

## 12. LEGAL AND INSTITUTIONAL FRAMEWORK FOR ENVIRONMENTAL MANAGEMENT

Today there is a stronger recognition in Lebanon that environmental protection requires a collaborative and concerted effort from all. Working within the framework of an evolving legal and regulatory framework, government agencies at the national and local levels are becoming more aware of the need to consider the environmental impacts of their policies and actions, and are gradually building their capacity to manage the environment. Environmental NGOs and the media have assumed increasingly important roles in raising public awareness and supporting grassroots activities. Research institutes and consulting firms are playing a larger part in improving the understanding of the environment. International donors and funding institutions are also contributing to the environmental management process. Although the various pieces of the institutional and legal puzzle are slowly taking shape, it will take a long time before they fall into place.

### 12.1 Legal and Regulatory Framework

A number of laws, decrees, and ministerial decisions govern environmental management in Lebanon. Chief among them are the laws and decrees establishing the Ministry of Environment, defining its mandate and organizing the ministry. Other legal instruments existing or pending-- define environmental policies, procedures, standards, and other requirements for specific economic sectors or environmental media, as described next.

#### 12.1.1 Laws and Decrees Establishing and Organizing the MoE

functions at the department level (six departments plus the Directorate General). Decree 5591/94 organizes the six departments into divisions and sections and defines staffing requirements and the organizational management of each administrative unit. Law 667/97 explicitly cancelled all articles of Law 216/93, except Article 1 on establishing the MoE. Law 667/97 reorganizes the MoE into five departments and redefines its functions into 17 areas of intervention. Because no organizational decree followed Law 667/97, MoE is currently established under Law 216/93 and organized according to Decree 5591/94 and 667/97.

The GoL has drafted a proposed law that would overhaul Law 667/97 and Decree 5591/94 to sharpen the mission and mandate of MoE and reorganize it along the following four general policy principles:

1. Regionally balanced development ( );
2. Protection through prevention (*al himaya min khilal al wikaya*);
3. The Polluter pays; and
4. Integration of environmental policies into other sectoral development policies.

#### 12.1.2 Other Existing Environmental Laws and Decrees

MoE and other government agencies dispose of a growing arsenal of legal and regulatory instruments to accomplish their mission. Most of these laws, decrees, or ministerial decisions pertain to specific economic sectors or environmental media and were described in corresponding chapters and sections of this report. For example, Law 341/2001 to reduce air pollution by the transport sector is described in Section 5.4.2 (Transport Chapter). The various

Chapter). Appendix L lists the key laws, decrees, and ministerial decisions that are cited in this report.

### *12.1.3 Pending Environmental Laws and Decrees The Draft EIA Decree*

The MoE has drafted an Environmental Framework Law, a Framework Law for Protected Areas (see Box 13.1), and a Decree for Environmental Impact Assessment (EIA). Until recently, various EIA systems were adopted to comply with the requirements of the international agencies financing different infrastructure projects, mainly roads, landfills, wastewater and water supply projects (Kayal et al., 2001). These agencies (e.g., World Bank, European Investment Bank) generally require the preparation of an EIA prior to releasing funds.

Since 1999, with grant funding from METAP/World Bank, the Unit of Planning and Programming (UPP) at the MoE has worked to formulate and institutionalise the EIA policy. In particular, UPP has initiated an aggressive program for establishing a comprehensive EIA system by (1) developing and refining the EIA draft decree based on World Bank operational directives, and (2) organizing targeted training workshops to civil servants, syndicates, municipalities, universities, NGOs and the private sector. Training workshops targeted specific sectors such as roads and highways, quarries, solid waste, wastewater, marinas, and dams and reservoirs. Sector-specific EIA training manuals were developed and are available

other stakeholders, in particular government agencies and municipalities.

The draft EIA decree was prepared in consultation with representatives from line ministries, public agencies, private environmental consulting firms, academic institutions, research centres, NGOs, relevant syndicates and professional associations. The Council of State (*Majles shoura el-dawleh*) is currently reviewing the draft decree. The MoE hopes that the Council of Ministers will endorse the decree once the Parliament ratifies either the proposed Environmental Framework Law or the proposed law reorganizing the MoE. Meanwhile, the UPP is establishing a permanent EIA unit at the MoE under the Department for the Prevention of Impacts from Technology and Natural Hazards. Until various line ministries and public agencies establish their own environmental units --as has already happened at the Green Plan and the Ministry of Public Works and Transport, EIA reports from various sectoral projects will be channelled to the MoE for review.

Many constraints need to be overcome to achieve effective implementation of the EIA system in the coming years (Kayal et al., 2001). Greatest among them is undoubtedly the absence of an efficient environmental legislative framework. As long as conducting an EIA is not mandatory, locally funded projects are likely to be implemented without complying with EIA requirements. In Lebanon, political constraints are almost equally effective in hindering the implementation of the EIA system. Proponents of several large-scale development projects easily interfere in the EIA process, either bypassing the process altogether or securing project approval despite a deficient EIA study. The role of pressure groups (including NGOs and occasionally municipalities) is therefore pivotal to monitor public opinion and bring it to the attention of local and national decision makers. Furthermore, the EIA is often wrongly perceived as an obstacle to investment and economic development, which deters investors and decision makers from committing to the EIA process. Therefore, MoE must continue to provide and organize seminars to highlight the economic benefits of the EIA process.

