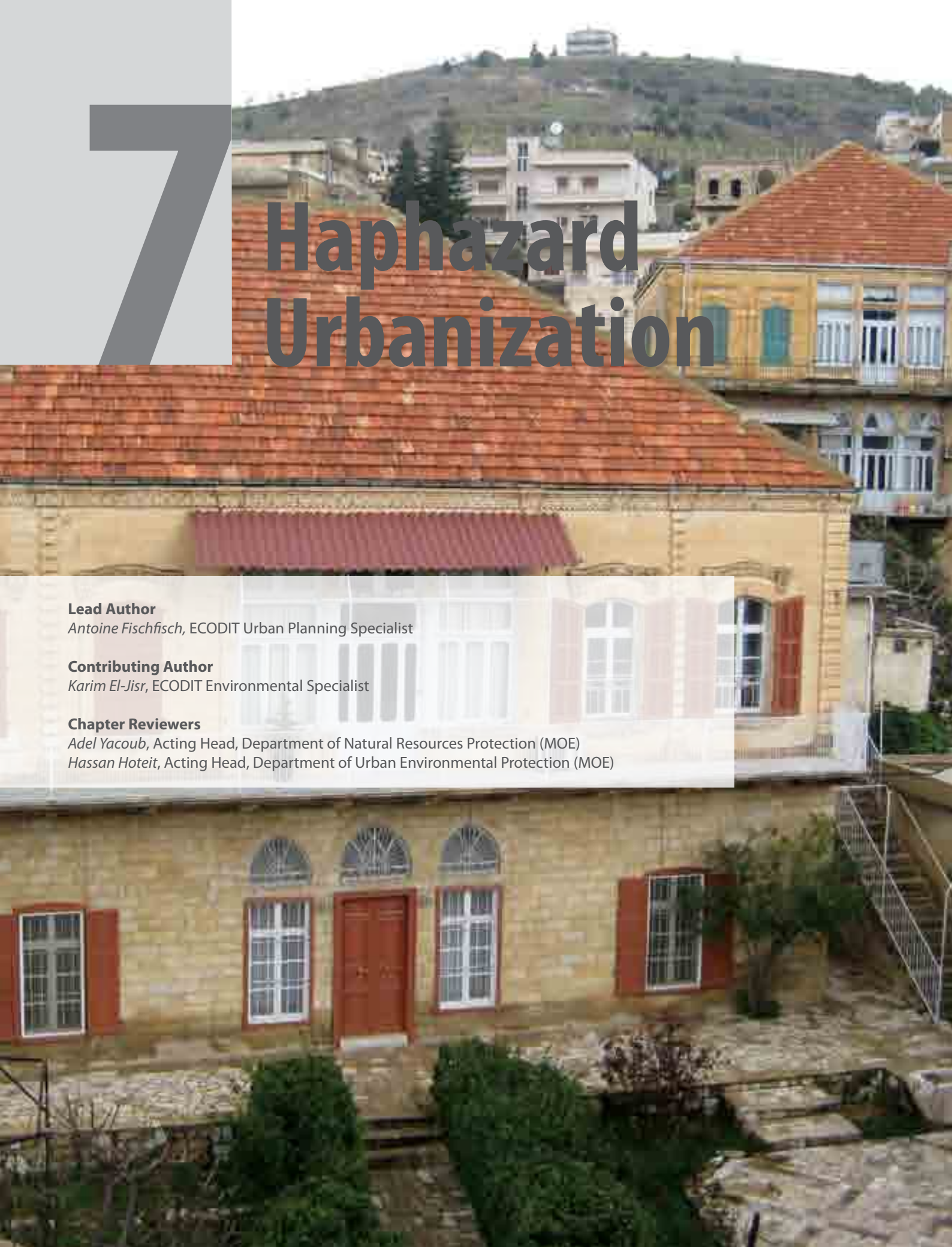
Section III: Environmental Priorities

7 Haphazard Urbanization



Lead Author
Antoine Fischfisch, ECODIT Urban Planning Specialist

Contributing Author
Karim El-Jisr, ECODIT Environmental Specialist

Chapter Reviewers
Adel Yacoub, Acting Head, Department of Natural Resources Protection (MOE)
Hassan Hoteit, Acting Head, Department of Urban Environmental Protection (MOE)

List of Contributors

Berj Hatjian, Former Acting Director General of Urban Planning
Fouad Daher, Engineer, Former president of the Orders of Architects and Engineers -Member of the Higher Council of Urban Planning
Ghaleb Faour, National Centre for Remote Sensing (NCSR)
Habib Melki, Architect, Dean of the Faculty of Architecture and Fine Arts (NDU)
Raghida Jaber, Project Coordinator (1995-2007) COMAP (World Bank - MOF)
Serge Yazigi, Architect Urban Planner
Walid Bakhos, Architect Urban Planner

ABBREVIATIONS & ACRONYMS

COM	Council of Ministers
DGUP	Directorate General of Urban Planning
GBA	Greater Beirut Area
GOL	Government of Lebanon
HCUP	Higher Council of Urban Planning
MOE	Ministry of Environment
MOF	Ministry of Finance
NCSR	National Council for Scientific Research
NLUMP	National Land Use Master Plan
OEA	Order of Engineers and Architects
SOER	State of the Environment Report

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Haphazard and rampant urbanization in Lebanon is attributed to many historical, political and socio-cultural factors. *See alternative definitions in Box 7.1.* Rural migration and the evolution of a society towards industry and the provision of services have rendered cities and towns the principle source of jobs and income. The cultural and political appeal of cities (e.g., Beirut, Tripoli) encourages more people to relocate to cities despite the rising cost of living and housing. Rising real estate costs intensifies construction and the use of land.

