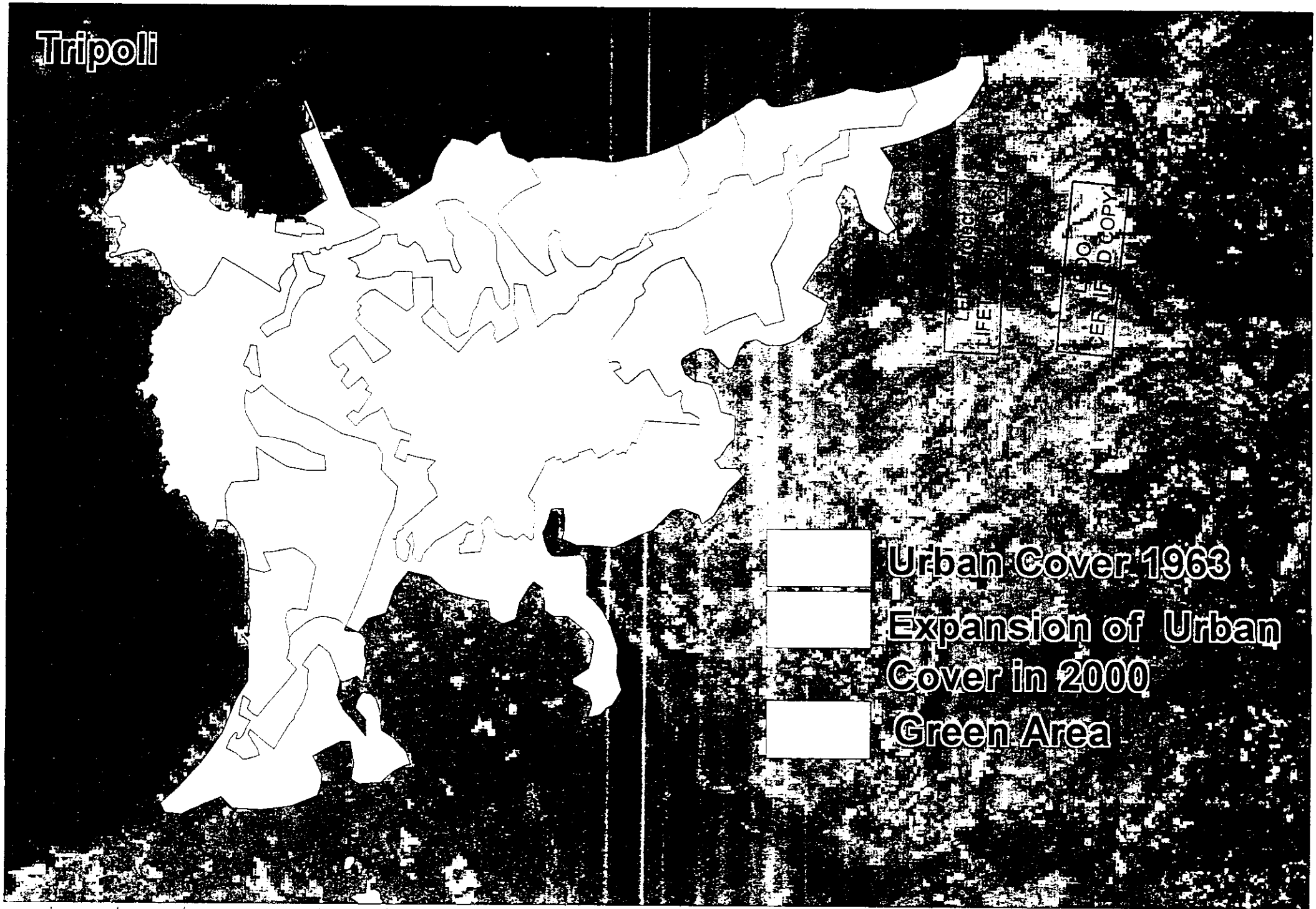
LEDO Project LIFETCY98/RL/136


Tripoli
Urban Cover 1963
Expansion of Urban Cover in 2000
Green Area

Annex VII: LIST OF DOCUMENTS REVIEWD BY THE LEDO TEAM

List of documents reviewed by the LEDO Team

1. Plan Bleu. Plan d'Action pour la Méditerranée. Mediterranean Commission on Sustainable Development (MCSD). Indicators for the Sustainable Development in the mediterranean Region.

2. Ministry of Environment. Republic of Lebanon. Climate Change. (UNDP/GEF). Technical Annex to Lebanon's First NationalCommunication. Final Report.