## 12.2 Ministry of Environment

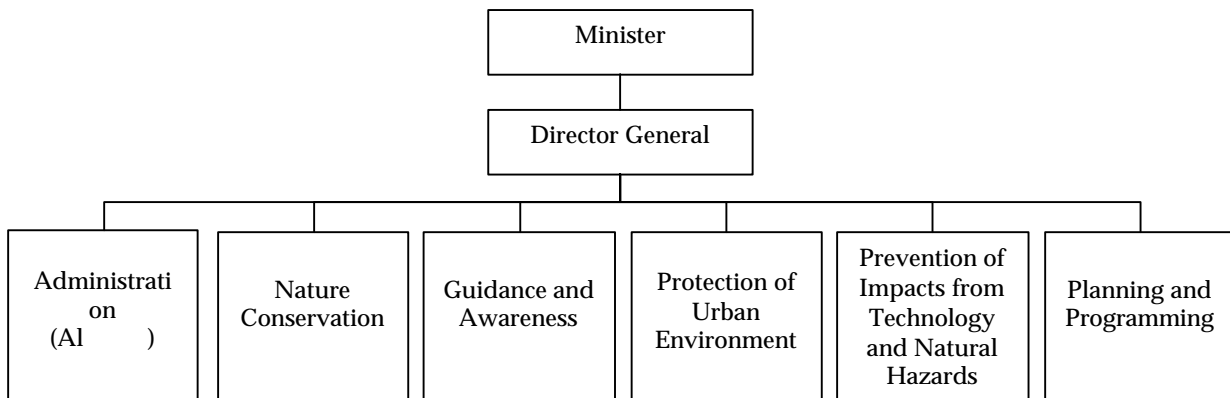
policy principles and strategy objectives and is reorganizing itself accordingly. MoE believes strongly in strengthening the capacity of its staff and in building durable partnerships with

levels and is working to resolve remaining bottlenecks in enforcement. MoE has invested in reaching out to the public and has proved its ability to leverage its own resources to attract grant funding from outside sources.

### 12.2.1 Organizational Chart

As explained previously (Section 12.1.1), MoE is currently organized into one Directorate General and six departments according to Decree 5591/94 and 667/97 (see Figure 12.1).

**Figure 12. 1**  
**Current Organizational Chart of the MoE**



In anticipation of the pending new MoE law (see Section 12.1.1), the MoE is in the process of reorganizing itself into seven departments --comprising a total of 27 divisions-- under the General Directorate, as follows:

1. Administration;
2. Planning and programming;
3. Environmental guidance;
4. Natural resources;
5. Urban environment;
6. Environmental technology; and
7. Regional outreach.

The Directorate General and each department would be responsible for one or several of the 28 MoE functions to be defined under the new law. The Regional Outreach Department will oversee the functions of about 10 regional environmental divisions, one for each Mohafaza, the Beirut and Tripoli ports, and the border crossings with Syria.

### 12.2.2 MoE Strategy

Building on the four policy principles embodied in the proposed draft law (see Section 12.1.1), the MoE has articulated an overall strategy around the following objectives:

1. Strengthen decentralization in environmental management;
2. Reinvigorate the environmental legislative process at the national, regional and international levels;
3. Adopt scientific and practical guidelines in developing environmental policies, strategies, plans, and programs;
4. Develop specialized human resources in both the public and private sectors, and particularly at the MoE;
5. Establish a partnership with the public and private sectors, in particular educational institutions, media, civil society, and international organizations;
6. Promote institutional approaches to public administration activities;
7. Provide environmental guidance through extension and awareness raising, civil society empowerment, and the media; and
8. Plan and program for pro-active environmental management.

MoE has incorporated the strategy objectives above in the proposed MoE law (see Section 12.1.1). MoE also has a vision for South Lebanon after liberation (see Box 12.1), which has brought this region to the forefront of the GoL priorities.

#### Box 12. 1

1. Repairing war damages and providing environmental services to protect public health and the sustainable use of natural resources;
2. Adopting a preventive strategy to promote environmentally-sound development at the lowest possible costs to society; and
3. Preventing further degradation of natural and cultural resources.

Specifically, seven on-going projects will contribute to improving the state of the environment in South Lebanon:

1. Coastal Area Management Plan (CAMP), Damour, Sarafand and Naqoura;
2. Coastal Zone Monitoring (LEDO, UNEP/GRID), using remote sensing techniques from NCRS;
3. Coastal Water Survey (MAP) of chemical and biological water contamination, including off the coasts of Saida, Tyre and Naqoura;
4. Tyre Coastal Nature Reserve (see Section 13.2.1), funded by the Medwet Coast Project and signed June 2001;
5. Environmental Land Use Master Plan for the Litani River and Lake Qaroun Catchment area;
6. Methyl Bromide Alternatives Project (see Section 2.3.3); and
7. Small grants to environmental NGOs (three in South Lebanon): environmental camps in environmental awareness campaigns in Nabatiyeh (see Section 12.4).