Urbanization occurs naturally from individual and corporate efforts to reduce time and expense in commuting and transportation while seeking better jobs, education, housing, and transportation. People move into cities to seek economic opportunities. In rural areas, it is difficult to improve one's standard of living beyond basic sustenance. Farming is dependent on unpredictable environmental conditions, and in times of drought, flood or pestilence, survival becomes problematic. Cities, in contrast, are known to be places where money, services and wealth are centralized. Businesses, which generate jobs and capital, are usually located in urban areas. Ironically, the perception that cities offer unlimited jobs and wealth has created poverty belts around all major Lebanese cities including Beirut, Tripoli, Saida and Nabatieh.

Box 7.1 What is urbanization?

Urbanization is the physical growth of urban areas as a result of global change. Urbanization is also defined by the United Nations as movement of people from rural to urban areas with population growth equating to urban migration. The United Nations projected that half of the world's population would live in urban areas at the end of 2008.

Source: Wikipedia, the Free Encyclopedia

Urbanization is the movement of population from rural to urban areas. It results in increasing proportion of a population that resides in urban rather than rural places. It is derived from the Latin 'Urbs' a term used by the Romans to a city. Urbanization is closely linked to modernization and industrialization.

7.1 DRIVING FORCES

7.1.1 The Lebanese Context

The sanctity of the private property is rooted in the Lebanese Constitution. According to Article 15 of the 1923 constitution, "private land is under the protection of the law, no land can be taken away from his owner, except in cases that serve the public interest and as established by law, and only after the owner has been duly and fairly compensated"[1]. This article has in practice sanctified the private ownership in Lebanon. Landowners often brandish this article to justify their actions, even if at the expense of the environment including natural resources and landscape. So far, expropriation of private lands has been linked to the provision of public goods and services including roads, electricity and water. There has been no reported case of expropriation of private land to support conservation efforts or the protection of ecosystem services. Inadequate appreciation of current urban planning laws and regulations, and the allure of profit and wealth from the construction industry, exacerbate construction and urban sprawl in natural areas that are poorly serviced or poorly suited for construction activity.

Another dimension to urbanization in Lebanon is limited land area and high population density. The country is very small (ranks 166 among 235 countries) and predominantly mountainous (about 75%). Steep valleys trending east-west are generally unsuitable for construction and require very expensive and meandering roads to connect towns and villages across the valley. A third dimension to urbanization in Lebanon

[1] الملكية في حمى القانون فلا يجوز ان ينزع عن احد ملكه إلا لأسباب المنفعة العامة في الاحوال المنصوص عليها وبعد تعويضه منه تعويضا في القانون عادلا (Lebanese Constitution, Article 15, 1943)

Rampant construction degrade landscapes and natural resources

is income level and lifestyle. Many people are able to afford secondary housing, by renting or buying a summer house (apartment or villa) or a chalet (mountain and beachfront resorts). In 2004, there were at least 68,620 secondary houses in Lebanon, which is equivalent to five percent of the total housing stock (CAS, 2004). Secondary housing is not inexpensive, increases demand on construction material, and accelerates urbanization. There are no restrictions on secondary housing and such housing stands empty during many months each year.

7.1.2 Inadequate Master Planning

Urban master planning in Lebanon is rudimentary. Urban master plans are primarily concentrated along the coastal zone and large agglomerations (Verdeil *et al.*, 2007). An estimated 84 percent of the country has no master plans yet. Unplanned areas, called *manateq ghayr mousannafa* are administered and managed by blanket regulations that rely on two factors: lot coverage and floor-area-ratio. Until 2004, these coefficients were 40 and 80 percent respectively. In other words, a landowner could build on 40 percent of his land parcel and build two floors to achieve a floor-area-ratio of 80 percent. Since 2004, these coefficients were revised down as shown in Table 7.1.

Table 7.1 Land use coefficients in unplanned areas – 2004 (*manateq ghayr mousannafeh*)

Zone	Built Up Area	Floor-Area-Ratio
Summer areas*	25%	50%
Residential	25%	50%
Non-residential, agricultural and valleys	Construction not permitted**	

* Selected areas above 800 meters

** Except if expressly approved by the DGUP

At the administrative level, there are significant deficiencies in the information base. In particular:

- About 50 percent of the country has not been surveyed yet. Areas that have not been demarcated rely on very approximate maps most of which were drawn many decades ago based on aerial photos and with a high margin of error. It should be noted however that at least 80 percent of the territory has been delineated and freed of other obligations; a legal procedure that precedes formal survey and demarcation of properties (COMAP, 2007).
- Since about 10 years, the Directorate General of Land Registration and Cadastre at the Ministry of Finance (MOF) has been surveying the entire territory, particularly, in mountain areas. Progress has been slow partly due to bureaucratic procedures and partly due to the substandard performance of some topographers.
- Although the Central Administration of Statistics (CAS) has made significant progress in compiling primary data, statistical information about many services and living conditions are either incomplete or updated too infrequently. Such data groups include *inter-alia* water networks and resources, wastewater networks, electricity, profile of land owners (residents, non residents, non-Lebanese, etc.), detailed land use maps, soil type, as well as other data groups related to anthropology and sociology.
- A significant number of regional master plans were prepared by non-specialists; by architects and/or civil engineers who have no prior experience or competencies in urban planning. Their work is further complicated and constrained by the lack of basic socio-economic data and substandard follow-up and supervision by public administrators.
- The majority of technical employees working at the Directorate General of Urban Planning (DGUP) -including regional departments- are architects and civil engineers with little expertise in urban planning (according to Decree 10490/1997, the DGUP personnel comprise 26 engineers, 16 technicians and 28 admin staff). This monochromatic composition is not conducive to sound urban planning which requires other expertise including sociologists, anthropologists, land management specialists, and environmental specialists.