3. State of Environment Reporting Training. King Hussein Environmental Management Training Programme. WUSC/EUMC.

4. Ministry for the Environment and Land Use Planning. Republic of Tunisia. National Report. The State of the Environment 1997.

5. Ministry for the Environment and Land Use Planning. Republic of Tunisia. National Report. The State of the Environment 1998.

6. UNEP. Earthscan. Global Environment Outlook 2000.

7. Plan Blue/UNEP. 130 Indicators for sustainable development in the Mediterranean Region.

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10. ESCWA/UNDP. Strategy for Monitoring and Reporting. UNDP Sustainable Development Programmes in Lebanon. Project on Monitoring and Reporting UNDP-SD Programmes. March 2000.

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23. Federal Environment Ministry, Bonn. Federal Environmental Agency, Berlin. A Guide to Corporate Environmental Indicators. 1997.

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25. Sustainable Mediterranean Indicators (Testes in Slovenia). May 1999.

26. UNSD/ESCWA Workshop on Environmental Statistics, Indicators and Accounting. 1998.

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28. UNEP. A Brief Study on Desertification. World Atlas of Desertification. 2nd edition.

29. UNDP. / Capacity 21. Rep. Of Lebanon. Ministry of Environment. Sustainable Development in Lebanon. 1998.

30. PLAN BLUE/PNUE/EUROSTAT. Projet MEDSTAT-Environnement. Rapport National de Mission de Diagnostic Statistique et informatique pour le Liban. 1999.

31. Ministry of Industry and Petroleum. Directorate of Industry. Report on Industrial Census. 1995.

32. MEDAGRI. 1998. Yearbook of Agricultural and Food Economies in the Mediterranean and Arab Countries. Institut Agronomique Med. De Montpellier.

33. TEBODIN cons. & eng. Industrial Pollution Control. Lebanon. 1998. (The World Bank – UNIDA – Ministry of Environment).

34. EU/Ministry of Agriculture. Le Fascicule des Essences Forestieres du Liban. 1999.

35. The National Human Development Report – Lebanon – 1998.

36. GEO 2000 – French

37. SOER SWITZERLAND

38. SOER FRANCE

39. DEVELOPMENT COOP Report – Lebanon 1999.

40. UNEP/CAMRE. League of Arab States. 1999. The First Arab Conference on Environmental Indicators and Their Role in Decision Making. Report and Recommendations.

Annex VIII: Sample Web-Page

Lebanese
ENVIRONMENT & DEVELOPMENT
Observatory

[project brief]
[project activities]
[project partners]
[project reports]
[ledo team]
[indicators]
[data base]

what are indicators? indicators are tools used

related links

MINISTRY OF ENVIRONMENT.
P.O.Box: 70-1091 Antelias, Lebanon.
Tel: 961-4-522222. Fax: 961-4-418911.
E-mail: ledo@moe.gov.lb

Annex IX: Memorandum of Understanding MoE and Partners

الجمهورية اللبنانية
وزارة البيئـــة

مسـودة مذكـرة تفـاهـم

* * *

فيما بين: وزارة البيئة – المرصد اللبناني للبيئة والتنمية.

فريق اول

وزارة / جمعية

فريق ثـان

* * *

المقدمة:

لما كان **القانون ٩٣/٢١٦ وتعديلاته** (قانون إنشاء وزارة البيئة) لا سيما المادة الخامسة منه والعائدة لمهام **المديرية العامة للبيئة**، قد أوجب تنسيق العمل مع الادارات على إختلافها **ومشاركتها في تقديم البيانات الإحصائية والمعلوماتية والمؤشرات والمعايير العائدة لها.**

ولما كانت وزارة البيئة قد أطلقت مشروع المرصد اللبنـاني للبيئـة والتنميـة، الممـوّل من الاتحاد الأوروبي بإدارة برنامج الأمم المتحدة الانمائي في كانون الأول ١٩٩٩.

وحيث ان عملية الرصد هي عملية علمية تنتج معلومات رقمية وموضوعية يعتمد عليها في عملية أخذ القرارات ووضع البرامج والمخطّطات، من قبل جميع المؤسسات المعنية بالبيئة والتنمية، في سبيل الوصول الى تنمية مستدامة من خلال تطبيق مبدأ الحماية من خلال الوقاية.

ولما كان لبنان قد إنضمّ مؤخراً الى عدة اتفاقيات بيئية دولية والتي ركّزت على أهمية التعاون والتنسيق بين المنظمات الحكومية والمنظمات الغير حكومية (NGO) خصوصاً فيما يتعلّق بالرصد المنتظم للمؤشرات البيئية والتنموية وما تعلّق بالبيانات الاحصائية وتطويرها وتحليلها.