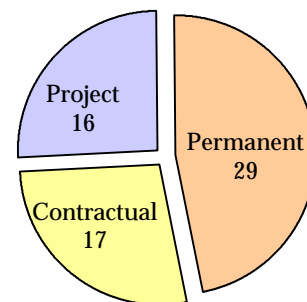
Source: Hatjian, 2000

### 12.2.3 MoE Workforce

Combining permanent and contractual staff, the MoE had 46 full-time employees as of December 2001 (see Figure 12.2). In addition to this full-time staff, the MoE currently has 16 project staff recruited under specific projects funded by multi- or bi-lateral donors for the duration of those projects.

The combined workforce of 62 employees and project staff almost triple the workforce of 23 staff reported in the 1995 SOER-- provides the MoE with a sizeable critical mass to start to make a difference. The MoE plans to recruit 14 professional employees (lawyers, environmental health specialists, environmental and natural resources management specialists, GIS specialists), six of which (four contractual and two permanent) have already joined the Ministry in 2001. The remaining eight professionals (three contractual and five permanent) are expected to join the ranks of the Ministry during the year 2002. In addition, the MoE has managed to attract a number of volunteers on a seasonal basis: summer student interns, young engineering, sciences, and public health, who are keen on developing their skills and capabilities further to help implement the M

**Figure 12. 2**  
**MoE Workforce (July 2001)**



### 12.2.4 Mainstreaming the Environment

Mainstreaming of the environment in Lebanon has come a long way in the past few years. Through its presence on various committees, the MoE and other stakeholders are increasingly able to foster the environmental agenda at different levels. In particular, environmental policies are beginning to be addressed by the highest Executive level (through the Minister of Environment at the Council of Ministers) as well as by the Legislative Branch (through the Environmental Committee of the Parliament).

Also, as a member of the Higher Council for Urban Planning (HCUP), the MoE Director General is working hard to promote environmental approaches to land use and urban planning. MoE is also championing the environmental agenda through its active presence on other committees such as the IDAL one-stop shop committee (industrial licensing), the Health Councils in the Mohafazas (industrial licenses), the Board of Directors of LIBNOR (product standards), and the inter-ministerial committee for the implementation of international conventions.

EIA provides an excellent opportunity for inter-ministerial cooperation (see Section 12.1.3).

However, MoE has yet to be represented on the Socio-Economic Council. Also, a key -of-the- for the Environment, envisioned by law but not yet created (see Box 12.2).

**Box 12. 2**  
**The Long-Awaited National Environmental Council**

group no more than 12 environmental specialists designated by the Minister of Environment. While the Advisory Council was never put in place, the amended Law 667/97 (Article 3) calls instead for establishing the National Environmental Council. The Environmental Council would be charged with formulating proposals and recommendations for a comprehensive and integrated environmental policy as well as suggesting implementation plans, which would become binding upon their approval by the Council of Ministers. Membership of the National Environmental Council is to be evenly divided among representatives of concerned ministries and those of civil society (*NGOs, private sector, academia*).

### 12.2.5 Enforcement Bottlenecks

Enforcement, with factories being shut down for excessive environmental pollution and a vessel company being fined for discharging oil into the sea. However, poor enforcement remains a major weakness of the environmental control system. Deficient enforcement is sometimes, but not always due to lack of clarity and internal inconsistencies in legal and regulatory texts. It also results from institutional weaknesses, special interests, and political interference that stand in the way of effective enforcement requirements developed by other ministries, such as building regulations developed by DGUP and conditional use requirements for the maritime public domain specified by the Ministry of Public Works and Transport. As a result, line ministries cannot directly enforce the legal requirements falling under their jurisdiction. Generally, strict adherence to legal requirements has been observed when the Lebanese Army has been charged with enforcement, such as with enforcing the ban on hunting during the first year and controlling illegal fishing (use of dynamite) and construction activities (in public domain) along the coast.

### 12.2.6 Public Outreach

#### The Administration Office of the MoE

Like the rest of the Lebanese administration, the MoE is plagued with an antiquated system for document management --processing requests, filing, archiving, which causes inherent inefficiencies and delays. While the MoE has a working Local Area Network that provides each employee with an email address and online access to the Internet, the document management system is similar to corresponding systems in all other public institutions in the logbook (*dafter al sader wal wared* *dafter al zimmeh*). In addition, each administrative unit has a dedicated clerk and courier. All incoming (requests and complaints) and outgoing (notifications, response to request or complaint) mail is registered manually in one logbook for the whole ministry, regardless of the intended final destination. The Ministry's tentative attempts to introduce computerized document management systems in the mid-nineties were aborted pending a total overhaul of the Lebanese administration. Nevertheless, the MoE is looking at introducing information technology to administer and manage the processing of documents and information flows.

### The MoE Library

Since January 1995, the MoE has been managing a 300-square meter library in the basement of its building. Beginning with a small number of books and magazines, the library grew quickly and, as of July 2001,

The library is open to the public during official working hours users may photocopy any reference, free of charge, provided they bring their own photocopying paper.

including books, periodicals, reports and magazines in three languages (Arabic, English and French). This database follows the international standards for referencing (i.e., CDS- divided into four sections: Books, periodicals, references and mediatec (videos, slides, cassettes and microfilms). Many institutions and embassies frequently donate books and periodicals to the library, which also houses videos, and slides.