All these deficiencies have a compounding effect on the final product. Master plans are frequently inadequate and fuzzy, dealing with zoning only from the perspective of permissible built-up area and total allowable height with little regards to other vital factors. Master plans are rarely conceived holistically and often fail to include the necessary environmental infrastructure. The case of Solidere in Beirut's city center is an interesting example of town planning that is based on urban morphology and has successfully restored the architectural and homogeneity of each islet. However,

Coastal zone of Sahel Aalma, Harissa in Jounieh

Solidere has achieved little insofar as developing environmental services and amenities. Despite great efforts to build state-of-the art infrastructure, including street furniture and landscaping, the area still lacks public gardens, dedicated bicycle lanes, parking area, and a wastewater treatment facility.

In many cases, urban master plans were approved with grave errors or implications on the environment. For example, the coastal zone of Sahel Aalma in Jounieh banned all forms of terracing (or benching) on construction lots. This restriction had a perverse effect on urban morphology as engineers and architects had to lower the building level to avoid terracing. This led to excessive excavation of the lot and loss of top soil and trees (the original objective of the restriction was to maintain the building skyline below the pine canopy). Excessive excavation also impaired groundwater recharge and the natural flow of groundwater. Other master plans are simply not sustainable because they introduced and allowed building coefficients that exceed the service capacity of access roads and urban infrastructure (e.g., Sarba- Sahel 'Alma in Jounieh, El Qobbeh in Tripoli, Ain el Roummaneh in Beirut).

7.1.3 Vibrant Real Estate Sector

Lebanon has witnessed an unprecedented increase in real estate prices (lands and buildings) in recent years. Contributing factors include the (1) reconstruction efforts after the July 2006 war and (2) the global financial crisis and credit crunch. The financial crisis affected several countries in the gulf region and encouraged many investors to channel some of their capital in the Lebanese real estate sector which has demonstrated resilience and growth. A sizeable number of foreigners and expatriate Lebanese who work abroad started buying property in Lebanon on a significant scale, driving prices upward as demand exceeded supply. The continued increase in real estate prices has been so significant that many Lebanese working in Lebanon can no longer afford to buy a home without commercial financing –*see more details in Chapter 6.*

The extent of lands bought by non-Lebanese is alarming. Lebanese legislation related to foreign ownership of land and property in Lebanon is very supple. A critical review of the legislation (in particular Decree 11614 dated 4/1/1969 and Decree-Law 296 dated 3/4/2001) shows that restrictions are ludicrous and do not serve the supreme interest of Lebanon (see relevant provisions of the legislation in Box 7.2). Key deficiencies are summarized below:

Box 7.2 Property ownership by non-Lebanese

Non-Lebanese can own property in Lebanon. They can buy and own up to 3,000 m^2 without any restrictions. If they wish to buy more than 3,000m^2, they require prior approval by the Council of Ministers. Overall, the cumulative area owned by non-Lebanese cannot exceed three percent of the territory, three percent in each caza, and 10 percent in Beirut.

Source: Decree 296 dated 3 April 2001

1) No overarching notion that properties are «Lebanese lands for the Lebanese people»
2) Land purchases by non-Lebanese are not subject to reciprocity *«mou'amala bil mithil»*. There is no agreement signed between the Government of Lebanon and other countries to that effect.
3) No restriction on non-Lebanese to buy lands near the international borders. This deficiency is particularly grave considering the persistent lack of demarcation of Lebanon's international frontiers with Syria and Occupied Palestine.
4) There is no upper limit on the total surface area that non-Lebanese can buy and own after obtaining prior approval from the COM. Provided the three percent rule is respected (and 10 percent in Beirut), and the COM approves the transaction, then a buyer can own millions of m^2 concentrated in one location or distributed in several locations across the country. In fact, there is no clear procedure in place, or criteria, for approvals by the COM of applications to buy land and property that exceed 3,000m^2.
5) Keeping track and count of the cumulative ownership of non-Lebanese is very difficult, almost impossible in some cases, as more than 50 percent of the territory has not been surveyed yet (*aradi ghair mamsou7ha)*.
6) Taxes paid by non-Lebanese buyers are almost identical to taxes paid by Lebanese buyers. In both cases, there is no tax on capital gain which encourages non-Lebanese to buy and resell lands with profit, depriving the public treasury from colossal revenues.
7) Non-Lebanese buyers have up to five years to implement their projects on the lands they bought. According to Decree-Law 296/2001, if works are not completed within this period, then the lands will return to the state. In practice, this has never happened to date (non-Lebanese can own lands for decades without commencing any works and with no scrutiny whatsoever).

In short, Lebanon is home to one of the world's most vibrant real-estate markets. The real estate sector, which accounts for some six billion dollars in Lebanon's economy, has traditionally been a catalyst of growth. Thirteen to fifteen percent of state revenues come from real estate transactions. This sector is supported by a very developed real estate property law, which guarantees rights to private property that is registered with the Government (UNDP website). The custodian of property rights is the Directorate General of Land Registration & Cadastre at the Ministry of Finance.

