2 Environmental Governance

Lead Author
Karim El-Jisr, ECODIT Team Leader

Chapter Reviewers
Hind Joubran, Acting Chief, Registrar (MOE)
Manal Moussallem, Senior Environment Advisor, Institutional Strengthening of the MOE (UNDP)
Maya Abi Zeid Daou, Acting Head, Department of Legal Affairs (MOE)
Nancy Khoury, Acting Head, Department of Public Relations & External Affairs (MOE)
Richard Akiki, Acting Project Manager, Supporting the Judiciary System in the Enforcement of Environmental Legislation (UNDP-MOJ)
Samar Malek, Acting Head, Department of Administrative Affairs & Archives (MOE)

List of Contributors

Ghalia Hamamy, PhD in Statistics, Statistical Monthly Bulletin and Yearbook (CAS)
Manal Moussallem, Senior Environment Advisor, Institutional Strengthening of the MOE (UNDP)
Maya Abi Zeid Daou, Acting Head, Department of Legal Affairs (MOE)
Nancy Khoury, Acting Head, Department of Public Relations & External Affairs (MOE)
Samar Malek, Acting Head, Department of Administrative Affairs & Archives (MOE)

ABBREVIATIONS & ACRONYMS

AECID	Spanish Agency for International Cooperation
AFD	Agence Française de Développement
AFED	Arab Forum for Environment and Development
ALBA	Académie Libanaise des Beaux-Arts
AUB	American University of Beirut
CAS	Central Administration of Statistics
CBD	Convention on Biological Diversity
CBO	Community Based Organizations
CDR	Council for Development and Reconstruction
CEA	Country Environmental Analysis
CERMOC	Centre d'Etudes et de Recherche sur le Moyen-Orient Contemporain
COM	Council of Ministers
EFL	Environmental Fund for Lebanon
EIA	Environmental Impact Assessment
EU	European Union
FFEM	French Global Environment Facility
GEF	Global Environment Fund
GiZ	German International Cooperation
GOL	Government of Lebanon
GPL	Green Party of Lebanon
ILO	International Labor Organization
IRI	Industrial Research Institute
LARI	Lebanese Agricultural Research Institute
LCEC	Lebanese Center for Energy Conservation
LCPC	Lebanese Cleaner Production Center
LEP	Lebanese Environmental Party
LEPAP	Lebanon Pollution Abatement Project
MENA	Middle East and North Africa
MOC	Ministry of Culture
MOE	Ministry of Environment
MOEHE	Ministry of Education and Higher Education
MOET	Ministry of Economy and Trade
MOEW	Ministry of Energy and Water
MOF	Ministry of Finance
MOFAE	Ministry of Foreign Affairs and Emigrants
MOI	Ministry of Industry
MOIM	Ministry of Interior and Municipalities
MOJ	Ministry of Justice
MOND	Ministry of National Defense
MOPH	Ministry of Public Health
MOPWT	Ministry of Public Works and Transport
MOSA	Ministry of Social Affairs
MOT	Ministry of Tourism
MOTC	Ministry of Telecommunication
MOYS	Ministry of Youth and Sports
MP	Member of Parliament
NERC	National Emergency Response Committee
NGO	Non-Governmental Organization
NLUMP	National Land Use Master Plan
OMSAR	Office of the Minister of State for Administrative Reform
SEEL	Supporting the Judiciary System in the Enforcement of Environmental Legislation
SELDAS	Strengthening/State of the Environmental Legislation Development and Application System in Lebanon
SOER	State of the Environment Report
TEDO	Tripoli Environment and Development Observatory
UNDP	United Nations Development Program
UOB	University of Balamand
USAID	United States Agency for International Development
USEK	Université Saint Esprit Kaslik
USJ	Université Saint Joseph

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Environmental governance is a relatively new concept. Simply put, it involves governance and the environment *--see definition in Box 2.1.* For this report on the state and trends of the Lebanese environment, environmental governance is assessed based on a review of six major components (called the puzzle): (1) environmental institutions, (2) environmental laws and regulations, (3) environmental research and development, (4) access to environmental information and data, (5) access to environmental funding, and (6) advocacy and public participation. Environmental governance in Lebanon will need to improve markedly over the next decade to improve Lebanon's Environmental Performance Index (EPI)[1]. In 2010, Lebanon scored 57.9/100 on the EPI scale and ranked 90 among 163 listed countries.

Box 2.1 What is environmental governance?

Environmental governance refers to the processes of decision-making involved in controlling and managing the environment and natural resources. Principles such as inclusivity, representation, accountability, efficiency, and effectiveness, as well as social equity and justice, are the foundations of good governance.

Source: SOER, Department of Environmental Affairs, Republic of South Africa. http://soer.deat.gov.za/27.html

[2]The 2010 EPI ranks 163 countries on 25 performance indicators tracked across ten policy categories covering both environmental public health and ecosystem vitality. These indicators provide a gauge at a national government scale of how close countries are able to establish environmental policy goals (http://epi.yale.edu/)

Lebanese Parliament located in Beirut central district

View of the Presidency of the Council of Ministers (Grand Serail) also located in the heart of the capital

2.1 ENVIRONMENTAL INSTITUTIONS

In the last two decades since the end of the 1975-1990 Civil War, Lebanon has seen a qualitative and quantitative growth in environmental institutions. The following overview of key environmental institutions and organizations in the country focuses on the legislative body, the executive body, and the judiciary system.

2.1.1 Legislative Body

Lebanon's legislative body, represented by the Lebanese Parliament, holds 128 seats and is organized into dozens of specialized committees (www.lp.gov.lb). Of interest is the *Parliamentarian Committee for Environment* which has 12 permanent Members of Parliament (MPs). The Committee meets at irregular intervals to discuss and review draft legislation and issues related to the environment –discussion issues have included *inter-alia* the need to upscale MOE resources, air pollution from the transport sector, the Naameh landfill, road safety, Sukleen contracts, forest fires, pollution in the Litani River and Qaroun Lake, and miscellaneous other environmental development issues. While active, this body can and should do more to accelerate the approval of key legislation, respond to public opinion and participate in targeted environmental debates immune from partisanship. Equally important, the Committee is expected through Parliament to oversee the work of the executive body including contract decisions and public expenditure in green sectors.

2.1.2 Executive Body

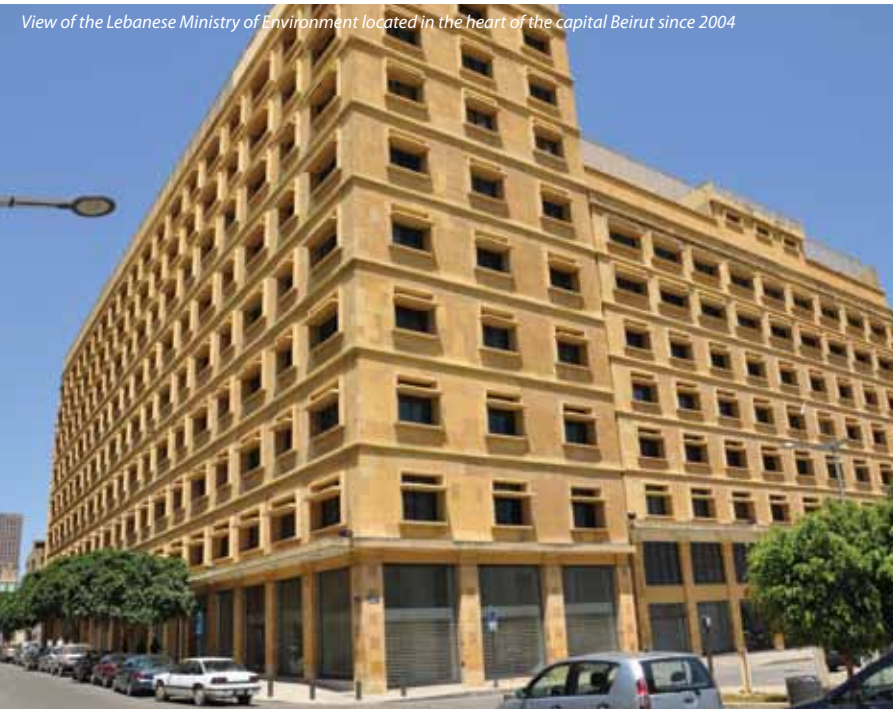
Lebanon's executive body is represented by the Council of Ministers (COM) and is headed by the Presidency of the Council of Ministers (www.pcm.gov.lb). The COM enacts regulations in the form of decisions (henceforth denoted COM Decision Number) and decrees. The size of the ministerial cabinet is flexible but has over the last decade comprised 30 ministers, including the Minister of Environment. Lebanon has seen regular cabinet reshuffles since the publication of the 2001 SOER. The following paragraphs focus on the structure and mandate of the Ministry of Environment as well as intergovernmental and other environmental committees.

Ministry of Environment

The MOE was established by Law 216/1993. It is the second youngest ministry in Lebanon (the youngest ministry is the Ministry of Industry which was established in 1997). Initially based in a small alley in Antelias north of Beirut, the ministry relocated to the heart of the capital in December 2004 where it is currently based.

Box 2.2 CEA, SOER and NEAP

The *Country Environmental Analysis* (prepared by the WB) is a tool to determine the gap between the cost of mitigating environmental degradation, and government funding. The *State of the Environment Report* is an objective compendium on the state of the environment with some analysis of environmental trends and the future today. In principle, the SOER should be updated every five years. The *National Environmental Action Plan* is a planning tool that defines Lebanon's environmental priorities and key entry points for mitigating environmental pollution and degradation. The NEAP is a roadmap for environmental programming and activities. The three documents (CEA, SOER and NEAP) provide some information overlap but have different objectives and periodicity.