#### *12.2.7 Resource Mobilization*

The MoE has participated, in one form or another, in at least 30 projects since 1995. Section 12.7 and Appendix N describe the sources of funding, total or partial, of those projects (plus other projects executed by other agencies). Most of these projects are described in relevant cha

(Industry).

In the past few years, the MoE has demonstrated its ability to steer project activities towards successful implementation and within the overall strategic objectives of the Ministry. As a result, several bi-lateral and multi-lateral donors have shown increased interest in working with the MoE on project activities of mutual interest and benefit. Between 1996 and 2000, the MoE has leveraged its own budget resources by attracting grant monies from donors at the rate its own grant program for local environmental NGOs (see Section 12.5).

### **12.3 Other Government Agencies**

Other government agencies also play important roles in environmental protection and management. To the extent that line ministries develop and implement sectoral policies, programs and plans, they can make a big difference in shaping the environment of Lebanon. As explained in various chapters of this report, some ministries have already begun to take proactive measures to protect the environment by incorporating environmental considerations into their sector-specific actions. For example, the Ministry of Water and Energy, the Directorate of Roads (Ministry of Public Works and Transport), and the Green Plan (Ministry of Agriculture) have staff or programs (e.g., EIA units) dedicated to environmental protection.

Beyond sector-specific interventions, two government agencies are called to play important roles in land use and urban planning: the Council for Development and Reconstruction (CDR) and the Directorate General for Urban Planning (under MoPWT). Because land use and urban planning is as important as environmental management for the protection of natural and environmental resources, the remainder of this section will focus on these two institutions. Of course, CDR and DGUP engage in other activities not related to overall land use and urban planning, which are described in other chapters of this report.

### 12.3.1 Council for Development and Reconstruction

As the agency in charge of national planning and infrastructure project design and implementation, CDR is in an ideal position to promote environmentally sustainable development of Lebanon. CDR has followed basic environmental procedures and guidelines of funding agencies since 1995 (i.e., beyond the National Emergency Rehabilitation Program), such as for preparing social and environmental assessments of all projects funded by the World Bank, European Investment Bank, etc. However, the public participation aspects of the EA process have often been neglected or underestimated. Moreover, CDR does not currently have the resources required to adequately monitor the implementation of the Environmental Management Plans resulting from such EAs. Nor has the MoE been consulted or staffed to review, endorse or approve the EA reports prepared for such projects. In the future, the MoE will need to play a pivotal role to assist CDR --and other agencies-- in ensuring that projects are designed and implemented in accordance not only with the funding agency's EA procedures and guidelines, but also with the EIA requirements of the MoE.

Law 247/2000 merged the a Projets de Beyrouth into CDR. It is therefore more important than ever that CDR develops and strengthens its capabilities to consider and mitigate the environmental impacts of its projects and programs.

CDR, in collaboration with DGUP, has an ambitious program to promote Integrated

L) (see Box 12.2).

#### **Box 12.3 ICZM and SDATL**

After completing the Regional Environmental Assessment Report on the Coastal Zone of Lebanon (CDR/ECODIT-IAURIF, 1997), CDR has prepared the ToRs for the follow-up activity but has suspended work on it until further notice. Phase II of the ICZM project aims to (1) strengthen the institutional capabilities of MoE and DGUP to plan and manage the development of the coastal zone and (2) develop detailed land use and environmental management plans for two sensitive coastal areas: the coastal zone south of Tyre and the coastal stretch Batroun-Chekka-Enfeh.

In August 2001, CDR invited a half-dozen short-listed firms/consortia to bid on the SDATL (24-month study, GoL funding). The study will have three components: (1) diagnostic, including sector-specific studies, at the national and regional levels, (2) scenarios and strategies for optimal use of land resources, and (3) preparation of SDATL and priority action programs. The study will include the preparation of up-to-date land use/cover maps for all of Lebanon. CDR has selected the winning Consortium for this project and expects to launch the activity early in 2002.

### 12.3.2 The Directorate General for Urban Planning

Urban growth creates irreversible pressures on the environment and natural resources by consuming public spaces, as well as agricultural and natural lands, and increasing the pollution of various environmental media from all kinds of sources. The MoE and the DGUP recognize the intimate linkages between environmental and urban planning and management. They are working very closely --weekly meetings between the DG of the MoE and the DG of urban planning-- to ensure that urban planning follows a holistic, integrated approach that



reconciles between the imperatives of economic and social development and the urgency of protecting the environment and sustaining natural resources.

MoE and DGUP are cooperating fully in requiring approved EIAs for certain projects before issuing construction permits. In particular, under the proposed EIA decree, marinas, Class 1 and 2 industrial establishments and country clubs would be required to prepare EIAs. Section 4.3.1 provides an overview of Decree 10490/1997 on the reorganization of the DGUP.