ولما كانت ورشة العمل الأولى التي عقدت في ايار ٢٠٠٠ قد حدّدت الأولويات البيئية والتنموية من قبل شركاء مشروع المرصد اللبناني للبيئة والتنمية حيث عمل فريق المرصد على وضع لائحة اولية للمؤشرات البيئية والتنمية في لبنان.

وبالاستناد الى توصيات ورشة عمل " المؤشرات البيئية والتنموية للبنان " المنعقدة في ٢١ ايلول ٢٠٠٠ والتي نظّمها المرصد اللبناني للبيئة والتنمية العامل في وزارة البيئة وقد ضمّت الممثّلين عن مؤسسات القطاع العام والمؤسسات العلمية ومراكز الأبحاث بالاضافة الى المنظمات غير الحكومية، والقطاع الخاص، ومنظمات دولية بالاضافة الى المحافظين والأكاديميين وفرقاء وشركاء معنيين.

ولما كانت ورشة هذه العمل المنوه هذه قد توصّلت الى لائحة نهائية لمؤشرات بيئية وتنموية للبنان بالاضافة الى تحديد الجهات المسؤولة عن تلك المؤشرات.
(ربطا: لائحة رقم ١ – بالمؤسسات والمؤشرات المسؤولة عنها).

ولما كان يقتضي تبنّي تلك المؤشرات بمذكرة تفاهم بين: وزارة البيئة والوزارات والمؤسسات الأخرى المعنية من اجل إعطاء الصفة القانونية والطابع العملي المرن لخلق شبكة رصد بيئية وتنموية مستدامة.

فعليه، تمّ التفاهم بين الفريقين على ما يلي:
اولاً: تعتبر –المقدمة– جزء لا يتجزأ من هذه المذكرة.

ثانياً: يقوم الفريق الثاني بتبنّي المؤشرات البيئية والتنموية التي تمّ تحديدها في ورش العمل ويعمل على تحديثها بشكل دوري ومستدام وإبلاغ تغيّراتها الى المرصد اللبناني للبيئة والتنمية في وزارة البيئة.

ثالثاً: يضع الفريق الأول بتصرّف الثاني المعلومات والمؤشرات المتوافرة لديه ويقوم الفريق الثاني **بصورة خاصة بإبلاغ الفريق الاول عن اية تبدّلات قد تطرأ لتلك المؤشرات عبر الادارة او الهيئة التي يعمل فيها.**

رابعاً: يبذل الفريق الثاني جهوده لجمع المعلومات وتقديم المؤشرات او إستكمالها وتحديد المعلومات الناقصة وتسهيل تفسيرها – **في نطاق أهداف عمله وإختصاصه ونطاقه** – وإبلاغها **دورياً** الى المرصد.

خامساً: يسهّل الفريق الأول للفريق الثاني حصوله على المعلومات او الخرائط المتوافرة لديه لتسهيل العمل المناط به وذلك عبر خلق قاعدة معلومات خاصة بالمؤشرات يمكن إستشارتها عبر شبكة الإنترنت.

سادساً: حدّد نطاق عمل وتعاون الفريق الثاني مع الفريق الاول وفق المواضيع والمؤشرات التالية:

- .....
- .....
- .....

سابعاً: التعاون الذي يبديه الفريق الثاني وما يقدّمه للفريق الأول من معلومات إحصائية او معلوماتية او معايير ومؤشرات هي من قبيل التنسيق والمشاركة بين ادارات الدولة **والقطاع الخاص** بحيث انه لا يتوجّب على هذا التعاون أية إلتزامات مالية بحيث يبقى هدف التعاون والتفاهم مع –شركاء المرصد– ينصبّ في غاية وطنية اساسية وهي: **الوصول الى شبكة رصد تعتمد على المؤشرات البيئية والتنموية للبنان تساعد كأداة لعملية ترشيد التخطيط العام وإتخاذ المقررات التنفيذية لها من قبل السلطات المختصة.**

ثامناً: من أجل تسهيل إستمرارية التعاون والتنسيق بين الفريقين ينظّم الفريق الاول لقاءات عمل من اجل توضيح وتبيان كيفية إدخال المعطيات الجديدة من قبل شركاء المرصد لتحديث المؤشرات البيئية والتنموية المطلوبة.

تاسعاً: حرّرت هذه المذكرة على ثلاث نسخ أصلية إحتفظ كل فريق بنسخته ونسخة تودع لدى المديرية العامة لوزارة البيئة.