View of the Lebanese Ministry of Environment located in the heart of the capital Beirut since 2004

The mandate of the MOE was amended by Law 690/2005 and the long-awaited restructuring of the ministry was enacted four years later by Decree 2275 (dated 15/06/2009). This decree defines the function and responsibilities of each unit including staff size and qualifications. A detailed organizational structure according to Law 690/2005 and Decree 2275/2009 is presented in ***Annex 1***. The ministry prepared a work plan for the period 2010-2012 in line with the government declaration and with a focus on multilateral environmental agreements ratified by the GOL (see targeted list in ***Annex 2***). The work plan is a prelude to updating the National Environmental Action Plan which was prepared in 2005-2006 but was never officially endorsed (see Box 2.2 for a comparison of the NEAP, the CEA, and the SOER). The work plan comprises 10 themes and requires intimate coordination with relevant ministries, and public and private sector groups:

1) Strengthening environmental inspection and enforcement (in partnership with the MOJ, MOIM and the MOF)
2) Adapting to the impacts of climate change on natural resources (in partnership with the MOEW, the MOA, the MOPWT and the MOI)
3) Managing air pollution (in partnership with the MOPWT, the MOEW, the MOI and the MOF)
4) Sustainable management of land and soil (in partnership with the MOPWT the MOIM, the MOND, the MOEW, and the MOA)
5) Preserving and promoting Lebanon's ecosystem capital (in partnership with the Ministry of Information, the MOA, the MOT, the MOC, the MOTC, the MOFAE, the MOIM, and the MOF)
6) Promotion of hazardous and non-hazardous waste management (in partnership with the CDR, the MOIM, the MOF, the MOPWT, and the MOA)
7) Promoting environmentally-friendly products (in partnership with the MOA, the MOI and the MOET)
8) Promoting eco-job opportunities (in partnership with the MOEHE, the Civil Service Board, the NCSR, the MOYS and the academic sector)
9) Striving to improve the work environment in order to protect environmental health (in partnership with the MOL, the MOPH, and the MOSA)
10) Strengthening the role of the Ministry of Environment (in partnership with the OMSAR and the Civil Service Board)

Like all public administrations, the MOE needs human resources including employees and volunteers. Staff size and competencies are critical to the ministry's ability to discharge its mandate, in a timely and cost-effective manner. MOE's staff size has been increasing slowly, from just three staff in 1993 (date MOE was established) to 33 in 2001 and 60 in 2010 (including technical and administrative employees). This is still far below the prescribed staff size stipulated in Decree 2275/2009 (182 full-time employees). Human resources at MOE are bolstered by cooperation projects with international development partners. Specifically, over the period 2001-2010, the ministry received 87 service contractors through

international projects (bilateral funding). They helped implement many activities and functions related to legislation, research, training, monitoring and environmental awareness.

In 2010, the ministry made significant headway insofar as seeking GOL approval for hiring new employees (civil servants) and approving a technical assistance program from the Italian Government (see details in Box 2.3). Such initiatives will bolster MOE's capacities but should be measured against the concomitant rate of employee resignations (at least 25 staff left MOE between 2001 and 2010). Reasons for resignation may include lack of professional advancement and promotion, pursuit of higher-paid jobs, and/or career change. In fact, the current salary scale for civil servants has been and continues to be a contentious issue inside the GOL. Even after factoring in all the potential benefits (overtime pay, other compensations, bonuses, transportation and social security allowances --not exceeding 75 percent of the base salary), civil servants on average still earn less than their colleagues in the private sector including research institutions. Scrutiny by the Central Inspection Board, while critical for ensuring public sector performance, may also affect staff morale and discourage personal drive and commitment. Staff resignation and turnover is not limited to the MOE but happens to various degrees in other government agencies also. It erodes institutional memory.

Notwithstanding staff size, MOE faces other challenges related to budget and disbursement, procurement, and improving public access to it (phone access is difficult, website needs revamp, and public parking near the ministry is very limited). MOE's public environmental archives continue to grow but access to them are limited by opening hours; the popularity of such archives and walk-in libraries in general continues to drop in favor of internet-based research. On the budget front, and according to records at the Ministry of Finance, MOE's annual budget increased from LBP1.375 billion ($0.9 million) in 1993 to LBP3,975 billion ($2.65 million)[2] in 2001. The MOE budget in 2010 was LBP7.325 billion ($4.88 million).

Other Committees and Intergovernmental Agencies

The Ministry of Environment and the Parliamentarian Committee for Environment deal with many other agencies some of which have a dedicated environmental unit. Noteworthy examples include the Council for Development and Reconstruction (Department of Land Use Planning and Environment) and the Ministry of Public Works and Transport (Directorate General of Roads and Buildings / Department of Environment and Traffic). Additionally, the MOE is a member of several intergovernmental agencies such as the Higher Council of Urban Planning (member), the National Council for Quarries (chaired by MOE), and the Higher Council for Hunting (also chaired by MOE). These councils are mentioned in relevant sections of the 2010 SOER.

Box 2.3 Increasing MOE staff size

MOE received the approval of the Civil Service Board (Ref 3070/B dated 9/7/2009 and 23/11/2010) and the Council of Ministers (COM Decision 50 dated 25/10/2010) to recruit 23 employees. The ministry started to recruit these in 2009 but procedures are slow and hampered by political tension and discourse. Separately, the Italian Cooperation signed a €2.5 million agreement* with MOE, part of which will be spent on hiring 20 technical staff for a period of one year as well as seconding Italian experts to the ministry (estimated cost is €680,000).

**Source: Decree 4760 dated 2 August 2010*

Equally important, Lebanon has so called regional Industrial Permitting Committees (including MOI, MOE, MOPH and MOPWT-Urban Planning) and Health Councils at the Mohafaza level. The Health Councils comprise the Governor as well as representatives from the ministries of Environment, Public Health, Industry, and Urban Planning. At the syndicate level, the Order of Engineers and Architects and the Syndicate of Lawyers have dedicated environmental committees. Collectively, these councils and committees help mainstream the environment in all sectors of the economy. On the party level, Lebanon has two political parties dedicated to the environment. The Green Party of Lebanon was established in 2004 followed by the Lebanese Environmental Party in 2005 (see brief in Box 2.4).

National Emergency Response Committee

In response to recurrent national and international disasters, the GOL established the National Emergency Response Committee (NERC) (COM Decision 103/2010 dated 29/11/2010 amended by COM Decision 104/2010 dated 13/12/2010). The committee comprises 22 members representing the ministries of National Defence, Interior and Municipalities, Public Health, Public Works and Transport, Telecommunications, Environment, Energy and Water, Education and Higher

[2]Excluding LBP5 billion ($3.3 million) for reforestation which is equivalent to 20 percent of the approved National Reforestation Plan budget

Box 2.4 Lebanon's two environmental parties

Green Party of Lebanon (GPL)
Founded in 2004 and politically active since August 2008, the GPL is a formal political party that advocates for the protection of the environment, sustainable development, and human rights. It is one of few independent green parties in the MENA region and the first political party in Lebanon to focus exclusively on *green politics*. Since 2008, the party has expanded membership (1,500 members in 2011) and improved its visibility during polls (environmental campaigns, environmental advertisements, etc.). The political bureau of the GPL lobbies MPs for greener legislation. For example, the Party helped draft and is currently backing the promulgation of the draft *Environmental Prosecutor Law* by parliament. Another priority of the Party is the *Beirut River Project*, a project designed by the Party and presented to the GOL for implementation. The Project aims to revive an economically deprived area of the capital while also resolving an enduring environmental issue (pollution of Beirut River). www.greenpartylebanon.org

Lebanese Environmental Party (LEP)
Founded by seven Lebanese environmental activists (mostly from civil society) in 2005 the LEP counts today 68 members. The Party is a pilot body in planning strategies and preparing policies. They helped prepare several strategies related to water management, transport, quarries, prevention of oil pollution on the seashore, solid waste, and renewable energies. A public interest body, the LEP seeks to influence government policy and thus collaborated with the MOE in formulating the 2010-2012 Work Plan. http://lepinlebanon.com/

Education, and Information as well as the Civil Defence and the Lebanese Red Cross. The NERC will develop (1) a general framework for combating disasters, (2) a detailed contingency plan to respond to threats from various types of disaster (i.e., earthquakes, floods, forest-fires, landslides, weapons of mass destruction, wars, and radioactive threats), and (3) an emergency management plan when a disaster occurs. The Swiss Embassy approved $800,000 in funding through UNDP to provide "Support to the Prime Minister's Office - Strengthening Disaster Risk Management Capacities in Lebanon." Managed by the Prime Minister's Office, the project will provide technical assistance to the NERC to develop policies and strategies, as well as plan for disaster preparedness and response.

Municipalities
Lebanon has about 994 municipalities which are organized according to Legislative-Decree 118 dated 30 June 1977. Municipal councils are elected by their constituency and consist of 9, 12, 15, 18, 20 or 24 (Beirut and Tripoli only) members depending on the size of the constituency. Municipalities are local administrations charged with the day-to-day management of all public works located inside their jurisdiction (municipal boundaries). Specific responsibilities are wide and diverse including (Article 49) landscaping and beautification works, water and wastewater networks, street lighting, waste disposal, internal roads, recreational facilities, as well as urban planning in coordination with the Directorate General of Urban Planning. Revenues include municipal taxes and other fees levied by the municipality as well as transfers from the Independent Municipal Fund. Unfortunately, despite significant administrative autonomy, municipalities in Lebanon face chronic shortages in municipal finances and revenues. Their capacity to manage funds is also limited by administrative skills such as the use of information technology and procurement systems. A number of municipalities in Lebanon have received significant support, including direct financing, for specific activities such as standardizing and automating municipal procedures (USAID), solid waste management (EU-OMSAR), and reforestation (MOE and GiZ-EFL).

2.1.3 Judiciary System

Although Lebanon's judiciary system is not specialized in environmental matters, it has in recent years acquired resources to investigate and arbitrate environmental issues more effectively. The judiciary system, consisting of judges and prosecutors, helps stop or curtail environmental abuses and crimes around the country provided that such abuses and crimes are detected and reported. The judiciary system is critical to enforcing environmental laws and regulations and policies.

In an effort to support the judiciary system in the enforcement of environmental legislation, the World Bank funded a project to review and analyze environmental court cases in Lebanon (2007-2010). Implemented by the ministries of Justice and Environment and managed by UNDP, the project "Supporting the Judiciary System to the Enforcement of Environmental Legislation" (SEEL) compiled a database of 469 *published* environmental jurisprudence cases (based on the review of about 100,000 published cases), as well as close to 6,000 *unpublished* cases and 200 cases from France for comparison purposes. Expectedly, the number of cases increased over the last decades indicating an upward trend in the frequency of environmental problems and in environmental consciousness.

The MOJ/MOE/UNDP project also introduced environmental law in the curriculum of the Judicial Training Institute. Subject to funding availability, the World Bank may extend the project for another three years to assess legislative needs, improve training centers, institutionalize a joint review committee between the ministries of Environment and Justice, and seek out twinning arrangements between corresponding institutions in Lebanon and France for cross-learning and peer-to-peer exchange.