7.2 CURRENT SITUATION

7.2.1 Extent of Urbanization

Master plans need to be approved by the DGUP and decreed by the COM within a maximum period of three years. If the approved master plan is not decreed by the COM within three years, then the master plan is considered void and is replaced by the urban planning regulation in vigor before the master plan was approved by the DGUP. In 2000, decreed master plans covered 1,091 km^2 (10.4% of the territory), while un-decreed master plans covered an additional 614 km^2 (5.8%) – these master plans await their corresponding decree. Therefore, until 2004, the total area covered by master plans (approved/decreed and approved/non-decreed) is about 1,705 km^2 (16.2%). The remaining area (83.8%) is unplanned (*ghayr mousannaf*) and only partially surveyed (*ghayr mamsouh*).

Like the rest of the world, Lebanon is urbanizing – *see relevant statistics in Box 7.3*. The National Land Use Master Plan presented detailed land cover and land use maps for Lebanon. Although the results of the master plan were published in 2004, land cover data was based on 1998 satellite images provided by MOE and the NCSR (IRS and LandSat images). According to this plan, urban areas in the beginning of the 1960s covered approximately 260 km^2 and by 1998 this coverage had increased to 649 km^2 (see evolution of urban

areas between 1963 and 1998 in Figure 7.1). The urban areas were further subdivided into four broad categories (see percentage distribution in Figure 7.2):

1) Urban zones: This category includes continuous and discontinuous urban areas, tourist complexes and archeological sites.
2) Infrastructure and activity zones: This category includes road networks, seaports, airports, and industrial and commercial zones.
3) Non-built artificial zones: This category includes quarries, dumpsites, landfills, sea reclaimed land, construction sites, urban vacant plots.
4) Artificial green zones: This category includes sport centers, public parks.

The Master Plan further estimated that urbanization would every year consume an additional 10km^2 of natural areas. A more accurate method for estimating urban growth over time is based on a total floor area approved through construction permits (see permit data in Chapter 6).

Box 7.3 Urbanization in Lebanon

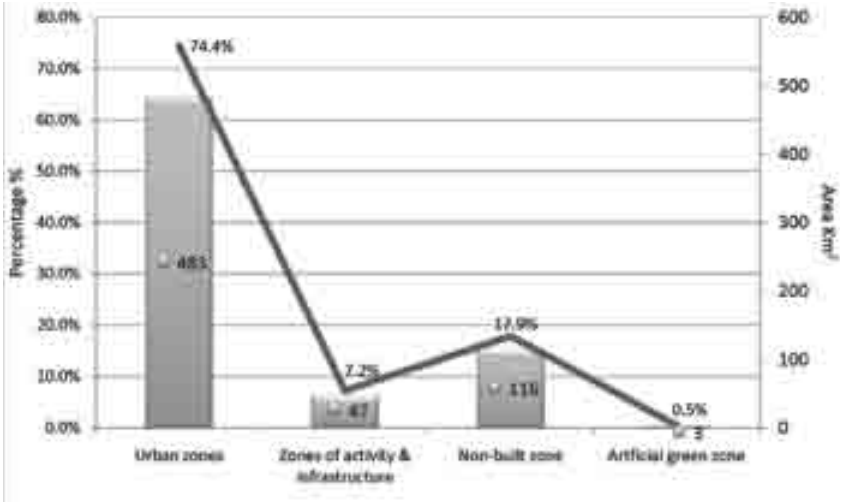
Population density: 400 persons/km^2 (including Palestinian refugees)

Source: WB, 2010

Urbanization rate: 88% (2005)
Urban population growth rate: 2.2% (2005)

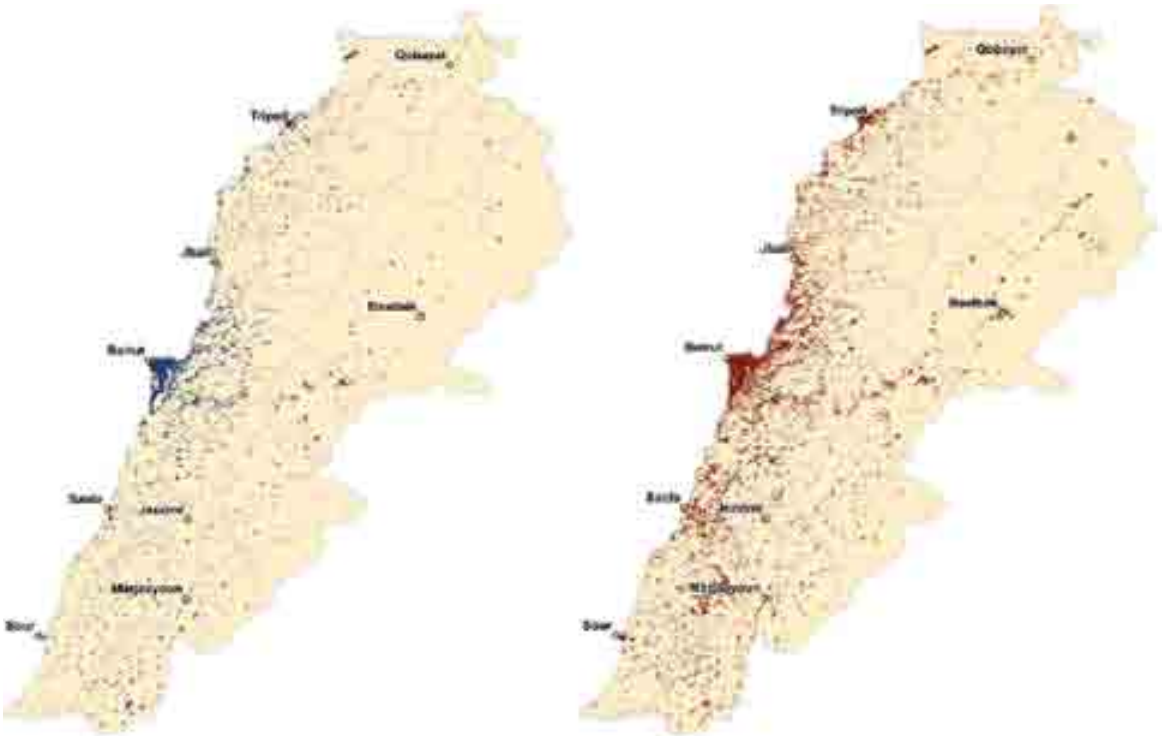
Source: At A Glance - Lebanon Statistics, UNICEF 2007