بيروت في

الفريق الاول **الفريق الثاني**

LEDO Project
LIFETCY98/RL/136

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Annex X: MED-ERMIS

PROJECT PROPOSAL: ASSISTANCE TO MEDITERRANEAN COUNTRIES IN ESTABLISHING (OR IN INCREASING THE CAPABILITIES OF) ENVIRONMENTAL OBSERVATORIES IN VIEW OF SETTING UP A SYSTEM FOR MONITORING/REPORTING OF ENVIRONMENTAL PARAMETERS AND SUSTAINABLE DEVELOPMENT INDICATORS

STRATEGY PAPER: IMPLEMENTING A DECENTRALIZED MONITORING NETWORK IN SUPPORT OF NATIONAL OBSERVATORIES.

APPENDIX I: MAIN OBJECTIVES

TITLE OF PROJECT

ASSISTANCE TO MEDITERRANEAN COUNTRIES IN ESTABLISHING (OR IN INCREASING THE CAPABILITIES OF) ENVIRONMENTAL OBSERVATORIES IN VIEW OF SETTING UP A SYSTEM FOR MONITORING/REPORTING OF ENVIRONMENTAL PARAMETERS AND SUSTAINABLE DEVELOPMENT INDICATORS

MAIN OBJECTIVES OF THE PROJECT

- Establish a comprehensive, user-oriented system for the collection, evaluation, storage and dissemination of data and information on the environment and sustainable development.

- Establish a reporting system in compliance with requirements of environmental agencies and conventions such as the Mediterranean Action Plan and the Barcelona Convention, the European Environmental Agency, the UN Commission for Sustainable Development, etc.

- Set up the basis for the implementation of National Environmental Observatories in countries where they do not exist or enhance their capabilities in countries where they already exist.

- Set up a network of all countries participating in the project in order to exchange information and experience, follow common methodologies where applicable and minimize duplication of efforts.

PROPOSED ACTIONS

- Identify all data collection and reporting requirements, including formats, and temporal aspects for all environmental indicators (i.e. air and water quality, coastal environment, land cover, nature, waste), media (i.e. air, water, soil), programs and measures concerned.

- Asses the data collection system in each country and the agencies involved, in relation to its adequacy, reliability, comprehensiveness, consistency, and appropriateness, including procedures and capability for collection, storage, processing and retrieval.

- Correlate the above, define the data and information needs and priorities for the monitoring and management of environmental quality and sustainable development in each country, identify users and their specific requirements, identify changes and improvements required (i.e. actors, areas of intervention, timetables, data basis to be established, forms to be used, methodologies, verification systems, etc.).

- Prepare proposals for establishing a cost effective and sustainable program or network for the collection, storage, processing, and dissemination of environmental and sustainable development data and information, including information system design, specification of hardware and software, design of a distributed and integrated network of agencies for collection and processing of data, including related data collection and computer processing protocols and guidelines.

- Identify roles and responsibilities of participating agencies and recommend establishment of new monitoring and data collection capacity as needed.

- Prepare the format for periodic reporting on the state of environment.

- Prepare cost estimates for the institutional, manpower and equipment/training requirements.

- Carry out training seminars for all stakeholders.

The prioritization of the various actions described above shall differ from country to country in relation to the work already achieved and the priorities set up within each country. All actions described above are general and should be tailored to better serve the needs of each country. Nevertheless, an effort should be made within each country to undertake successfully, within this project, all the proposed actions.

Finally, a very important dimension of the project is the networking and collaboration between the various participating countries. Periodical meetings at six-month interval will be institutionalized within the project to better serve this objective.

PERIOD OF IMPLEMENTATION AND TIMETABLE

Two years, starting September 2000 (M0)

M0-M4: Mobilization phase and setting up of list of priorities
M5-M12: Implementation of project with various actions (from the list of priorities) undertaken.
M12-M24 : Continuation and finalization of actions undertaken

REPORTS

Concise Management Report every six months.
Detailed Report of Activities at M12 and Final Report at M24.

ESTIMATED BUDGET

140.000 EURO per participating country

TENTATIVE BUDGET BREAKDOWN

Equipment and renting expenses	30.000
Personnel and technical assistance	70.000
Consumables	15.000
Travel and subsistence	25.000
Total	140.000

Strategy

In view of the existing Lebanese Environment and Development Observatory (LEDO) at the Ministry of Environment, and considering the initial main purpose of the MED-ERMIS project, coordinating with the LEDO team in implementing this project is a necessity in order to avoid duplication of efforts on one hand and to gain time on the other hand.

In addition to that some implementation measures should be taken in to consideration while implementing the MED-ERMIS project to ensure the proper participation of the different target groups in creating the monitoring network.

Moreover a great deal of importance should be given to guarantee a minimum acceptable level of sustainability for the project after the end of the financing period.