Environmental Prosecution

Lebanon does not have general prosecutors who are specialists in the environment. To fill this gap, the Ministry of Justice has been designating one general prosecutor in each governorate to look into environmental cases. These prosecutors are not environmental specialists per se and can be replaced at will. To support their work, the SEEL project compiled a database of environmental experts to serve as a repository of expertise for jurisprudence cases. In 2010, and based on a first draft prepared by the Green Party of Lebanon, the MOE produced a draft law to institutionalize the *general prosecutor for the environment* pursuant to Environment Law 444/2002 (see details in Section 2.3.1). These prosecutors would be familiar with environmental issues and able to prosecute environmental cases more effectively, and with the support of external subject-matter experts as needed. According to Article 2 of the draft law, the environmental prosecutor would prosecute environmental crimes and violations related to forests, protected areas, biodiversity, air quality, water, soil, noise, quarries, classified establishments, municipal commons, government estates and international waters. Of interest to environmental prosecution and accountability is the analysis conducted by SELDAS (see project description in Section 2.2.3) that identified legal avenues for protecting people who have been affected by an environmental crime. The analysis is incorporated in ***Annex 3*** for reference.

Environmental Police

The final stage in the judiciary system is enforcement. Lebanon has no environmental police (ditto for the tourism sector) and therefore faces great challenges when it comes to enforcement of laws and regulations. So far, it has been the responsibility of the municipal police (petty cases only) and the Internal Security Forces (larger cases) to enforce decisions and court case rulings regarding environmental abuses and pollution. All too often, the work of the municipal police and ISF is restricted by patron-client relationships. To address this weakness, the MOE drafted a decree (currently discussed with the MOIM) to institutionalize Lebanon's environmental police (pursuant to Article 8 of Law 690/2005), according to which the police may fall under the authority of the "Service of Regional Departments and Environmental Police" in cooperation with the MOIM. This police force is expected to help curb environmental crimes and execute legal rulings, provided they remain impartial, are immune to patron-client relationships and have the necessary tools and equipment at their disposal including vehicles, digital cameras, GPS instruments, noise meters…

2.2 ENVIRONMENTAL LAWS AND REGULATIONS

The process of law and policy making in Lebanon is not well defined. While government agencies including the Lebanese Parliament and the Council of Ministers prepare and release a battery of laws and regulations, procedures are not clear and inconsistent. For example, some draft regulations may require many years before enactment (e.g., EIA decree) while others are enacted in record time (e.g., health care waste decree). Upstream policy formulation is often lacking. Frequent cabinet reshuffles further delay and jeopardize policy making as new governments and ministers tend to shelve previous policies, or policies still in the making, and start all over with a new team of advisors. This stop-and-go approach has indisputably also affected the state of environmental affairs in the country. The following sections glean over key laws and regulations starting with the Lebanese Constitution and Multilateral Environmental Agreements.

2.2.1 The Lebanese Constitution

There is no direct reference to the environment in Lebanon's Constitution (1923). However, Article 15 of the Constitution valorizes the private property and bans any form of land acquisition except for the public interest (subsequently broadly interpreted as the provision of public services including roads, electricity, and water). The perception that the private property enjoys absolute protection under the Lebanese constitution has so far impeded sustainable land use planning, selected conservation efforts, and the delineation and demarcation of protected areas. A closer examination however of the urban planning law in effect (Law 69/1983) and the revised construction law (Law 646/2004) reveals several provisions that either restrict

or totally ban construction on private lands under certain conditions. See detailed analysis of urban planning and construction laws, as well as other regulations, in Chapters 6 (Land Resources) and 7 (Haphazard Urbanization).

2.2.2 Multilateral Environmental Agreements

The next echelon in environmental legislation is Multilateral Environmental Agreements (MEAs) including conventions and treaties. Lebanon, a full voting member in the United Nations General Assembly since 1945, has acceded to and ratified more than a dozen conventions and treaties related to the environment *–see targeted list in* ***Annex 2***. Some of these conventions and treaties, not all, carry serious reporting obligations on the Lebanese Government, usually represented by the Ministry of Environment. Examples include the UNFCCC in response to which Lebanon has so far produced two national communications (for baseline years 1994 and 2000) and the CBD in response to which Lebanon has produced four national reports (1998, 2003, 2006, and 2009). Ratification of these conventions has also secured Lebanon millions of dollars in funding from international development organizations including multilateral funding instruments (Multilateral Fund under the Montreal Protocol) and bilateral organizations (see illustrative list in Section 2.5).

2.2.3 Milestone Environmental Laws and Regulations

This SOER cites a plethora of environmental laws and regulations as well as other legislation affecting the environment, listed chronologically at the end of each chapter (including this chapter). In an effort to identify and analyze existing legislation affecting the environment in Lebanon, the MOE implemented an EU-funded project in partnership with the UNESCO-Cousteau Ecotechnie Chair at the University of Balamand and with the technical assistance of Earth Link and Advanced Resources Development (ELARD) (January 2003 – September 2005) --see project description and output in Box 2.5. The following examples highlight a targeted selection of milestone laws and regulations approved and enacted in the last decade (since the 2001 SOER). They are all instrumental to environmental governance and management.

- **Chapter 2 (Environmental Governance): Environment Law 444/2002.** Approved by parliament in 2002, the law is an overarching legal instrument for environmental protection and management. It has defined 11 environmental principles.

Environmental principles according to Article 4 of Law 444/2002:

1. Precaution (cleaner production techniques)
2. Prevention (best available technologies)
3. Polluter-Pays-Principle (polluters pay for pollution prevention and control)
4. Biodiversity conservation (in all economic activities)
5. Prevention of natural resources degradation
6. Public participation (free access to information and disclosure)
7. Cooperation between central government, local authorities, and citizens
8. Recognition of local mores and customs in rural areas
9. Environmental monitoring (pollution sources and pollution abatement systems)
10. Economic incentives to encourage compliance and pollution control
11. EIA process to control and mitigate environmental degradation

Like most laws, Environment Law 444/2002 requires application decrees, some of which are complex and have stirred protracted political debate. In total, Law 444/2002 needs 36 application decrees to achieve full implementation. Naturally, this is not expected to happen overnight and probably not in the next decade (2011-2020). However, the following three decrees warrant immediate attention:

Proposed Decree	*Reference in Law 444/2002*	*Status (as of 01/01/2011)*
National Environmental Council	Chapter 2, Article 6-7	Approved by Council of State
National Environmental Fund	Chapter 3, Article 8-11	Draft sent to MOF for review
Environmental Impact Assessment	Chapter 4, Article 21-23	Approved by Council of State

It should be noted that the first draft Environment Impact Assessment decree was prepared almost a decade ago in the framework of a regional project funded by the Mediterranean Environmental Technical Assistance Program (METAP) and implemented by the World Bank. Despite unreasonable delays in passing the decree, MOE has been enforcing the EIA in many sectors by mainstreaming the EIA process into the permitting procedure of several line ministries including Public Works & Transport, Industry, and Tourism.

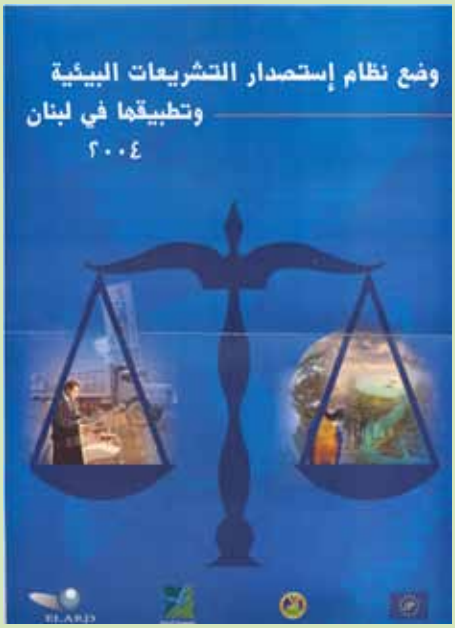
Box 2.5 Strengthening the Environmental Legislation Development and Application System in Lebanon (SELDAS)

The SELDAS project engaged many stakeholders including parliament, the Constitutional Council, line ministries (Justice and Education), bar associations, universities and NGOs. It helped raise awareness about environmental legislation development, application and liability, and promoted environmental law education in several universities. The project culminated in the production of the book *State of the Environmental Legislation Development & Application System in Lebanon* (SELDAS). This 500-page compendium of selected laws and regulations (published before 31/12/2003) is divided into 14 chapters:

1. Construction and the environment
2. Land use and the environment
3. Transport and the environment
4. Energy and the environment
5. Industry and the environment
6. Agriculture and the environment
7. Tourism and the environment
8. Water and wastewater
9. Air
10. Noise
11. Soil
12. Biodiversity and natural heritage
13. Solid waste
14. Cross-cutting legislation

SELDAS can be downloaded in PDF from the Ministry of Environment website and copies are available at the Ministry of Environment. http://www.moe.gov.lb/Books/Pages/seldas%20book.aspx

Source: EU/UOB/MOE/ELARD, 2005



- **Chapter 3 (Water): Law 221 and 241/2000** which reorganized Lebanon's 21 water authorities and over 200 local water committees into four new Water Establishments plus the Litani River Authority. In 2005, the COM enacted four decrees (14596, 14602, 14600 and 14598) defining the mandate and bylaws of each water establishment including personnel size and structure. Although little has been achieved to date insofar as incorporating the local water committees into the new water establishments, this development marks an important paradigm shift in Lebanon's handling of the water sector and will eventually improve service delivery and the protection of water resources. *See full analysis in Chapter 3 on Water.*
- **Chapter 4 (Air Quality): Decision 8/1 dated 30 January 2001** defined environmental limit values for stack emissions and effluent discharge from classified establishments, wastewater treatment plants, and hospitals. The decision disaggregates stack emission limit values by industrial sector (e.g., power plants and generators, cement, glass, aluminum, batteries, agro-foods, and incineration) and for new and existing industries.
- **Chapter 5 (Biodiversity and Forests): Law 92/2010** banning all land uses inside burnt forests to prevent future acts of arson. In the last decade, Lebanon has witnessed a spate of forest fires that reached devastating proportions in 2007. Concomitantly with the preparation of needed forest fire fighting strategies and action plans, Parliament approved the law in the hope that it will deter some arsonists from burning forests to harvest fuel wood or alter land uses.
- **Chapter 6 (Land Resources): Decree 2366/2009** approved the National Land Use Master Plan that was prepared in 2002-2004. This master plan is Lebanon's first attempt to unify and organize land use holistically and while respecting basic premises including decentralization, economic growth, and environmental protection. Land use planning is very complex, and impacted by century-old legislation and mores. Realigning Lebanon's regional master plans (about 99 decreed so far and 85 approved but not decreed), even partially, will require many years of hard work and more importantly goodwill and appreciation of the public good. *See targeted analysis of the Master Plan in Chapter 6.*
- **Chapter 7 (Haphazard Urbanization): Decree 8803/2002** and its amendments related to the quarry sector. Lebanon's

quarry sector is notoriously chaotic and devastating to environmental resources and landscapes. The long-awaited National master Plan for Quarries was promulgated in 2002 (and amended twice in 2006 and 2009). While enforcement is still ludicrous, this decree and MOE's presidency of the National Council for Quarries may signal a new era in the sector.