## 12.4 Municipalities

In 1998, municipal elections were held throughout Lebanon (except in the then-occupied South) after a 35-year hiatus in local representation. Less than one year after the withdrawal of the Israeli forces, municipal elections were held in the liberated areas of South Lebanon. The arrival of new, elected members has brought new blood and public accountability to municipal councils across the country. In addition, municipalities have started to receive funds that were owed to them under the Independent Municipal Fund (IMF) but previously withheld by the Central Government. For example, municipalities and federations of municipalities received transfers totalling US\$420 million from the IMF for the years 1997, 1998, and 1999 (WB, 2000). Also, the "First Municipal Infrastructure Project" (World Bank funding) will provide about US\$93 million for upgrading and rehabilitating basic municipal infrastructure such as roads, sidewalks, retaining walls, streetlights, road signs, and small water and sewerage systems. This sudden cash infusion, supplemented by donor-funded local development projects (see Section ), is opening new opportunities for municipal environmental infrastructure and development projects.

Municipalities are responsible by law for building and maintaining certain infrastructure (sanitation, local roads, sidewalks) and providing basic services (solid waste management, wastewater treatment, construction permitting, etc.). Clearly, Lebanese municipalities are taking a more proactive role in environmental planning and management. They are cooperating with other municipalities in the region and in Europe, in part thanks to the technical and financial support of the (FMCU). For example, with technical support from Medcities (a network of Mediterranean cities) and financial support from the EU, the Federation of Municipalities of Al-Fayhaa (municipalities of Tripoli, El-Mina, and Beddawi) has conducted a municipal environmental audit in 1993 and a feasibility study of solid waste management in 1994. In 2000, the Federation established the first local observatory of environment and development in the Middle East. The Tripoli Observatory boasts the first municipal laboratory on air pollution in Lebanon, a donation by the Spanish Government (see Section 9.1.1 on air pollution results). It is already providing invaluable information to municipal decision-makers on the environment and development of Greater Tripoli.

Unfortunately, *municipal success stories remain the exception rather than the rule*. Most municipalities continue to lack the human and financial resources, environmental awareness, management capabilities, and/or political commitment necessary to discharge their mission in an environmentally sound manner. Training of municipal decision-makers and professionals (see Section 12.1.3), introducing transparency and accountability mechanisms, and streamlining bureaucratic bottlenecks will be required to improve the overall effectiveness and environmental performance of Lebanese municipalities (see Box 12.4).

**Box 12. 4****The Gre**

Perhaps the most visible sign of change in municipal attitudes is the greening of towns and villages throughout Lebanon. After years of neglect, municipalities seem as if in a race to plant trees, repair sidewalks and retaining stonewalls, widen roads, etc. While these activities should be applauded, municipalities must learn to employ the services of trained landscape architects, engineers, and botanists for these projects, in order to avoid common pitfalls and shortcomings, such as:

- Planting species that are not adapted or appropriate to the landscape;
- Planting trees that block the view to magnificent vistas in the distance;
- Not setting aside the resources required to maintain and water the trees planted;
- Using antiquated techniques of watering with tanker trucks instead of built-in unmanned irrigation devices (e.g., drip irrigation);
- Widening the road when all that is needed is to rehabilitate the existing road and perhaps build a wider sidewalk (winding roads in mountain areas are attractive and should not be straightened unless dangerous); or
- Building sidewalks that are too narrow or do not provide easy access to the handicapped, bikers, baby strollers, etc.

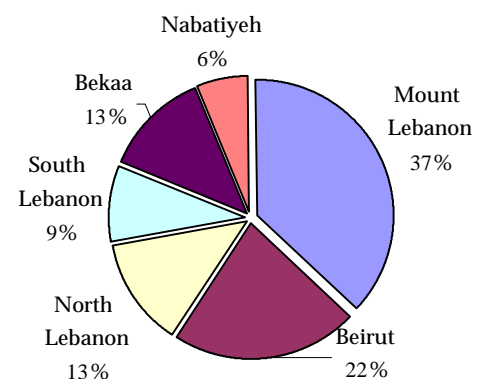
**12.5 Environmental NGOs**

As of July 2001, 112 environmental NGOs were duly registered ('ilm wa khabar) with the Ministry of Interior and Municipalities and listed

Figure 12.3); there could be others not listed at MoE. There are no reliable, comprehensive data on the size and activities of NGOs. Most of the NGOs are small (a handful of members) working at the grassroots level. About a dozen have demonstrated capabilities to raise funds, both nationally and internationally, and implement environmental projects at the local and national levels, such as the Green Line Association, the Society for the Protection of Nature, and the Association for Forest Development and Conservation, to name a few. Only a handful of NGOs have paid employees, on a part-or full-time basis, and operate as a professional organization.

The MoE has provided small grants to environmental NGOs since 1994 as part of its own budget. Before 1999, the MoE has provided blanket grants (i.e., not for any specific project or activity) to a number of environmental NGOs. Starting from 1999, the MoE has refined the grant application process. All non-profit organizations (environmental NGOs, universities, civil society, etc.) that are in good legal standing are eligible to bid under the grant program (e.g., NGOs must be duly registered with the Ministry of Interior and Municipalities). In addition, applicants must submit detailed proposals for environmental projects and must contribute up to 40 percent of the total project costs, in cash or in kind. The project must be in line with the priorities of the MoE (see first column in Table 12.1).