Accordingly following is the general strategy guidelines that will be taken into consideration while implementing the MED-ERMIS project. We believe that during execution more detailed work will have to be developed and which is partially mentioned in the attached workplan.

Coordination with LEDO

Coordination with LEDO team should be maintained under three different aspects of the project implementation being; the launching phase, the monitoring infrastructure phase and the information system design phase.

The Launching Phase:
Under this aspect the project should, with the help of LEDO, ensure the implementation of the following tasks:

1. Continuous support of MoE
2. Development of the Inception Report
3. Identification of potential network members
4. Initiation of contacts with the network members
5. Organization of the launching seminar

Monitoring Infrastructure Phase:
Under this phase the project should coordinate with the LEDO team the following activities:

1. Harmonize work with the LEDO initiatives
2. Organize workshop for identifying priority issues
3. Monitor work assigned to Balamand's students or other mobilized resources
4. Train on and introduce indicators technique

5. Initiate the calculation of indicators
6. Coordinate dissemination of information

Information System Design Phase:
Under this phase, the following tasks should be coordinated by the LEDO team:

1. Ensure harmony with the LEDO established system
2. Develop the application software
3. Introduce Geographic information system to the application
4. Train local authorities on application and GIS
5. Monitor the web site development
6. establish the information exchange protocol

Implementation Measures

On the other hand substantial time, during the launching period, should be invested on the thorough identification of the potential network members (partners). This work should be done after taking into consideration the existing similar initiatives undertaken by some local authorities whether on the Governerate level, the Municipal Union level or the major cities level such as Beirut.

Accordingly a preliminary identification of the network members will be developed and consequently contacts should be initiated. It is expected that not all identified members will react with the same enthusiasm hence affecting negatively the number of network members. It is to be noted that at this level a very specified period of time should be allocated, for the reactions of the contacted potential members, after which no requests could be served by the project.

The initiation of the project with the local authorities is foreseen to undertake two possible approaches. It could, either be launched at different dates in different areas (regions), or at the same time in all areas by organizing one kick-off workshop to introduce the idea to all concerned partners. This approach seems to fit better the project's scope and resources constraints. However if for practical or logistical reasons it was found not feasible then the option of having different launching workshops could always serve the same purpose.

On the other hand, and during the implementation phase, it is only feasible and advisable to have separate workshops at the local level for the identification of the priority issues and the development of the indicators. It should always be noted that the implementation of the project, no matter how localized it might get, it should always stay in the frame work of fulfilling

the major purpose of creating a decentralized network for monitoring environment and development activities.

During the implementation process, the steps followed by the LEDO team, for the establishment of a national monitoring strategy, has proven to be successful and constructive, hence could be adopted at the local level. This process would put the project on the right track towards establishing a harmonized system of monitoring and creating the national network.

Parallel to the administrative and scientific implementation of the project, a technical progress should go in parallel covering the establishment of an information system accommodating the indicators developed for every region and communicating with the system developed at the Ministry of Environment by the LEDO IT/GIS unit. This system will be having a GIS component to

reflect a geographical representation of the information generated where and when possible.

Sustainability

Every project implemented by foreign funds is subject to the sustainability risk. In order to work on a strategy that will ensure a solid base for the project to sustain itself, few measures should be taken into consideration during the different implementation phases of the project.

The launching of the project at any area should be done under the auspices of the highest authority related to the area of implementation and that could assure the sustainability of the project in the future.

During the implementation phase the project team should at all times ensure a complete participatory approach in tackling the identification of priority issues and the development if indicators. However, a guiding preparatory work is required by the project team to orient the scope of the participation and to maintain a scientific approach, as much as possible, when establishing the network.

The participation of the local community ensures local involvement and understanding of the situation and the benefits of the monitoring activity which will, somehow, increase the probability of ensuring future commitment and consequently sustainability of the work.

Moreover, at the end of every progress phase, a detailed progress report should be communicated to the governing authority mentioned above, preferably during a brief presentation, to keep them notified of the work done and future steps which might sometimes require prior political endorsements that could be granted through their intervention.

On the other hand the team should always keep in mind a strategy for publishing results or information acquired by the project to the General public. Publication of the results of information should be done through the following means:

- ✓ Web site
- ✓ Brochures
- ✓ Workshops
- ✓ Local Seminars
- ✓ Reports

Publishing should be done even at early stages even the data or information is not complete allowing people to criticize and comment on the deliverables, which will help the project staff improve their performance and strategy.

Appendix I: Main Objective

The establishment of a decentralized Environment and Development Monitoring Network through local authorities using environment and development indicators.