- **Chapter 8 (Solid Waste): Decree 8006/2002** amended by Decree 13389/2004 which categorized health care waste and set guidelines for health care waste management. The decrees have unequivocally improved HCWM services and increased awareness of the issue. *See full analysis in Chapter 8 on Solid Waste.*
- **Chapter 9 (Energy): Law 132/2010** related to the oil and gas activities in Lebanese territorial waters. Lebanon has been investigating for years the suspected presence of oil and gas deposits in its waters and approved the law in anticipation of future exploration and extraction activities as well as potential conflict over the demarcation of territorial and economic waters with neighboring countries. Environmental safeguards and the EIA process are prominently featured in Law 132/2010 (Articles 6, 7, 32, 54).

2.3 ENVIRONMENTAL RESEARCH AND DEVELOPMENT

Lebanon has a dynamic research community that brings together both public and private institutions. This research community however is constrained by limited funding and oftentimes works in a vacuum, disconnected from the environmental research needs of the surrounding society. There is no easy way to bridge research initiatives with the environmental issues and problems facing Lebanon but several examples attest to great advances in research and development that have led to tangible environmental results. The following paragraphs showcase the work of key institutions, including public and private, as well as recent advances in environmental monitoring (see Box 2.6).

2.3.1 Industrial Research Institute (1955)

Established in 1955, the Industrial Research Institute (IRI) is a Lebanese not-for-profit institution dedicated to industrial research and scientific testing and analysis. Although the institution was in 1955 declared of public utility (Legislative-Decree 10059 dated 17/8/1955) and in 1997 linked to the Ministry of Industry (Law 642 dated 2/6/1997), it continues to enjoy administrative and financial autonomy and, unlike ministries, can expand and restructure itself as needed as well as hire and fire at will. For example, with grant funding from the European Commission and the Austrian Government through UNIDO, the MOE established in 2002 the Lebanese Cleaner Production Center (LCPC). Recognizing the need to provide an enabling environment for LCPC activities, the Center was in 2004 formally relocated to the premises of the Industrial Research Institute located in Hadath where it provides technical assistance and advice to private industries on cleaner production methods. Another unique branch of IRI is its sophisticated and well trained laboratory which has to date earned accreditation for more than 300 testing methods used in a dozen lab units. In terms of staffing, IRI has about 127 people, 50 percent of which work in the lab.

Box 2.6 Environmental Monitoring –some examples

Environmental monitoring requires skills and sustained resources. Since 2004, an inter-agency agreement involving the Beirut Municipality, the American University of Beirut, Saint Joseph University and the National Council for Scientific Research has institutionalized air quality monitoring in the GBA.

In 2009, and with AECID funding, Spanish Tragsatec produced one of the most inspiring and fact-filled ecological study of the Palm Islands Nature Reserve and formulated guidelines for its management.

Also in 2009, USAID launched the *Litani River Basin Management System* (LRBMS). This $8 million project will assist the Litani River Authority in implementing long-term water monitoring that is based on routine collection of water data for information-based decision-making processes.

In 2010, Lebanon signed a project agreement with the Government of Greece to improve environmental monitoring systems and capabilities in the country. The $1.64 million agreement will cover air quality, biodiversity and coastal resources.

2.3.2 Lebanese Agricultural Research Institute (1957)

Established in 1957, the Lebanese Agricultural Research Institute (LARI) is a public institution dedicated to research for the development and advancement of the agricultural sector in Lebanon. It falls under the aegis of the Ministry of Agriculture (Decree 16766/1957 amended by Decree 6474/1967 and Law 71/1 of 1971) but continues to enjoy administrative and financial autonomy. The institute has eight experimental stations (Tel Amara, Tourbol, Kfardan, Kfarchakhna, Abdeh, Sour, Fanar and Lebaa) most of them located in agricultural


Credit: LCPC

View of the Industrial Research Institute located in the Lebanese University campus, Hadath

areas. LARI, supported by UNDP, FAO, WB and other international organizations, conducts research projects on (1) olive propagation, (2) cereal and grain legume development, (3) pasture and forage production, (4) barley development program, and (5) male sterile insect technology for biological control. Hand-in-hand with the farming community, LARI conducts other activities including production of best quality seeds, diagnosis of animal diseases, production of vaccines, food quality control, soil analysis, and development of appropriate feed composition for plant protection. LARI operates 48 compact weather stations evenly distributed throughout the country and has started to provide weather data to famers through an SMS service. All weather data is available on www.fieldclimate.com (username and password needed).

2.3.3 National Council for Scientific Research (1962)

Established in 1962 (Law dated 14/9/1962) as a central science and policy-making public institution under the authority of the Prime Minister, the National Council for Scientific Research has significant administrative and financial autonomy. Its functions are advisory (national science policy, government proposals, surveys and inventories of on-going research) and executive (initiates, encourages and coordinates selected research activities through its Scholarship Grant Program and Research Grant Program). In the period 2006 to 2007, NCSR sponsored 120 studies including 21 in the environmental sector (17%). The council has four subsidiary centers: (1) National Center for Remote Sensing, (2) National Center for Atomic Energy, (3) National Center for Geophysical Research, and (4) National Center for Marine Sciences.

2.3.4 Tripoli Environment and Development Observatory (2000)

Established in 2000, the Tripoli Environment and Development Observatory (TEDO) is today a formal observatory incorporated in the Federation of Municipalities of Al-Fayhaa based on COM Decision 18 dated 9/12/2004 and boasts seven full-time employees. The observatory monitors key environmental factors in Tripoli, El Mina and Beddawi, and has an air pollution lab that is equipped with fixed and mobile air quality monitoring equipment. TEDO is the only observatory of its kind in Lebanon and it has been successfully institutionalized long after the initial funding ended.

2.3.5 Lebanese Center for Energy Conservation (2011)

Established in 2002, the Global Environment Facility funded the Lebanese Center for Energy Conservation (LCEC) which is currently hosted at the Ministry of Energy and Water and managed by UNDP. The LCEC was registered as an organization in 2011 (Attestation No. 172 dated 27/1/2011) to address end-use energy conservation and renewable energy at the national level. The Center provides policy and technical support to the MOEW to promote energy efficiency and renewable energy at the consumer level. LCEC is a financially and administratively independent and operates under the direct supervision of the Minister of Energy and Water.

2.3.6 Environmental Diplomas, Degrees and Research Centers

Good environmental governance requires good environmental professionals; people who understand the environment in all its facets, and appreciate the interconnectedness of environmental issues and sectors. Also in the last decade, Lebanese universities have seen a gradual increase in environmental diploma courses and degrees, and the number of environmental students is rising slowly but surely. Student data from leading universities show that the American University of Beirut, Université Saint-Joseph, University of Balamand, Lebanese University, Université

Saint-Esprit de Kaslik, Notre Dame University, Lebanese American University and the Arab University are graduating dozens of students from environment-related majors (sciences, engineering, health, etc.).

Most of these universities have established environmental centers with full-time staff. A survey conducted for this SOER counted at least 16 centers and institutes, most of which were established since the 2001 SOER was published. Over the long-term however, the continued appeal of environmental majors in Lebanese universities will depend on the job market. Lebanon needs to create and institutionalize many more green jobs in the coming decade to sustain the flow of fresh graduates. To assess the job market situation, the International Labor Organization (ILO) and UNDP commissioned a nationwide study to assess green job potentials. Preliminary results show that renewable energy, waste, and agriculture (Integrated Pest Management and organic agriculture) have the potential to offer the greatest number and diversity of green jobs (ILO-UNDP 2011, unpublished).

See ***Annex 4*** for a full list of environmental degrees (updated December 2010) and ***Annex 5*** for a list of environment-related research centers and institutes in universities in Lebanon.

2.4 ACCESS TO ENVIRONMENTAL INFORMATION AND DATA

At the core of environmental management lies environmental data and access to it (see Box 2.7 on the Aarhus Convention). Without reliable data, it is difficult and oftentimes futile to articulate policies and project proposals. While it is true that Lebanon generates more environmental data today than it did 10 years ago, much of these data are hard-wired in environmental reports that are neither publicized nor inventoried. There is no portal system of environmental studies, and guidelines and protocols on public disclosure are missing. By comparison, several international organizations upload all non-confidential reports on their websites or online portals (Arab Forum for Environment and Development, USAID, World Bank, etc.). The absence of such a portal system at the CDR and ministries is leading to redundancies in the collection of environmental data. Equally important, there is no readily available database on environmental monitoring. Environmental monitoring data related to air quality (in particular emissions) and water (surface, groundwater and marine) is still lacking. This impairs the quality of EIAs studies which remains predominantly qualitative.

Box 2.7 Aarhus Convention 1998

Lebanon has yet to sign and ratify the 1998 Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters. This milestone convention was developed by the United Nations Economic Commission for Europe (UNECE) to promote and enhance access to environmental information. Accession is open to non ECE countries.

Despite these deficiencies, the state of environmental data in Lebanon has improved contrary to routine critiques from all segments of society (students, managers, legislators, etc.) that data is lacking. In an effort to facilitate access to information, the MOE published in 2005 a compendium *Paths to Environmental Information – Contacts & Sources* which presents a baseline list of recognized experts, institutions and websites related to key environmental themes. The MOE also prepared a draft decree on access to information in the framework of the EC-funded SEA project. The following examples show a quantum leap in data quality and availability compared to the 2001 SOER. Nevertheless, much more can be done to improve data generation, structure and accessibility.

2.4.1 Central Administration of Statistics

Established in 1979, the Central Administration of Statistics (CAS) is a public administration within the Presidency of the Council of Ministers (COM). It is organized according to Decree 1793/79 and Decree 2728/80 and today boasts 100 full-time employees. CAS collects data from many sources in Lebanon including ministries, institutions, ports, airports, etc. Under the UN Fundamental Principles of Official Statistics and the EU Statistics Code of Practice, the Center produces (1) social (residents in Lebanon, households, employment rate, etc.), (2) economic (industrial foreign trade including imports and exports, sea transport: loaded/unloaded cargo, air transport: total landings, public finance: total internal and external VAT collection amounts, etc.), and (3) *environmental* (water resources, rainfall series, forest fires, etc.) statistics at the national level.