**Figure 12. 3**  
**Environmental NGOs by Mohafaza**



Source: MoE/Dept. of Guidance and Awareness

Between 1999 and 2000, the MoE has awarded 47 NGO grants worth about US\$380,000 (see Table 12.1). Grant amounts range from 3 to 15 million Lebanese pounds. While all 20 grants awarded in 1999 were for the same amount of LBP12 million, 20 of the 27 grants awarded in 2000 were for the amount of LBP15 million and two for LBP12 million.

**Table 12. 1**  
**Breakdown of MoE Grants to NGOs by Type of Activity (1999 and 2000)**

Type of Activity	No. of Grants Awarded	
	1999	2000 <sup>a</sup>
Protection of forest resources and combating desertification	6	9
Protected areas, protection of natural resources and biodiversity	7	2
Water resource management	-	1
Waste management and disposal at the local level	-	2
Environmentally-friendly agriculture	-	-
Local dialogue with municipalities	1	-
Training and environmental awareness	5	4
Collection and compilation of environmental information.	1	2
Other	-	2
<b>TOTAL</b>	<b>20</b>	<b>22</b>

<sup>a</sup> Not including the five grants worth LBP 3 million each awarded in 2000 / Source: MoE, 2001

## 12.6 Research Institutes and Universities

The National Council for Scientific Research (NCSR) is the umbrella public research institution in Lebanon. Universities also play a major role in environmental research and education.

### 12.6.1 National Council for Scientific Research

With the environment as a priority research area, NCSR has four major policy objectives:

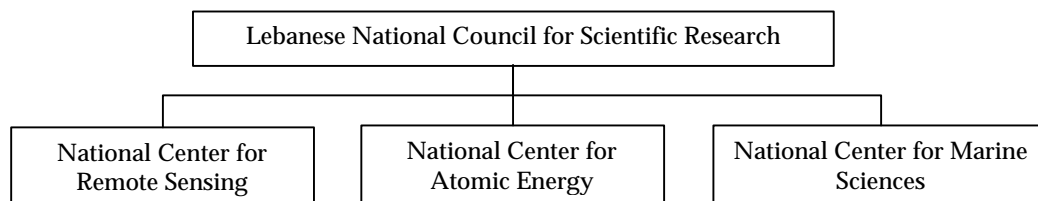
1. Train human potential qualified to conduct research (including scholarship grants to enable deserving students to study for doctoral degrees);
2. scientific research as a career and ultimately as a vocation;
3. Build and consolidate a network of individual research projects supported by the Council; and
4. Establish research centres and research groups that provide logistical support to researchers in the country.

The Council has three main centres: the National Centre for Remote Sensing, the National Centre for Atomic Energy, and the National Centre for Marine Sciences (see Figure 12.4). Other less formal research centres include the National Centre for Geophysics and the (US\$4 million). Roughly 55 percent of this budget is allocated to research and the operation of scientific centres.<sup>1</sup> In 2001, the Council supported 16 projects in the general field of the centres. The Council publishes the *Lebanese Science Journal*, which contains peer reviewed

<sup>1</sup> Data supplied to ECODIT by Office of Finance, NCSR, 2001

scientific publications and articles. The journal is usually published twice annually (one volume newsletter, published every two months).

**Figure 12. 4**  
**Organization of National Council for Scientific Research**



### 12.6.2 Universities

Universities in Lebanon are increasingly offering environmental courses. The extent and depth of environmental education is variable. Some universities offer full-fledged multi-disciplinary environmental programs, while others provide environmental courses only for non-environmental majors. Some environment programs are geared towards natural sciences (i.e., ecosystem, ecology, water) while others are more focused on engineering (i.e., solid waste, air pollution control, cleaner production, wastewater). Occasionally, universities may cover select environmental issues from urban planning and urban design perspectives.

Table 12.2 presents existing environmental programs, indicating the degree, duration and date each program became available. Environmental programs in Lebanon have gradually become available since 1995, or after the release of the 1995 SOER. Several universities are currently expanding their environmental programs or introducing new programs. For example, prospective programs at the University of Balamand include environmental chemistry (concentration in aquatic and terrestrial resource management) and environmental affairs. It was not possible to estimate the number of graduating students for this report. However, based on responses to a quick survey by ECODIT, about 45 students graduated in natural sciences and an additional 25 in environmental engineering in 2000.

## 12.7 Private sector

Lebanon teems with consulting firms and analytic laboratories that are relatively well prepared to tackle environmental issues and contribute to sound environmental management.

### 12.7.1 Consulting firms

The MoE has a roster of about 20 Lebanese engineering and consulting firms and scores of consultants with experience and qualifications in different aspects of environmental planning and management. Most consulting firms are small in size and have not been able to grow due to the very small size of the environmental consulting market in the country. Several firms have built a niche in specific environmental sectors, such as solid waste and water/wastewater, while others have wider qualifications and interests that cut across environmental areas and skills. Almost all the local firms have some sort of affiliation --joint venture, strategic partnership, project-by-project association-- with a European or American counterpart. Likewise, the Lebanese firms and consultants understand that they need to market their services beyond Lebanon to other countries in the region (Syria, Jordan, Egypt, etc.) in order to survive.