Objective 1: Promote monitoring activities at Governerates, main cities and Municipal Unions inside Lebanon.

Activities	Inputs	Outputs	Risks	Time Frame
1.1. Ensure support from MoE	Director General MoE MED-ERMIS Project Coordinator LEDO Project Manager	Coordinated Activities		Dec 2000 – Nov 2002
1.2. Preliminary Identification of potential network members	MED-ERMIS Project Coordinator LEDO Project Manager	Preliminary Identification of local authorities from Governerates, Municipal Unions and main Cities	1. Disinterest by local authorities to join * 2. Lack of sufficient resources at local authorities ***	Dec 2000 – Feb 2001
1.3. Establish contact with preliminary identified network members	MED-ERMIS Project Coordinator LEDO Project Manager	1. Promotion of MED-ERMIS 2. Final identification of network members	Lack of cooperation from identified network members *	Jan 2001 – Feb 2001
1.4. Coordinate with LEDO a strategy for introducing monitoring activities	MED-ERMIS Project Coordinator LEDO Team	Identified material and know-how to be transferred		Dec 2000 – Feb 2001
1.5. Organize local launching seminars	MED-ERMIS Project Coordinator LEDO Team Local authorities	Launching of the MED-ERMIS project	1. Lack of attendance ** 2. Bad cooperation from local authorities ** 3. Wrong target groups **	Feb 2001 – Feb 2001
1.6. Nomination of focal points at the local level for follow up	Local authorities MED-ERMIS Project Coordinator LEDO Project Manager	Nominated Focal Points at the local level to ensure follow up and contact point	1. Delay in nomination by some authorities * 2. Non-cooperative focal points ** 3. Inappropriate nomination **	Dec 2000 – Feb 2001
1.7. Identify role of each focal point	Local authorities MED-ERMIS Project Coordinator LEDO Project Manager	Developed ToRs for each focal point	Quick nomination of Focal Points ***	Dec 2000 – Mar 2001

* High Risk	** Medium Risk	*** Low Risk

Objective 2: Introduce the use of indicators' technique in environment and development monitoring activities.

Activities	Inputs	Outputs	Risks	Time Frame
2.1. Prepare guidelines for the identification of priority env. & dev. Issues	LEDO Team MED-ERMIS Project coordinator	Set of priority issues to be used as in the first workshop(s) with the local authorities.	Might not be very relevant to the local context ***	Jan 2001 – Feb 2001
2.2. Organize workshop(s) at the local level to identify priority env. & dev. issues	LEDO Team MED-ERMIS Project coordinator Balamand Students	List of priority env. & dev. issues identified at the local level	Audience might not be at the level of identifying priorities ***	Feb 2001 – Apr 2001
2.3. Identify indicators relevant to the priority issues	LEDO Team MED-ERMIS Project coordinator Balamand Students Representatives of local authorities	List of Env. & Dev. Indicators identified at the local level	1. Difficulty to understand the concept of Indicators *** 2. Lack of capable human resources at the local level **	May 2001 – Jul 2001

Objective 3: Produce a set of calculated indicators at the local level

Activities	Inputs	Outputs	Risks	Time Frame
3.1. Introduce the Indicator data sheet to the local Focal Points	LEDO Team	Local authorities focal points familiar with data sheet compilation	Lack of cooperation by focal points *	Dec 2000 – Feb 2001
3.2. Identify short term indicators	LEDO team MED-ERMIS Project coordinator Local Focal Points	Final list of short term indicators to be calculated immediately		Oct 2001 – Oct 2001
3.3. Mobilize resources to initiate calculation process	MED-ERMIS Project coordinator Balamand Students	Team available on bard to initiate calculation process		Jul 2001 – Aug 2001
3.4. Conduct survey to identify information base	MED-ERMIS Project coordinator Balamand Students	Status of available information and identification of data gaps	Bad cooperation from sources of information **	Sep 2001 – Sep 2001
3.5. Compilation of existing data for calculating indicators	LEDO team MED-ERMIS Project coordinator	1. Duly filled data sheets 2. Calculated set of indicators 3. Urgently needed data to	Some indicators could be politically sensitive ***	Feb 2001 – Jul 2001 Oct 2001 – Mar 2002

* High Risk	** Medium Risk	*** Low Risk

Objective 4: Establish an information system for compilation of Indicators and future dissemination