Before 2000, CAS used to publish Monthly Statistical Bulletins, free of charge. Today, in addition to monthly bulletins available on CAS's website in excel format www.cas.gov.lb, the Center compiles yearly data, generates statistics and publishes Statistical Yearbooks. Statistical

Yearbooks consist of nine parts related to the *environment*, human resources, agriculture, industry, business register, construction, transport, post, financial sector, prices and foreign trade. The yearbooks are available online (and hard copies), also free of charge.

2.4.2 National Land Use Master Plan Geodatabase

The National Land Use Master Plan (CDR-NLUMP, 2004) developed a national geodatabase (known as a spatial database) which is a database designed to store, query, and manipulate geographic information and spatial data using ArcGIS software. The geodatabase was produced by Dar Al-Handasah (Shair and Partners) and IAURIF (the consortium that was awarded the contract to prepare the Master Plan). Many institutions supplied data to buttress and consolidate the database, including:

1) Directorate General of Geographic Affairs (Ministry of National Defense or MOND), provided the topographic maps (1960–1963)
2) National Council for Scientific Research, in cooperation with the MOE, provided the Land Use Land Cover Map (2002)
3) Central Administration of Statistics, provided socio-economic and housing data at the cadastral level (1996 and 2002)
4) Ministry of Public Works and Transport, provided the road network (2002)
5) Directorate General of Urban Planning (MOPWT) provided decreed and approved urban master plans

The national geodatabase is available in two projections: Lambert and Stereographic. It includes 16 themes each of which contains several shapefiles (group of files that contain a set of points, arcs, or polygons that hold tabular data and spatial attributes). *See full structure of the national geodatabase developed under the project in* ***Annex 6.***

2.4.3 Council for Development and Reconstruction

Since the mid 1990s, the Council for Development and Reconstruction (CDR) publishes every year a progress report that presents a detailed summary of investments in four sectors (physical, social, basic services, and productive and other sectors), and assesses works completed as well as pipeline contracts. The reports are available online at www.cdr.gov.lb and can be viewed free of charge. CDR maintains a list of private companies accredited to conduct environmental studies.

2.5 ACCESS TO ENVIRONMENTAL FUNDING

As mentioned in Section 2.2.2, ratification of major environmental conventions and treaties by the GOL has secured sizable grants and program funding from the international community. Leading development organizations include the Global Environment Fund (GEF operates through implementing agencies such as UNDP, UNEP and the World Bank), the Agence Française de Développement (AFD), the Canadian International Development Agency (CIDA), the European Union (EU), the French Global Environment Facility (FFEM), the German International Cooperation (GiZ), the Italian Cooperation in Lebanon, the Japanese Government, the Norwegian Government, the Spanish Agency for International Cooperation (AECID), the US Agency for International Development (USAID), and many others.

War and conflict have an expediting effect on international funding, as experienced after the war in July 2006 and the conflict in Nahr El Bared in May 2007. For example, GiZ invested about €4.5 million to setup the Environmental Fund for Lebanon (EFL) to help organizations mitigate war-related environmental degradation. Coordinated by the MOE and CDR, the EFL project selected 17 interventions as part of a first call for proposals (2008-2010). Beneficiaries included municipalities, NGOs and firms and contributions ranged from €38,000 to €300,000 (a second call for proposals was launched in 2010 and is discussed in Chapter 3 of the SOER). Total post-war funding by the international community in the environmental sector reached an estimated $50 million. The Lebanon Recovery Fund (LRF), which was established at the request of the GOL to enable donors to provide rapid assistance and funding in the aftermath of the July 2006 war, recently agreed to host the Eastern Mediterranean Oil Spill Restoration Trust Fund, described in UN Resolution 65/147 (see details in Chapter 9 on Lebanon's energy crisis).

Looking ahead, Lebanon urgently needs to mobilize and sustain environmental funding over the long term starting with fully expending the budget allocated to the MOE based on a clear and transparent work planning process. Several funding instruments are in the early stages of design and bode well for the future of environmental development in the country, provided there is political will for success. For example, MOE drafted a decree to setup the National Environmental Fund pursuant to Law 444/2002 (Articles 8, 9, 10 and 11).

According to this decree, the fund would have a legal identity, financial and administrative autonomy, and would fall under the mandate of the Ministry of Environment. Funding and fund replenishment would come from several sources including provisions in the GOL's annual budget, environmental fees, grants, fines and compensations, and interest on deposits. Building on the EFL experience to date and the anticipated launch of the National Environmental Fund, the World Bank is assessing the feasibility of designing and implementing the Lebanon Pollution Abatement Project (LEPAP, to the tune of $35 million) to improve environmental performance from point-sources (industries only) leading to environmental compliance with Lebanese emission and discharge standards.

Also at the government level, the Central Bank of Lebanon launched in 2010 a mechanism to promote green financing. The bank has developed so called green loans for environmental projects with favorable financing conditions. Regionally, Lebanon is playing a lead role in the establishment of the Arab Environment Facility, which was announced at the 2003 World Environment Day in Lebanon. Lebanon is expected to host the facility under the aegis of the League of Arab States. Corporate Social Responsibilities (CSR) represents another avenue for funding environmental projects and shouldering the costs of environmental conservation and sustainable development. Lebanon is experiencing a spate of CSR initiatives (e.g., Happy Planet by BankMed) but most of these initiatives have yet to produce long-lasting results.

2.6 ADVOCACY AND PUBLIC PARTICIPATION

Advocacy is speaking on behalf of someone. Environmental advocacy is presenting information on nature and environmental issues that is decidedly opinionated and encourages its audience to adopt more environmentally sensitive attitudes. Demands by non-governmental organizations and other civil society organizations to benefits sharing, to their right to know, to a cleaner environment, to safe drinking water, to public parks and green spaces are all examples of advocacy initiatives.

A quick review of the number of Non-Governmental Organizations (NGOs) and Community Based Organizations (CBOs) in Lebanon attests to the burgeoning activity of civil society. According to MOE records, there are more than 300 NGOs in Lebanon with environmental objectives which are registered at the Ministry of Interior and Municipalities. The number of CBOs is probably even higher but such grassroots organizations normally do not seek formal government recognition.

The majority of the environmental NGOs have a broad spectrum of activities but some have in recent years developed niche competencies and capabilities in selected fields including *reforestation* (Jouzour Loubnan, Friends of the Cedars of Bsharre Committee, etc.), *forest fire prevention* (Association for Forest Development and Conservation), *forest management and restoration* (Friends of the Tannourine Cedars Nature Reserve, Mada, T.E.R.R.E.), *organic farming and slow food* (Greenline Association), *protected area designation and management* (Friends of Horsh Ehden, Al Shouf Cedars Society, Association for the Protection of Jabal Moussa, etc.), and *trail development* (Lebanon Mountain Trail Association, Baldati, etc.). These NGOs, and many others, advocate specific conservation needs and have spearheaded a number of programs with verifiable impacts on the ground. The MOE has and continues to support environmental NGOs subject to funding availability (see Box 2.8 on MOE's grant system). Civil society in Lebanon should not only be expected to design and implement conservation projects, subject to their areas of interest and geographic focus. Article 19 of the Environment Law 444/2002 recognizes the inherent right of the public to participate in decision making. The most structured form of public participation is public hearings and consultations organized in the context of EIA and SEA studies. The MOE has prepared a draft decree to organize and formalize public participation in projects that require EIAs and/or SEAs. The draft decree states that public meetings and hearings should be organized by the project proponent in coordination with the concerned municipality or Kaemakam and after completing the environmental study. The project proponent

Box 2.8 MOE Grants Program for NGOs

MOE has been disbursing funds to NGOs to support civil society initiatives in the environmental sector. In the absence of any formal guidelines, these grants were initially disbursed randomly and frequently motivated by patron-client relationships. To protect the grant system from partisan influence and other forms of political pressure, MOE and MOF enacted Decree 14865 (dated 1/7/2005) to define NGO eligibility criteria, application procedures, and performance evaluation requirement. Exercising the decree is contingent on the formal approval of the annual budget by the Government.

must deliver a copy of the environmental study at least two weeks before the hearing and is responsible for covering all expenses related to the hearing. Ensuing deliberations should be incorporated in the final study.

Other forms of public participation include televised debates and documentaries (Akhdar / Azrak on FTV, Tahkik on MTV, etc.), radio interviews, and submission of editorial pieces to newspapers and magazines. Several leadings newspapers feature regular weekly columns on the environment and heritage (Al Nahar, Assafir, Al Mustaqbal, etc.). In an effort to encourage environmental reporting, the MOE honored environmental reporters during celebrations on World Environment Day. More recently, the advent of social media tools has created unlimited opportunities for public expression. The following examples present three popular magazines that cover environmental issues in Lebanon and the region.

Environment and Development Magazine
The magazine is the first pan-Arab environmental news magazine in Arabic, changing the public perception of environment in the Middle East. Launched in Beirut in June 1996, the *monthly* magazine is now on newsstands in most Arab countries. Environment & Development is a strong regional authoritative voice on environmental policies, well respected and listened to. The magazine supports more than 300 environment clubs in schools, has a regular supplement entitled The Young Environmentalist, and publishes a quarterly wall chart entitled The Green Bulletin. http://www.mectat.com.lb/

البيئة والتنمية

World Environment Magazine
The magazine and online TV is dedicated to cover worldwide environmental issues and improvements such as global warming, water scarcity, waste management, sustainable development, energy efficiency, eco tourism activities, eco living tips, etc. Through articles and interviews, WE Magazine aims to educate and promote awareness to environmental issues. WE Magazine is addressed to decision-makers and businessmen in the environment field by offering specialized technical news in English. *Four issues* (5,000 hard copies and 10,000 soft copies) are distributed *yearly* in MENA regions including Lebanon, gulf area and Europe. http://www.worldenvironment.tv/

Beyond Magazine
Launched in April 2010 in Beirut, *Beyond* Magazine provides information on Lebanese and global environmental issues. It is a quarterly magazine, published in English and Arabic; its pages are full of features, news, fascinating photos and interviews with decision-makers, environmental specialists and other relevant players. http://www.beyond-magazine.com/