Figure 7.2 Total urban area in Lebanon by category (1998)



Source: CDR-NLUMP (2004)

Figure 7.1 Urbanization in Lebanon between 1963 and 1998



(a) Urban areas in 1963

(b) Urban areas in 1998

Source: CDR-NLUMP, 2004

General view of Greater Beirut Area

This method is based on several assumptions including the percent of permits actually implemented, and the number of floors actually built (a high-rise building consumes more floor space than a low-rise building). According to this method, the annual growth rate is closer to 5km^2. Notwithstanding the impact of the war in July 2006 and the recent global financial crisis on the construction sector in Lebanon, it can be estimated that total urban area between 1998 and 2010 increased to about 709-769km^2 (equivalent to 7-8% of the territory) depending on which growth scenario is used. The National Center for Remote Sensing (part of the NCSR) is currently updating the land use and land cover data for Lebanon and will release new data in 2011.

Urban expansion

Urban expansion in Lebanon can be categorized into circular, linear and leap-frog. *Circular* (or concentric) expansion is very visible around major cities and towns including Beirut, Baalbeck, Zahleh, and Marjayoun. *Linear* expansion (or ribbon construction) occurs when towns and villages expand along major roads, creating long rows of residential housing units and commercial centers on both sides of a road. Noteworthy examples include the coastal highway (from Beirut to Jounieh and from Beirut to Sarafand) and selected inland regions (from Tripoli to Halba in north Lebanon and from Zahrani to Nabatieh in south Lebanon). *Leap-frog* development occurs when developers build new residences some distance from an existing urban area, bypassing vacant parcels located closer to the city, examples include Mechref Village (Mechref), Pine Hills (Chbanieh), Pine Park (Roumieh) and Beit Misk (Bhersaf). The land in between is suddenly accessible to more people and thus attractive to commercial developers and to urbanization. *See urban expansions in* ***Map 8***.

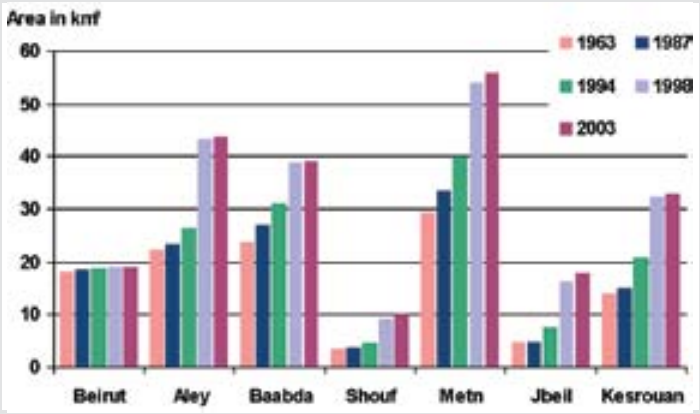
Greater Beirut Area

Lebanon's major urban pole is the capital Beirut which has grown into a 1.8 million-people agglomeration better known as the Greater Beirut Area (GBA). The city has over the last

Box 7.4 Evolution of urban areas in Beirut and selected *cazas* in Mount Lebanon

Year	Total Urban Area (km^2)	Annual Growth (km^2/year)
1963	116	
1987	126	0.74
1994	149	3.40
1998	213	15.69
2003	219	1.27