**Table 12. 2**  
**University Level Environmental Programs Offered in Lebanon**

<i>University</i>	<i>Major (s)</i>	<i>Degree</i>	<i>Approximate Duration (years)</i>	<i>Year degree became available</i>
AUB	<input type="checkbox"/> Ecosystem Management	Masters of Science	2-3	1996
	<input type="checkbox"/> Environmental Health	Masters of Science	2-3	1996
	<input type="checkbox"/> Environmental Technology	Masters of Science	2-3	1996
	<input type="checkbox"/> Environmental Health	Bachelor of Science	3	1964
	<input type="checkbox"/> Civil and Environmental Engineering	Bachelor of Engineering	4	-
	<input type="checkbox"/> Environmental and Water Resources Engineering	Masters of Engineering	2	-
NDU	<input type="checkbox"/> Environnemental Sciences	Bachelor of Science	3	1997
LAU	<input type="checkbox"/> Civil and Environmental Engineering	Bachelor of Engineering	4	1996
BAU	<input type="checkbox"/> Urban Planning	Masters of Science	2	1975
	<input type="checkbox"/> Urban Design	Masters of Science	2	1985
USJ	<input type="checkbox"/> Science de la Vie et de la Terre	Licence	-	-
	<input type="checkbox"/>	Licence	3	1997
			2	1997
	<input type="checkbox"/> Eau et Option Environnement		5	1996
	<input type="checkbox"/>		1-2	1996
	<input type="checkbox"/>	Approfondies (D.E.A) Doctorat	3	1998
UOB	<input type="checkbox"/> Public Health and Development Sciences	Bachelor of Science	3	1996
LU	No response	-	-	-

AUB: American University of Beirut

BAU: Beirut Arab University

LAU: Lebanese American University

NDU: Notre Dame University

UOB: University of Balamand

USJ: -Joseph

LU: Lebanese University

Source: ECODIT Survey, 2001

### 12.7.2 Analytic laboratories

While the MoE has yet to establish a system for approving environmental laboratories in Lebanon, several public and independent laboratories have the capacity to conduct physical, chemical, and/or microbiological analysis of water and air. Air sampling usually involves mobile units and few, if any facilities, have laboratory air sampling equipment. In many instances, while a given laboratory may have the technical equipment required to conduct a particular test, trained staff may not be available or appropriate testing methods may not be fully developed for testing a particular pollutant/parameter. Appendix O presents a complete list of laboratories, including equipment, human resources and types of analysis available, based on a report for a coastal environmental monitoring plan (CDR/LACECO, 2000d).

With grant support from USAID, the AUB Core Environmental Laboratory provides analytic services on a range of sample matrices (water, wastewater, soils, hazardous waste, sludge, leachate, compost, food, drinks). It is able to analyse most, if not all, of the wastewater parameters that need to be monitored under the National Standards for Environmental Quality (NSEQ, see Section 3.3.3). The Core Lab uses EPA analytical methods and Quality Assurance and Quality Control procedures. It performs no sampling services. In contrast, the Lebanese American University is able to carry out the sampling of water, sediment and ambient air, but may not be as fully equipped for sample analysis as the AUB Core Laboratory. The Central Laboratory of the Ministry of Public Health is well equipped for the analysis of sample matrices in the water and food sectors. The Industrial Research Institute also is able to analyse most of the pollutants in the NSEQ. It will need to develop appropriate analytical methods as it receives new measurement instruments (MoE/MVV, 2001).

## 12.8 Donors and funding institutions

Starting in the mid 1990s, international donor agencies have played a lead role in financing environmental project activities. Projects cover a wide range of issues and areas of intervention, including institutional strengthening (e.g., UPP, LEDO, SPASI), resource management and conservation (CoDel, Litani watershed assessment), biodiversity (protected areas, dryland agro-biodiversity) and energy (establishment of energy centre). With few exceptions, grant projects generally do not include infrastructure works such as wastewater treatment and air pollution control.

A review of completed and on-going environmental projects since 1994 reveals that 18 international funding organizations and instruments have sponsored 46 projects worth a total of about US\$30.7 million (see Table 12.3). Individual projects vary from US\$20,000 to US\$3.9 million, with an average size of US\$667,283 per project. Appendix N presents a complete list of environmental projects between 1994-2001 (including on-going projects). Figure 12. 5 presents the overall contribution from all donors per area of intervention. Since 1994, climate change has received just over US\$8 million, the largest share of grant funds, followed by biodiversity (almost US\$4.9 million), forest conservation (US\$4.6 million), and energy (US\$3.9 million). These sums do not include co-financing.