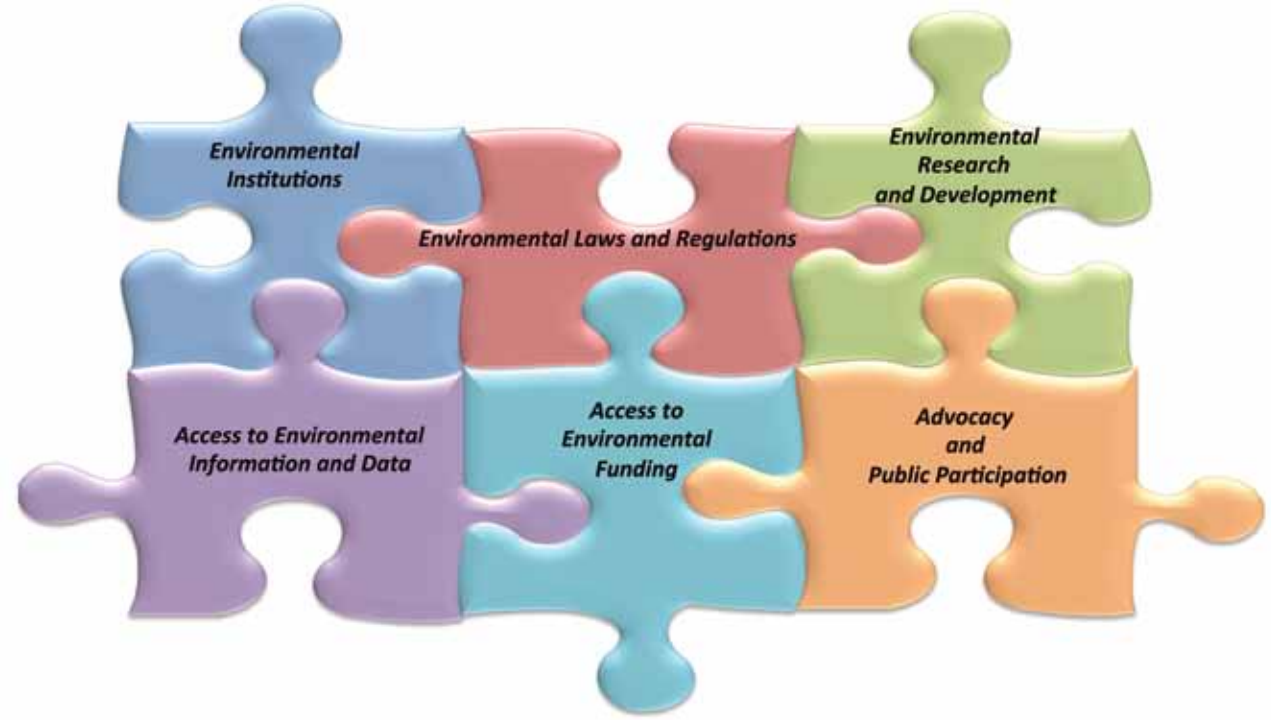
So long as law enforcement is painfully lacking in Lebanon, and accountability is sporadic, Lebanese citizens and the media have a fundamental role in monitoring environmental activities and crimes.

2.7 UNDERSTANDING AND PROMOTING ENVIRONMENTAL GOVERNANCE –THE PUZZLE

The previous sections provided a quick overview of selected environmental institutions, environmental laws and regulations, environmental research, environmental information, environmental funding, as well as environmental advocacy and media. Each component has witnessed improvements and setbacks over the past decade and will continue to play out in the next decade. This report argues that all the components must be strengthened collectively to improve environmental governance which will, in turn, improve policy-making related to managing the environment and natural resources. The pieces of the puzzle therefore make up a dynamic system (see Figure 2.1). To sustain and improve environmental governance, it is assumed that Lebanon enjoys a certain level of economic and political stability, and security. War and conflict have a destabilizing effect on countries including its economy and the environment. (The cost of environmental degradation due to the July 2006 war and related findings are featured in relevant sections of this SOER).

Recognizing the challenges ahead, the EU is seriously examining the feasibility of funding an €8 million program *Support to Reform of Environmental Governance* (StREG) slated to start in 2012 and extend over four years. The overall objective of StTREG is to improve the environmental performance of the Lebanese public sector by reforming environmental governance through four complementary angles: legal, administrative, financial and technical. The contracting authority will be the Presidency of the Council of Ministers and the beneficiary will be the Ministry of Environment.

Figure 2.1 The pieces of the environmental governance puzzle



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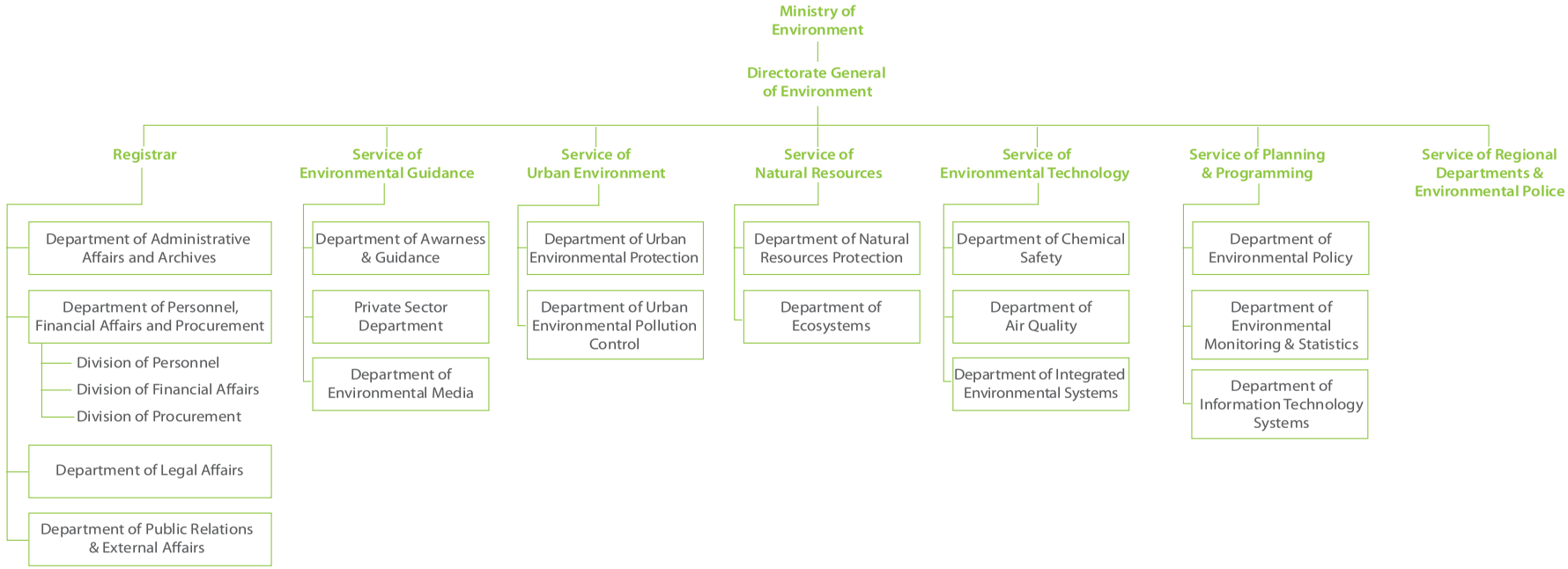
CITED LEGISLATION RELATED TO ENVIRONMENTAL GOVERNANCE

نوع النص	الرقم	التاريخ	عنوان النص
قانون		١٩٦٢/٠٩/٠٤	إنشاء مجلس وطني للبحوث العلمية
مرسوم اشتراعي	١١٨	١٩٧٧/٠٦/٣٠	قانون البلديات
مرسوم	١٧٩٣	١٩٧٩/٠٢/٢٢	إنشاء ادارة عامة تدعى ادارة الاحصاء المركزي
مرسوم	٢٧٢٨	١٩٨٠/٠٢/٢٨	تنظيم ادارة الاحصاء المركزي وتحديد ملاكها والشروط الخاصة للتعيين في وظائف هذا الملاك وسلسلة رتبها ورواتبها وتحديد التعويضات وشروط التصنيف
قانون	٢١٦	١٩٩٣/٠٤/٠٢	إحداث وزارة البيئة
قانون	٦٤٢	١٩٩٧/٠٦/٠٢	إحداث وزارة الصناعة
قانون	٦٤٢	١٩٩٧/٠٦/٠٢	احداث وزارة الصناعة
قانون	٦٦٧	١٩٩٧/١٢/٢٩	إحداث وزارة البيئة
قانون	٢٢١	٢٠٠٠/٠٥/٢٩	تنظيم قطاع المياه
قانون	٢٤١	٢٠٠٠/٠٨/٠٧	تعديل القانون ٢٢١
قانون	١/٨	٢٠٠١/٠١/٣٠	المواصفات والمعايير المتعلقة بملوثات الهواء والنفايات السائلة المتولدة عن المؤسسات المصنفة ومحطات معالجة المياه المبتذلة
قانون	٣٧٧	٢٠٠١/١٢/١٤	تعديل القانون ٢٢١
قانون	٤٤٤	٢٠٠٢/٠٧/٢٩	حماية البيئة
مرسوم	٨٠٠٦	٢٠٠٢/٠٦/١١	تحديد أنواع نفايات المؤسسات الصحية وكيفية تصريفها
مرسوم	١٣٣٨٩	٢٠٠٤/٠٩/١٨	تعديل المرسوم رقم ٨٠٠٦ تاريخ ٢٠٠٢/٦/١١ تحديد انواع نفايات المؤسسات الصحية وكيفية تصريفها
مرسوم	١٤٥٩٦	٢٠٠٥/٠٦/١٤	النظام الداخلي في مؤسسة مياه بيروت وجبل لبنان
مرسوم	١٤٦٠٢	٢٠٠٥/٠٦/١٤	النظام الداخلي في مؤسسة مياه لبنان الشمالي
مرسوم	١٤٦٠٠	٢٠٠٥/٠٦/١٤	النظام الداخلي في مؤسسة مياه لبنان الجنوبي
مرسوم	١٤٥٩٦	٢٠٠٥/٠٦/١٤	النظام الداخلي في مؤسسة مياه البقاع
قانون	٦٩٠	٢٠٠٥/٠٨/٢٦	تحديد مهام وزارة البيئة وتنظيمها
مرسوم	٢٢٧٥	٢٠٠٩/٠٦/١٥	تنظيم الوحدات التابعة لوزارة البيئة وتحديد مهامها وملاكها وشروط التعيين الخاصة في بعض وظائفها
مرسوم	٢٣٦٦	٢٠٠٩/٠٦/٢٠	الخطة الشاملة لترتيب الاراضي اللبنانية
قانون	١٣٢	٢٠١٠/٠٩/٠٢	الموارد البترولية في المياه البحرية
قانون	٩٢	٢٠١٠/٠٣/١١	المحافظة على المساحات الخضراء المحترقة وعدم تغيير وجهة استعمالها