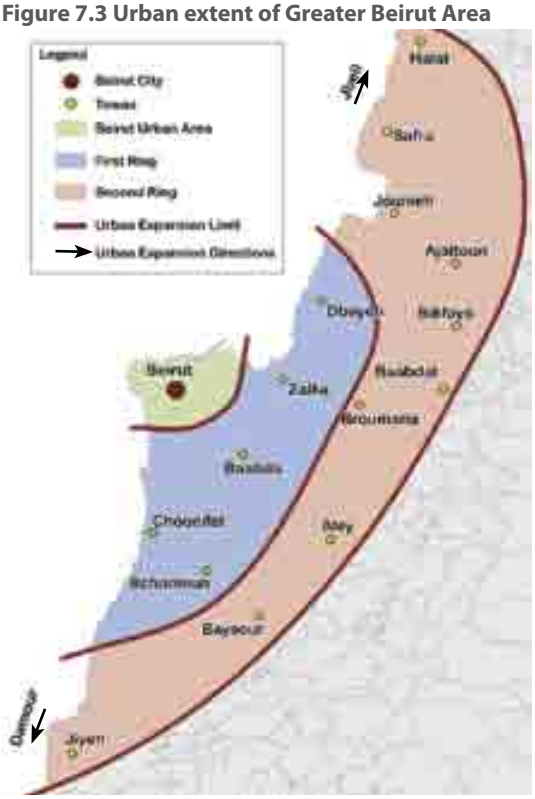
Source: Faour et. al, 2005



three decades expanded in three distinct directions: (1) northward in the direction of Jbeil, (2) southward in the direction of Damour, and (3) eastward into Aley, Broumana, Bikfaya and Bchamoun. In practice, all the cities and towns that are located within a 20km-radius from Beirut are today largely connected to Beirut city by construction. GBA stretches over 60km from north to south between Halat and Jiyeh (nearly 30% of the Lebanese coastline) and covers 468 km^2 (Faour et al., 2005). Illustratively, GBA can be divided into two rings: (1) the first ring stretches from Dbaye to Khaldeh (below 400m of altitude), and (2) the second ring stretches further north and south of Beirut from Jounieh, to Ajaltoun, Bikfaya, Broumana, Aley, Baysour, Jieh and Damour. *See urban extent in Figure 7.3*
Faour also studied the rate of urban growth in Beirut and selected *cazas* in Mount Lebanon during the period 1963-2003 (Faour et. *al* 2005). His analysis shows that Beirut did not grow much during this period, primarily because the city is already built-up and there are very few vacant lands, whereas the *cazas* of Aley, Baabda, Shouf, Metn, Jbeil and Kesrouan have shown tremendous growth rates since four decades. For example, in Aley, urban areas doubled in coverage from 22 km^2 in 1963 to 44 km^2 in 2003, and in Kesrouan, the urban coverage more than doubled from 14 km^2 in 1963 to 33 km^2 in 2003. *See key findings in Box 7.4.*

Informal settlements
According to UNRWA, there are 12 formal camps in the country (Ain El Helwe, Beddawi, Burj Barajneh, Burj Shemali, Dbayeh, El Buss, Mar Elias, Mieh w Mieh, Nahr el Bared, Rashidieh, Shatila, and Wavel) and about 15 informal settlements. They tend to cluster around major coastal cities and consume areas that should be protected for their environmental and/or

Figure 7.3 Urban extent of Greater Beirut Area



Source: prepared by ECODIT for 2010 SOER

archaeological heritage. Such is the case in Tripoli, Beirut, Saida and Tyre. Notwithstanding the human dimension, these camps have encroached on natural areas that have no zoning regulation whatsoever. In the absence of zoning regulations, the continued legal contention surrounding their status has deprived the camps of some of the basic infrastructure and services including water connection and sewer systems.

New mountain resorts
In the past decade, there has been an unprecedented rush to build mountain resorts, primarily in the hills overlooking Beirut, but

also in other regions of Mount Lebanon. These resorts assume different forms and shapes, offer different levels of comfort and recreation, and attract both Lebanese and non-Lebanese buyers. Whereas Lebanese buyers are more likely to live in these resorts all year (permanent housing), non-Lebanese buyers use their property more sporadically and in many cases only during the peak summer months (July and August). In some cases, Lebanese buyers seek chalets, apartments, and villas in well-organized mountain resorts as a form of secondary housing to be used during selected winter and summer months, or to escape from Beirut which has experienced repeated street protests and other security incidents since the publication of the 2001 SOER -*see selected mountain resorts in Table 7.2*

The environmental implications of mountain resorts have yet to be thoroughly assessed by urban planning departments as well as by the relevant host municipality. This SOER argues that mountain resorts engender potentially significant and irreversible impacts not only on the natural environment but also on the rural fabric of mountain villages and towns. *See analysis of impacts in* ***Section 7.2.5.***

Households

At the building level, urbanization can be measured in terms of the number of new construction permits, the number of new buildings and residential units. Table 7.3 below shows the growth in the number of buildings and residential units between 1996 and 2004, by *Mohafaza*. The overall increase in the number of buildings was 4.03 percent and 5.51 percent for residential units. The highest increases were recorded in the *Mohafaza* of Nabatiyeh –a staggering 10.75 percent for buildings and 17.80 percent for units (negative percentages are the result of data errors during the census and should not be interpreted as a decline in the building and housing stock).

New high-rise towers

High-rise towers are mushrooming in Beirut. Soaring demand for property has driven the price of land upward, motivating developers to buy property and build vertically. In the process, many old buildings were torn down (sometimes illegally) to be replaced by high-rise buildings. Often, adjacent plots are annexed to make way for a larger and taller building. These buildings increase the ratio of rentable and/or sellable floor space per unit area of land.

High-rise buildings are eroding Beirut's heritage, affecting its social and urban fabric, and changing the city skyline. Powerful developers, backed by lending institutions, are leading the drive to reshape Beirut. The city is fast losing its traditional old houses, with their red-tiled roofs, arched windows, and beautiful balconies and inviting gardens. Many buildings with French colonial and Ottoman architectural features are being demolished to make way for high-rise apartment complexes. The number of vacant lots used as parking lots is rapidly declining, to be replaced by cranes and jackhammers –*see selected high-rise towers in* ***Table 7.4.***

7.2.2 Institutional Framework

Ministry of Public Works and Transport/Regional Departments of Urban Planning

Regional Departments of urban planning were established in every *caza* to review construction permits and ensure compliance with urban planning regulations issued by the DGUP and/or HCUP. The regional department usually has one director and several civil engineers or architects who assume responsibility for a specific area within the *caza*. The regional departments act as a technical advisor to local municipalities on urban planning and construction issues.