Activities	Inputs	Outputs	Risks	Time Frame
4.1. Refer to LEDO work on this issue to create a harmonized monitoring system	LEDO IT/GIS Specialist LEDO Project Manager MED-ERMIS Project Coordinator Balamand students	Clear Structure for a local information system in harmony with the LEDO existing system		Jan 2002 - Feb 2002
4.2. Develop tailored application software for the local use	LEDO IT/GIS Specialist LEDO Project Manager	Application ready to use by the local authorities for compiling indicators to monitor trends	1. Outdated IT resources at the local authorities offices level ** 2. Unqualified personnel to maintain the system **	Feb 2002 - May 2002
4.3. Introduce GIS to the established system	LEDO IT/GIS Specialist Balamand students LEDO Project Manager	Geo-referenced data base at the local authority for their information system	1. Outdated IT resources at the local authorities offices level ** 2. Unqualified personnel to maintain the system **	Mar 2002 - May 2002

Objective 5: Capacity Building to Focal Points representing local authorities

Activities	Inputs	Outputs	Risks	Time Frame
5.1. Train focal points on indicators technique	LEDO team Balamand Students	Focal Points familiar with using indicators in monitoring activities	Unqualified focal points **	Aug 2002 - Aug 2002
5.2. Train Focal Points on Software application	LEDO IT/GIS Specialist LEDO Project Manager MED-ERMIS Project Coordinator	Focal points trained on maintaining indicators data base	Unqualified focal points **	May 2002 - May 2002
5.3. Train focal points on GIS application	LEDO IT/GIS Specialist MED-ERMIS Project Coordinator LEDO Project Manager	Focal points familiar with GIS system	Unqualified focal points **	May 2002 - May 2002

* High Risk	** Medium Risk	*** Low Risk

Objective 6: Establish strategy/infrastructure for dissemination of information

Activities	Inputs	Outputs	Risks	Time Frame
6.1. Develop web site for the project	Private sector web specialist LEDO Project Manager MED-ERMIS Project Coordinator	Web site published on the net and linked to different MED-ERMIS projects		Jan 2001 – Mar 2001 Oct 2001 – Dec 2002 Jul 2002 – Jul 2002 Sep 2002 – Nov 2002
6.1. Introduce developed indicators to MED-ERMIS and MoE web sites and/or develop particular web sites	Private sector web specialist LEDO Project Manager MED-ERMIS Project Coordinator Balamand students Local Focal Points	Information published over the net	1. Politically sensitive information ** 2. Unwillingness by local authorities to share information *	Dec 2002 – Dec 2002
6.2. Produce reports on the indicators developed for every network member	LEDO team Balamand Students MED-ERMIS Project Coordinator Local Focal Points	Published reports on the indicators monitoring scheme		Oct 2001 – Nov 2001
6.3. Produce GIS maps	LEDO Project Manager LEDO IT/GIS Specialist Balamand Students	Graphical/graphical representation of information published on maps		Dec 2002 – Dec 2002
6.4. Organize end-of-project seminar	LEDO team LEDO Project Manager Balamand Students MED-ERMIS Project Coordinator Local Focal Points	Project results disseminated to different interested target groups	1. Unwillingness by local authorities to share information * 2. Low participation in the workshop **	Sep 2002 – Oct 2002
6.5. Establish where and when possible information exchange protocols between the local authorities, Balamand and the LEDO project.	LEDO IT/GIS Specialist LEDO Project Manager MED-ERMIS Project Coordinator Local Focal Points	System to exchange information electronically	1. Incompatible systems at the local authorities offices ** 2. Budget constraints to buy needed equipment *	Jun 2002 – Sep 2002

* High Risk	** Medium Risk	*** Low Risk

Objective 7: Ensure sustainability of the monitoring activities				
Activities	**Inputs**	**Outputs**	**Risks**	**Time Frame**
7.1. Involve Focal points at all levels of the project	MED-ERMIS Project Coordinator LEDO Project Manager	Focal point aware of every progress	Unwillingness of focal points to cooperate *	Dec 2001 – Nov 2002
7.2. Ensure proper training and follow up on all aspects	MED-ERMIS Project Coordinator LEDO Project Manager Local Authorities	1. Focal points familiar with indicators 2. Focal points familiar with software application	1. Unwillingness of focal points to cooperate * 2. Unqualified focal points *	Dec 2001 – Nov 2002
7.3. Inform decision makers of all work progress	MED-ERMIS Project Coordinator LEDO Project Manager	1. Verbal updating through regular visits 2. Official updating through reports	1. Availability of Decision makers ** 2. Change of decision maker *	Dec 2001 – Nov 2002
7.4. Produce meaningful results from the calculated indicators	LEDO Team Balamand Students Local focal points	1. Compared indicators results to standards 2. calculated Impact on the human health	1. Interest of Decision makers *** 2. Feasibility of developing impacts **	Apr 2002 – Jul 2002
7.5. Ensure support by MoE	LEDO Project Manager MED-ERMIS Project Coordinator Director General MoE	MoE budget allocated in support of the local observatories	Budget constraints and acceptance by Council of Ministers *	Dec 2001 – Nov 2002
7.6. Introduce the follow up activity to Balamand's curriculum	MED-ERMIS Project Coordinator Director General MoE Balamand's concerned Dean	Health Sciences students assigned every year for follow up as part of their residency	1. Acceptance of Balamand to introduce this activity to the curriculum ***	Jun 2002 – Sep 2002
7.7. Develop memorandum od understanding between local authorities, Balamand and MoE to ensure regular flow of information	LEDO Project Manager MED-ERMIS Project Coordinator Legal consultant	Signed MOU	Feasibility of developing such an MoE between the Public and the academic sector **	Jul 2002 – Oct 2002