ANNEX 1 ORGANIZATIONAL STRUCTURE OF THE MINISTRY OF ENVIRONMENT



Source: Adapted from Decree 2275/2009

ANNEX 2 MULTILATERAL ENVIRONMENTAL AGREEMENTS RATIFIED BY THE GOL

(Listed Chronologically)

Year	Name of Convention, Treaty & Protocol	Adhesion, Signature, Accession, Ratification	Law/Decree Date
2008	Amendments to Barcelona Convention	Adhesion	Law No.34 16/10/2008
2006	Cartagena Protocol on Biosafety	Adhesion	Law No.31 16/10/2008
2005	Kyoto Protocol to the United Nations Framework Convention on Climate Change aiming to fight Global Warming	Adhesion	Law No.738 15/5/2006
2004	Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade	Adhesion	Law No.728 15/5/2006
2004	Agreement on the Conservation of Cetaceans in the Black Sea, Mediterranean Sea and contiguous Atlantic-ACCOBAMS	Adhesion	Law No.571 5/02/2004
2002	Agreement on the Conservation of African-Eurasian Migratory Water Birds (AEWA)	Adhesion	Law No.412 13/6/2002
2001	Stockholm Convention on Persistant Organic pollutants for adoption by the conference of plenipotentiaries	Signature: 22/5/2001 Accession	Law 432 08/08/2002
1999	Beijing Amendment of Montreal Protocol	Adhesion	Law No.758 11/11/2006
1999	Convention on Wetlands of International Importance especially as Waterfowl Habitat-Ramsar	Adhesion	Law No.23 1/3/1999
1994	United Nations Convention to Combat Desertification-Paris	Ratification	Law No.469 21/12/1995
1992	United Nations Framework Convention on Climate Change-Rio de Janeiro	Ratification	Law No.359 11/8/1994
1992	Convention on Biological Diversity-Rio de Janeiro	Ratification	Law No.360 11/8/1994
1992	Amendment to the Montreal Protocol on Substances that deplete the Ozone Layer-Copenhagen	Adhesion	Law No.120 3/11/1999
1990	Amendment to the Montreal Protocol on Substances that deplete the Ozone Layer-London	Adhesion	Law No.253 31/3/1993
1989	Basel Convention on the Control of Transboudary Movements of Hazardous Wastes and their Disposal-Basel	Ratification	Law No.387 21/12/1994
1987	Montreal Protocol on Substances that deplete the Ozone Layer-Montreal	Adhesion	Law No.253 31/3/1993
1986	Convention on Early Notification of a Nuclear Accident-Vienna	Ratification	Law No.566 24/7/1996
1986	Convention on Assistance in Case of a Nuclear Accident-Vienna	Ratification	Law No.575 24/7/1996
1985	Vienna Convention for the Protection of the Ozone Layer-Vienna	Adhesion	Law No.253 30/3/1993
1982	Protocol Concerning Mediterranean Specially Protected Areas-Geneva	Adhesion	Law No.292 22/2/1994
1982	Convention of the Sea (Mont –Diego Bay) – Jamaica	Adhesion	Law No.295 22/2/1994
1980	Protocol for the Protection of the Mediterranean Sea against Pollution from Land-based Sources-Athens	Adhesion	Law No.292 22/2/1994

Year	Name of Convention, Treaty & Protocol	Adhesion, Signature, Accession, Ratification	Law/Decree Date
1976	Protocol Concerning Co-operation in Combating Pollution of the Mediterranean Sea by Oil and Other Harmful Substances in Cases of Emergency-Barcelona	Signature: 16/2/1976 Accession	Decree law No.126 30/6/1977
1976	Convention for the Protection of the Mediterranean Sea against Pollution-Barcelona	Signature: 16/2/1976 Accession	Decree law No. 126 30/6/1977
1976	Protocol for the Prevention and Elimination of Pollution of the Mediterranean Sea by Dumping from Ships and Aircraft-Barcelona	Signature: 16/2/1976 Accession	Decree law No. 126 30/6/1977
1973	International Convention for the Prevention of Pollution from Ships-London	Adhesion	Law No.13 28/5/1983
1972	UNESCO Convention on the Protection of Cultural & Natural Heritage	Adhesion	Law 19 30/10/1990
1971	Treaty on the Prohibition of the Emplacement of Nuclear Weapons and other Weapons of Mass Destruction on the Seabed and the Ocean floor and in the Subsoil-London-Moscow-Washington	Ratification	Decree No. 9133 7/10/1974
1969	International Convention relating to Intervention on the High Seas in cases of Oil Pollution Casualties-Brussels	Ratification	Decree No. 9226 12/10/1974
1969	International Convention on Civil Liability for Oil Pollution Damage-Brussels	Ratification	Law No. 28/73 12/10/1973
1963	Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and in Underwater	Ratification	Law No. 59/64 30/12/1964
1963	Convention on Civil Liability for Nuclear Damage-Vienna	Adhesion	Law No. 565 1/8/1996
1954	International Convention for the Prevention of Pollution of the Sea by Oil-London	Adhesion	Law No. 68/66 16/11/1966

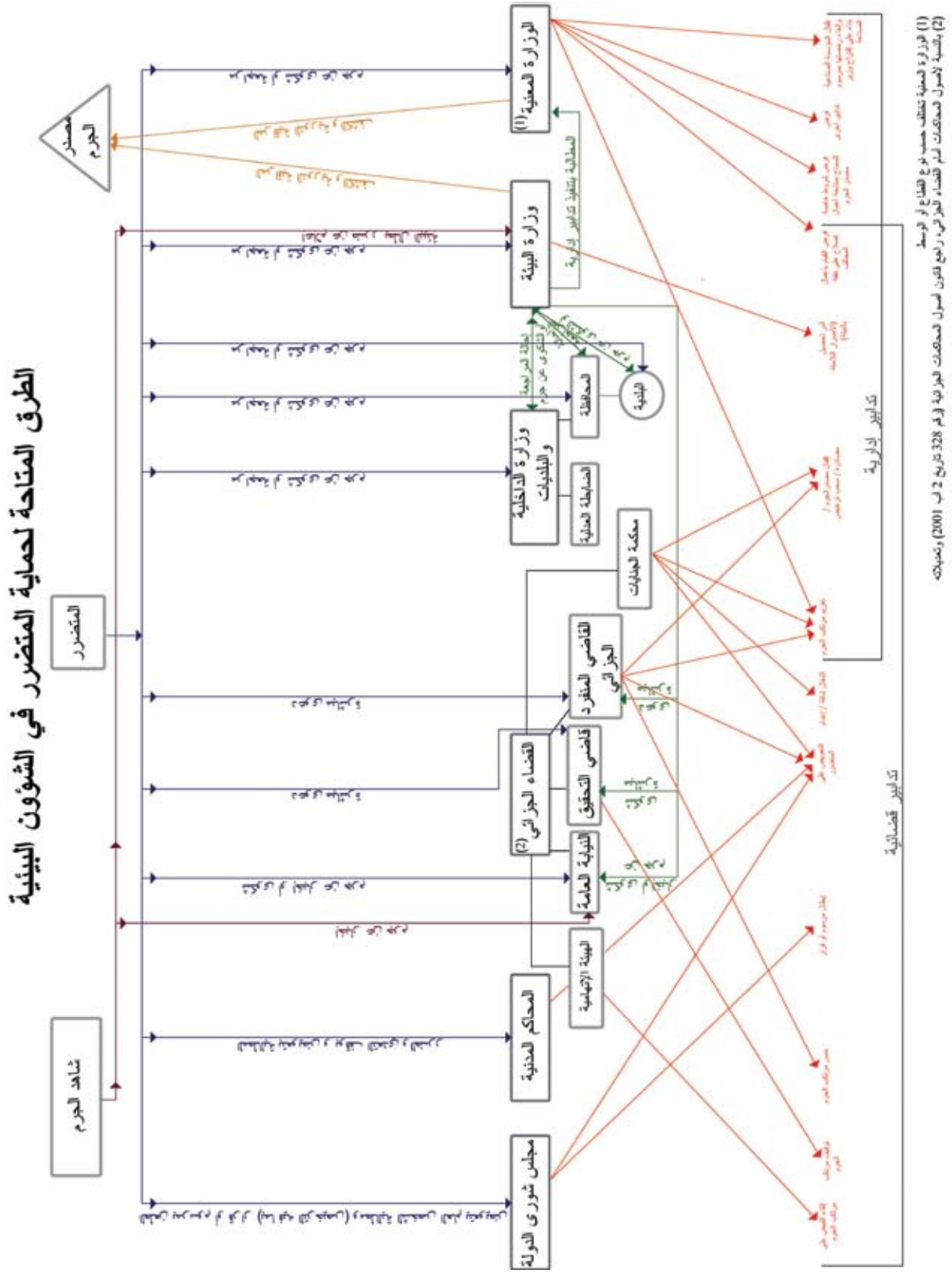
Notes:

Signature of a treaty is an act by which the State expresses its interest to the treaty and its intention to become a Party. Treaty signature is not binding. **Accession** is the usual method by which a State, which has not taken part in the negotiations, signed the treaty and is subsequently consent to be bound by its terms. **Ratification** is an act by which the State expresses its definitive consent to be bound by the treaty. It must then respect the provisions of the treaty and implement it by a Law within the statutory allowed period. The date corresponds to the date of publication in the Official Gazette in Lebanon. **Adhesion** is the usual method by which a State, which has not taken part in the negotiations and has not signed the treaty, subsequently adheres to the treaty by law and is consent to be bound by its terms.