These grants only reflect financial commitments with the GoL and do not include grants secured by environmental NGOs, municipalities, etc. Although such grant projects are poorly inventoried, total commitment could run in the millions of US dollars, as several environmental NGOs have working annual budgets approaching US\$1 million, most of which in foreign aid (e.g., Novib, Oxfam, WWF, IDRC, USAID). Assessing the number and total commitment of environmental projects is further complicated by difficulties in telling

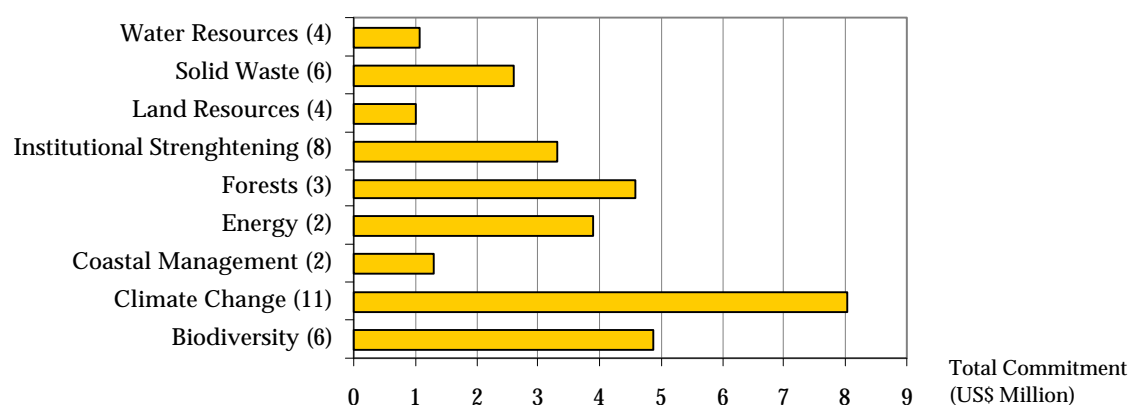
apart *environment* from *development* inherently include environmental components such as improving sanitation and solid waste management, promoting energy conservation or introducing organic farming and integrated crop management. These types of projects are generally not included in Appendix N.

**Table 12. 3**  
**Total Grants to Lebanon by Donor**

<i>Source of Funding</i>	<i>Number of Projects supported</i>	<i>Total Commitment (in US\$)</i>
Commitment Smaller than US\$1,000,000 (but Greater than US\$100,000)		
ACSAD	1	100,000
ATDA (USA)	1	220,000
FAO	1	101,000
FFEM (France)	1	404,000
FINIDA (Finland)	1	503,000
GTZ (Germany)	1	547,000
IAEA	1	91,000
SIDA (Sweden)	2	859,000
UKM (Belgique)	1	229,000
UNEP	2	360,000
UNSO	1	80,000
Commitment Greater than US\$ 1,000,000		
European Union (EU)	8	5,431,000
GEF	8	8,542,000
METAP/WB	4	1,030,000
Ministry of Foreign Affairs (France)	3	3,329,000
Multilateral Fund (Montreal Protocol)	9	6,143,000
UNDP	4	1,226,000
UNIDO	1	1,500,000
<b>Total</b>	<b>50</b>	<b>30,695,000</b>

Source: Based on UNDP Development Cooperation Report, 2000 / updated by ECODIT in consultation with UNDP and MoE. Several projects may have two sources of funding and therefore appear more than once.

**Figure 12. 5**  
**Thematic Breakdown of GoL Grant Projects (1993-2001)**  
**(numbers in brackets reflect the number of projects per theme)**



Source: ECODIT, 2001

## 12.9 Media

The media plays a pivotal role in disseminating environmental information and promoting awareness. Although it has become more involved and proactive in recent years, environmental programming continues to lack sufficient technical and funding support. Since the summer of 2001, at least five local newspapers (three Arabic, one English, and one French) have run regular features and articles on the environment and an additional four newspapers provide intermittent coverage (see Table 12. 4). At least four local newspapers

Jour). Local, university and regional newspapers have are also providing increasing environmental coverage and usually benefit from a dedicated audience. For example, between 1997 and 1998, the Green Forum (association of environmental NGOs) published a monthly environmental newspaper that was widely distributed free of charge (*Manbar Al* ).

**Table 12. 4**  
**Environmental Coverage by Lebanese Newspapers**

<i>Newspaper</i>	<i>Format</i>	<i>Rubric Name</i>	<i>Frequency</i>	<i>Since</i>
Al-Nahar	Page	Environment & Culture	Daily	1997
Orient le jour	Section	--	2-3/week	1997
Al-Mostakbal	Page	Environment & Science	Daily	2000
Hayat	NA	--	NA	NA
Daily Star	Section	Investigated Report	2-3/week	NA
Al-Diyar	Page	Our Environment (suspended in 2001)	weekly	2000
Al-Kifah Al-Arabi	Page	Municipalities & Environment	Floating	1997
Al-Safir	Page	Environment	weekly	1998

Source: ECODIT survey, 2001

*Environment & Development* magazine, published in Beirut, is the only pan-Arab environmental magazine. Launched in June 1996 as a bi-monthly publication, it became a monthly magazine in January 2000 and is available on newsstands all over the Arab region, with a circulation of 28,000 in 22 countries. The magazine is a combination of current environmental topics, global issues, nature and environmental lobbying.

In addition to the written press, television is airing more and more environmental programs. Several stations run regular documentaries and live debates on environmental issues. High-level officials and senior staff of the MoE, prominent individuals and lawyers, and environmental associations are frequently hosted by TV shows. Radio stations have experienced a similar rise in environmental programs and host regular talk shows on various green issues. This is a remarkable shift compared to the situation only 10 years ago, when the environment was rarely seen as a priority or as material for readers and viewers.