*** High Risk**	**** Medium Risk**	***** Low Risk**

Annex XI: PERFORMANCE INDICATORS

PRIORITY STRATEGY PERFORMANCE INDICATORS

ACTIVITIES	INPUT	RISK	SUSTAINABILITY	OUTPUT
1.1. Mobilization Of LEDO Team	No. of staff on board			
1.2. Formulate Steering/Advisory Committee	Formulation time			
	No. of SC members			
	No. of sectors repr. in SC.			
1.3. Identify Existing Information Base	Time allocated/Staff allocated	Lack of coord. from partners		
	Parties contacted	Reliability of data given		
	No. of reports read			
	No. of proj. coordg with LEDO			
	Coordination with CAS			
	Review of SOER			
1.4. Develop draft report on data gaps/redun.				Availability of report
1.5. Advocate for anational workshop	Time allocated			No. of confirmation received
	No. of parties contacted			
1.6. Organize workshop to involve/commit partners in evaluating inform. requirements	Time allocated for preparation	No. of sectors participated		Recomm. from the workshop
	Staff allocated	No. of presentations related to data lack/availability		Priority issues idntified
	No. of attendees			
	No. of sectors participated			
	No. of presentations related to data gap/availability			
1.7. Establish network of partners	Frequency of meetings	Cooperation of partners	No. of partners in network	
			No. of sectors in network	
1.8. Finalize report on data gaps/ redundancies	Project staff	Final version published		Final version published
	Consultants	Lack of particip. at workshop		Better understand Data situa
		Unreliable information		Better Tool to identify priorities
		Delays in finalizing the report		

PRIORITY STRATEGY PERFORMANCE INDICATORS

ACTIVITIES	*INPUT*	*RISK*	*SUSTAINABILITY*	*OUTPUT*
1.9. Set up a DBMS to communicate with multi platforms at MoE	Equipment	Equipment		Structured Data at MoE
	Consultants	Budget constraints		
		Input from MoE staff		
1.10 Draft Multi-Agency MoU	No. of modifications	Approval of partners		Drafted MoU
2. Establish a strategy for EIM	Consultants	Cooperation from partners	No. of sectors approached	Workplan
	Equipment	Budget	Equipment	List of Indicators rel. to LEB
	Training: Indicators/Satellite		Training: Indicators/Satellite	Electronic list of Indicators
	Image Processing		Image Processing	Calculated Indicators
			Involvement of MoE Staff	
3. Technical Assistance and Cap. Building	Consultants	Cooperation from partners		No. of partners trained
		Time		MoE Staff trained
				LEDO Team trained
				Supp. On nat'l+Int'l initiatives
				No. of Partners familiar with Indicators Techniques
				Time
4. Data compilation and updating of SOER	Project Staff	Reliability of resources		Sectors to be updated
	Economic Consultant	Budget		New structure of SOER
	International Consultants			Newly generated data
				Published SOER
5. Provide open access to Env. Information		Time	No. of people visiting website	Prod. of multimeia material
		Budget	No. of material distributed	Web Site development
				Handbook on Indicators
				Environmental Atlas
				Provide Dec. Makers w. info.
6. Sustainability of LEDO		Signed MoU	Signed MoU	Signed MoU
		Availble MoE Staff to follow-up	New Structure of MoE approved	Reduce gaps + redundancies
		Lack of cooperation	Budget at MoE	
		Reliability of data produced		

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PRIORITY STRATEGY PERFORMANCE INDICATORS

ACTIVITIES	INPUT	RISK	SUSTAINABILITY	OUTPUT
7. Monitoring and Reporting		Delays in reporting		Produced reports
		Compliance w.UNDP Standards		Receipt of remaining funds
		Compliance w. EU Standards		
		Work overload		
		Compatibility UNDP+EU system	Compatibility UNDP+EU system	