Source: Based on pers. comm. Nancy Khoury, Department of Public Relations and External Affairs, MOE

ANNEX 3 LEGAL AVENUES FOR PROTECTING ENVIRONMENTAL VICTIMS

الطرق المتاحة لحماية المتضرر في شؤون البيئة



(1) الوزارة المعنية تختلف حسب نوع القطاع أو الوسط
(2) بالنسبة لأصول المحاكمات أمام القضاء الجزائي راجع قانون أصول المحاكمات الجزائية (رقم 328 تاريخ 2 آب 2001) وتعديلاته

Source: EU/UOB/MOE/ELARD, 2005

ANNEX 4 UNIVERSITY LEVEL ENVIRONMENTAL PROGRAMS OFFERED IN LEBANON

University	Major	Degree	
American University of Beirut (AUB)	Ecosystem Management	Master of Science	
	Environmental and Water Resources Engineering	Master of Engineering; Philosophiae Doctor	
	Environmental Health	Bachelor of Science & Master of Science	
	Environmental Policy Planning	Master of Science	
	Environmental Sciences	Master of Science	
	Environmental Technology	Master of Science	
	Landscape Design and Ecosystem Management	Bachelor of Science	
	Urban Design	Master of Urban Design	
	Urban Planning and Policy	Master of Urban Planning and Policy	
Notre Dame University (NDU)	Landscape Urbanism	Master of Architecture	
	Geographic Information System	Bachelor of Science	
	Environmental Science	Bachelor of Science	
Université Saint-Esprit Kaslik (USEK)	Chimie de l'environnement	Master	
	Qualité et traitement des eaux	Master	
	Océanographie et environnement marin	Master	
Lebanese American University (LAU)	Civil and Environmental Engineering	Master of Science	
Université Saint Joseph (USJ)	Environnement et Aménagement du Territoire	Licence, Master Recherche et Doctorat	
	Sciences et gestion de l›environnement	Master	
	Eau et environnement	Ingénieur	
	Sciences de l›eau	Master Recherche et Doctorat	
University Of Balamand (UOB)	Environmental Sciences	Bachelor of Science and Master of Science & Philosophiae Doctor	
	Public Health and Development Sciences	Bachelor of Science	
	Environmental Engineering	Master of Science	
	Urbanisme	Master	
	Aménagement du Paysage	Master	
Beirut Arab University (BAU)	Environmental Science	Bachelor of Science, Master of Science & Philosophiae Doctor	
	Urban Planning	Master of Science	
	Urban Design	Master of Science	
Université Libanaise (UL)	Expertise et traitement en environnent	Master Professionnel et Recherche	
	Gestion et conservation des ressources naturelles (biodiversité)	Master Professionnel	
	Phyto-écologie	Master Professionnel	
American University of Technology (AUT)	Water Resources and Geo-Environmental Sciences	Bachelor of Science	
	Environmental Health	Bachelor of Science	

Note: Hagazian, Sagesse, Hariri Canadian University, and American University of Sciences and Technology currently offer no environmental degrees or diploma courses.

Source: Compiled by ECODIT for 2010 SOER

	Faculty	Educational Requirements
	Faculty of Agricultural and Food Sciences	3 years following Lebanese Baccalaureates
	Faculty of Engineering and Architecture	5 years following Lebanese Baccalaureates & 3 years following Master degree
	Faculty of Health Sciences	3 years following Lebanese Baccalaureates & 2-3 years following Bachelor degree
	Faculty of Arts and Sciences	2-3 years following Bachelor degree
	Interfaculty	2-3 years following Bachelor degree
	Faculty of Engineering and Architecture	2-3 years following Bachelor degree
	Faculty of Agricultural and Food Sciences	3 years following Lebanese Baccalaureates
	Faculty of Engineering and Architecture	2-3 years following Bachelor degree
	Faculty of Engineering and Architecture	2-3 years following Bachelor degree
	Faculty of Architecture, Art & Design	2-3 years following Bachelor degree
	Faculty of Natural and Applied Sciences	3 years following Lebanese Baccalaureates
	Faculty of Natural and Applied Sciences	3 years following Lebanese Baccalaureates
	Faculté des sciences	2-3 years following Bachelor degree
	Faculté des sciences	2-3 years following Bachelor degree
	Faculté des sciences	2-3 years following Bachelor degree
	School of Engineering	2-3 years following Engineering degree
	Faculté des lettres et des sciences humaines	3 years following Lebanese Baccalaureates, 2-3 years following Bachelor degree and 3 years following Master degree
	Faculté des sciences	2-3 years following Bachelor degree
	École supérieure d›ingénieurs de Beyrouth	5 years following Lebanese Baccalaureates
	École supérieure d›ingénieurs de Beyrouth	2-3 years following Bachelor degree & 3 years following Master degree
	Faculty of Sciences	3 years following Lebanese Baccalaureates, 2-3 years following Bachelor degree & 3 years following Master degree
	Faculty of Health Sciences	3 years following Lebanese Baccalaureates
	Faculty of Engineering	2-3 years following Bachelor degree
	Académie Libanaise des Beaux-Arts (ALBA)	2-3 years following Bachelor degree
	Académie Libanaise des Beaux-Arts (ALBA)	2-3 years following Bachelor degree
	Faculty of Sciences	3 years following Lebanese Baccalaureates, 2-3 years following Bachelor degree and 3 years following Master degree
	Faculty of Architectural Engineering	2-3 years following Bachelor degree
	Faculty of Architectural Engineering	2-3 years following Bachelor degree
	Faculté des sciences	2-3 years following Bachelor degree
	Faculté des sciences	2-3 years following Bachelor degree
	Faculté des sciences	2-3 years following Bachelor degree
	Faculty of Applied Sciences	3 years following Lebanese Baccalaureates
	Faculty of Applied Sciences	3 years following Lebanese Baccalaureates

ANNEX 5 ENVIRONMENTAL CENTERS AND INSTITUTES IN UNIVERSITIES IN LEBANON

(Listed alphabetically by university name)

Center Name	*University*	*Research Area*
Academic Observatory for Construction and Reconstruction in Lebanon	ALBA	• Monitoring set of indicators on construction process and sustainable planning • Technical support to decision makers in the form of expert missions, consulting services, training, or other specific tasks in urban planning and development projects • Advocacy, lobbying and awareness rising in the fields of good governance, and sustainable planning
Environment and Sustainable Development Unit	AUB	Research on sustainable rural livelihoods
Nature Conservation Center for sustainable futures (IBSAR)	AUB	Biotechnology research, identification, characterization, and monitoring of biodiversity, landscape conservation, sustainable use of biodiversity
Environmental Engineering Research Center	AUB	Investigation on chemical, physical and biological contaminants associated with water, air, and solid wastes
Water Resources Center	AUB	Database for water resources studies
Aerosol Research Lab	AUB	• Research on aerosol dynamics, chemistry, combustion, computational fluid dynamics, instrumentation, and controls • Study research: tobacco smoke, urban and indoor air pollution and its sources, and fundamental problems in aerosol transport phenomena
Environment Core Laboratory	AUB	• Testing services for waste water, groundwater, soils, hazardous waste, sludges, leachates, compost, food, drinks, beverages, biological tissues. • Testing services for drinking water including physical, chemical, and microbiological analysis in addition to organic and inorganic analysis
Analytical Atmospheric Laboratory	AUB	• Research on ambient air pollution (pollutant levels and chemical composition)
Environmental Chemistry Laboratory	USEK	• Testing of physical and chemical properties of water, organic micro-pollutants, wastes, mud kinds and contaminated soils. • Specific analysis of compounds, such as polycyclic aromatic hydrocarbons (PAH). • Analysis of pharmaceutical substances and hormones in the aquatic environment.
Water Energy and Environment Research Center	NDU	Water resources management, international environmental conflict resolution and energy value
Center for Chemical Research and Analysis	USJ	Air quality
Regional Center for Water and Environment	USJ	Hydrology, drainage and treatment and water quality
Laboratory for Cartography	USJ	• Archiving, preservation and consultation of cartographic and aerial photos of Lebanon and the Middle East. • Teaching cartography and GIS • Research unit for teachers and students
Remote Sensing Laboratory	USJ	• Processing and analysis of satellite images, modeling and GIS. • Provision of technical assistance for research projects on: estimation of leaf water equivalent of snow pack Mediterranean and its flow in a karst environment (experiments in the catchments area of the Nahr Beirut), geological mapping using remote sensing and GIS applied to hydrology (case of the watershed of the Nahr Beirut) and modeling volume of geological basins of the Nahr Beirut Antelias (application to groundwater resources)
Geographic Information System (GIS) Centre	UOB	GIS: application development, database design, data acquisition, data conversion/ development, geo-coding, geo-processing, training, map design, project planning and management, and spatial analysis
Institute of the Environment	UOB	Scientific research, loss of biodiversity, coastal management failure of food supplies, sustainable development and mismanagement of natural resources

Abbreviations: ALBA Académie Libanaise des Beaux-Arts, AUB American University of Beirut, NDU Notre Dame University, USEK Holy Spirit University of Kaslik, USJ Université Saint-Joseph, UOB University of Balamand.

Source: Compiled by ECODIT for SOER 2010

ANNEX 6 STRUCTURE OF NATIONAL LAND USE MASTER PLAN GEODATABASE

Theme	Content as Shapefiles
Administrative Limits	Mohafaza, Caza, national border, sea border, mohafaza centers, chebaa limit, population, municipalities, islands, etc.
Economic Activities	Enterprises, decreeted industries, industries: ceramics, leather, chemical, food, metal, paper, etc.
Electrical & Telephone	Beirut suburbs electrical, mobile phones coverage, electric network, electric substation, fixed telephone coverage, power plant, etc.
Industrial Pollution & Quarries	Aggregates quarries, potential quarries, rock quarries, sand quarries, water polluting industries, air polluting industries, technological risks, etc.
Land cover	Agriculture_1967, forest_1967, landuse_1998, Land use Caza, landuse_Greater_ Beirut_1998, etc.
Landscape Heritage	Beaches, historical sites, mountains areas, cliffs, cornices, natural landscapes, remarkable villages, etc.
Morphological Zones	Morphological zones, Agglomerations of: Baalbek, Sour, Nabatieh, Saida, Chtoura Zahle, Tripoli, etc.
National Master Plan	Areas Vocations, agriculture landscapes vocation, cornices vocations, cultural entities vocation, landscape valleys vocation, etc.
Natural Resources	Caves, Karst, faults 200k, biocorridors, geology 200k, hydrogeology, natural reserves, pedology 200k, rivers, rainfalls, springs, watersheds, protected areas, protected valleys, etc.
Natural Risks	Coastal flood, earthquake, erosion, flood, forest fire, etc.
Services Facilities	Academic schools, red cross, research centers, administrative and public services caza centers and villages, universities, hospitals, social associations, etc.
Sewage and Solid Waste	Industrial sea outfalls, sewage treatment plants, sewer sea outfalls, etc.
Topography	Contours 50m, TIN, slope, etc.
Transport	Airport, Beirut airport runways, railroads, roads, seaport, traffic intensity, etc.
Urban Structure Planning	Decreed schemes, un-decreed schemes, main urban agglomerations, main urban centers, major towns, urban areas 1963, etc.
Water Management	Buildings wells, existing lakes, irrigation perimeters, Litani authority boundary, hill lakes, water authorities, water treatment plants, etc.