For almost a decade, and following the reactivation of municipal elections in Lebanon in 1998, several Federations of Municipalities (e.g., Metn, Jbeil and Batroun, Koura) established their own (municipal) Department of Urban Planning with the same mandate as DGUP's regional departments with one difference; the urban planning jurisdiction of the federations is limited to the jurisdiction of its member municipalities. It is important to note that many villages and towns in Lebanon have no municipal council and therefore resort to the *Kaemakam* for administrative issues and the regional department of urban planning for urban planning issues. Only two municipalities in Lebanon have their own departments of urban planning, namely Beirut and Tripoli.

Ministry of Public Works and Transport/Higher Council of Urban Planning (HCUP)

The HCUP was established in 1962 (Legislative-Decree 69 dated 24/09/1962) and its functions extend over the entire territory. The Council is chaired by the Director General of Urban Planning. Based on the Urban Planning Law (Legislative-Decree 69/1983 and its amendments), the Council consists of 12 members: the Director General of Urban Planning, Justice, Interior and Municipalities

Table 7.2 Selection of mountain resorts in Lebanon (under construction and/or recently completed)

Project name	Location	Total area (m^2)	Description
Ahlam Mountain Resort	Kfardebian	1,750,000	500 villa plots, spa, clubhouse, boutique hotel, golf and ski schools
Ain Barakeh	Chtaura (Bekaa)	40,000	Divided into 20 plots to build villas and family homes
Alabadiyah Hills	Al Abadiyeh, Bhamdoun	75,000	12 private villas, 33 townhouses and 220 luxury apartments, plus spa, etc.
Beit Misk	Bhersaf	655,000	15,000 residential units
Bhersaf Tourist Village	Bhersaf	23,000	17 residential villas
Clouds Faqra	Faqra	15,000	11 villas
Lamartine Residences	Shbanieh, Hammana	NA	6 residential buildings
Les Suites de Faqra	Faqra	18,000	110 suites
Les Villettes de Kfardebian	Kfardebian	10,000	Five 650 m^2 villas and twenty 290 m^2 villas
Tilal Bhersaf	Bhersaf	NA	14 residential buildings
Tilal Faqra	Faqra	NA	NA

Source: Compiled by ECODIT for 2010 SOER based on commercial ads.

Table 7.3 Evolution of buildings and residential units in 1996 and 2004

Mohafaza	*Buildings*		*Evolution*	*Residential Units*		*Evolution*
	1996	2004		1996	2004	
Beirut	18,810	18,336	-2.52%	159,438	156,890	-1.60%
Mount Lebanon	111,504	115,488	3.57%	460,440	498,252	8.21%
North Lebanon	107,268	110,953	3.44%	257,514	263,497	2.32%
Bekaa	97,727	105,380	7.83%	178,879	183,041	2.33%
South Lebanon	69,873	67,557	-3.31%	152,367	161,786	6.18%
Nabatiyeh	56,705	62,801	10.75%	96,835	114,068	17.80%
Total	**461,887**	**480,515**	**4.03%**	**1,307,469**	**1,379,538**	**5.51%**

Source: Census of Buildings, Dwellings and Establishments (CAS, 2004)

Table 7.4 Selection of high-rise towers in Beirut (under construction and/or recently completed)

Project name	Location in Beirut	Approx. Height (m)	Floors	Previous site
Sama Beirut	Sodeco District	187	50	Car parking, old house and petrol Station
Sky Gate	Achrafieh	170	40	Abandoned land, green shrubs
The Landmark	Riad el Solh District	168	42	Historic vestiges, Car Parking
Platinum Tower	Mina El Hosn District	153	34	Vacant land
Marina Tower	Mina El Hosn District	150	27	Vacant land
Mirror Tower	Mina El Hosn District	142	37	Green Space
Les Domes de Sursock	Achrafieh	140	28	Car parking and old house
La Citadelle de Beyrouth	Ain El Mreisseh	140	34 (2 blocks)	Car parking and construction
Bay Tower	Mina El Hosn District	125	30	Vacant land
Four Seasons Hotel	Mina El Hosn District	120	26	Vacant land
Beirut Tower	Mina El Hosn District	112	30	Vacant land
Venus Towers (3 towers)	Mina El Hosn District	105 – 95 - 84	30 - 27 - 24	Vacant land and car parking
Beirut Terraces	Mina El Hosn District	100	25	Vacant land and car parking
Atomium 5242	Achrafieh	100	27	Car parking
Ashrafieh Tower	Achrafieh	100	25	Car parking and old house
Harbor Tower	Medawar	80	25	Old houses, green space
Plus Towers	Bechara El Khoury Av.	49	14	Vacant land, historic vestiges

Source: Compiled by ECODIT for 2010 SOER based on commercial ads.

(Local Councils and Administration), Public Works and Transport (Roads and Buildings), Housing, and Environment, in addition to the Director of Programs at CDR, the President of the OEA in Beirut and Tripoli, and three experts (sociology, urban planning and environment, and architecture).

This composition is arguably tilted in favor of construction advocates. The role of the Higher Council is to: (1) review and approve urban master plans as well as large-sized projects --projects greater than 3,000m^2 in Beirut, and greater than 10,000m^2 outside Beirut, measured in terms of total land area prior to construction; (2) draft decrees related to the establishment of real estate companies, land expropriation and land parceling; (3) review decisions related to licenses for construction and parceling; and (4) review proposed amendments to urban planning and construction legislation.

Ministry of Interior and Municipalities/ Municipalities
Lebanon has 994 municipalities. Issuance of construction permits is the sole responsibility of the President of the Municipality – this is an extraordinary power if exercised duly and fairly. The construction permit in turn rests on the approval of the relevant institution such as DGUP's regional departments of urban planning, the Federation of Municipalities, and/ or the HCUP. *The permitting process is explained in detail in* ***Section 7.2.4***.

Order of Engineers and Architects (OEA)
Lebanon has two OEAs, in Beirut and Tripoli respectively. They were established in the mid 1950s primarily to formalize the profession of engineers and architects in Lebanon and to eliminate self-proclaimed engineers and architects from this profession. Engineers and architects do not choose their Order but register based on their origin (engineers in north Lebanon register in Tripoli whereas all other engineers register in Beirut). The total number of registered engineers in 2010 was about 33,000 in Beirut and 7,300 in Tripoli. Members have different areas of specialty (architects, civil, electrical, mechanical, telecommunication, and agricultural). Only architects and civil engineers may sign construction permits and execution plans; they should be freelance architects and engineers who are neither civil servants or employed by private (engineering) firms. Each freelance architect and civil engineer is allowed to sign up to 16,000m^2 of floor plans per year. This quota system is partially extended to civil servants under exceptional cases, but not to private sector employees. The other members of the OEA (mechanical, electrical, etc.) can participate in the preparation of execution plans but cannot sign those plans without the approval of the lead architect or civil engineer.

7.2.3 Historical Review of the Private Ownership

Property ownership in Lebanon goes back to the 16th century, during the Ottoman Empire, and evolved subsequently under the influence of Ottoman regulations (called *tanzimat*), the French mandate (1920-1943), and the Lebanese Republic. The most important transformations are explained below as they contribute to the current state of urbanization in the country.

Ottoman Regulations (tanzimat)
The Ottoman Empire instituted a deed system known as *dafter khaqany* (or registry book) during the mid 1800s. The system simply formalized the process of registering real estate transactions daily. The Ottoman Empire also established registry offices in every administrative region known as *sandjak* and each office was administered by a director and several secretaries. With every real estate transaction, the seller was required to present several key documents including a certificate *ilm wa khabar* issued by the local *mokhtar* or *imam* describing the property. The registry office would then review the documents, and the cadastral office would determine the corresponding fees to execute the transaction and verify if there are any outstanding taxes. The transaction required the approval of the director of the cadastral office who would register the transaction in the presence of the seller and buyer or their designee, and witnesses. The buyer would then receive the new deed title called *tapou sanadi*. The information contained in the deed title would be identical to the information stored in the registry book.

These regulations or *tanzimat* had a profound impact on the real estate sector in Lebanon (and beyond). Before this period, the private property was not guaranteed or protected by law. Owners were often intimidated into selling their lands and buyers would bribe administrations to formalize the transaction without proper documentation.

In 1864, the Ottoman Empire approved a law that would ban and nullify all real estate transactions that did not go through the registry office or the cadastral tribunals also known as *Mahaqem*

el Chaiyya. Individuals who implemented transactions outside these two legal avenues would be sent to prison. Moreover, policemen were stationed in all registry offices to intervene in case of any fraudulent transaction or transaction based on intimidation and force. Collectively, these *tanzimat* helped protect the private property, increased property values, and opened the door for new and large-scale constructions outside city walls.

French Mandate (1920-1943)
Under the French Mandate, a new cadastral system was instituted to further protect the private ownership by offering additional guarantees that would facilitate and promote economic activities. The mandate recognized the value of the property in terms of agricultural production, real estate, and as an avenue for mobilizing finances (Aveline, 1997). The system, still in force today, started to demarcate every land parcel in Beirut, Tripoli and other regions. The aim was to resolve any dispute due to overlapping properties between adjacent owners (never achieved under the Ottoman Empire)[2] and to reaffirm individual titles to property unequivocally and based on a detailed census.

The deed also known as *Iqar* was formalized as the cornerstone of the property and all rights to it. A deed is a formal legal document that is signed, witnessed, and delivered to effect a conveyance or transfer of property or to create a legal obligation or contract. In terms of real estate, a deed governs all the activities inside a well delineated property. Trees and buildings are considered integral to the deed. Deeds may have one or several owners who exercise their rights to the property called *Tessarouf*. Deeds can be modified by grouping several adjacent parcels into one large parcel (Aveline, 1997).

Lebanese Republic (1943-Present)
Property legislation in Lebanon did not change much since the French Mandate (Decree 3339/LR dated November 1930) (Boustany, 1983). The system in place worked seamlessly during the period 1950-1975, a period of great economic growth and stability. Even during the Civil War period (1975-1990), the administrative procedures continued to work normally and were not contested or defied by the militias of that time. In fact, cadastral registries were neither burnt nor stolen. This phenomenon was most likely the result of informal agreements between war lords and politicians at the time because they too were land owners or speculators. There were very few cases of cadastral fraud and these were usually sporadic and trivial.[3]

[3]Cadastral archive of Beirut

The system therefore had a stabilizing effect on the real estate and construction sectors, despite the troubled war period. One noteworthy and pivotal transformation at the end of the French Mandate was the termination of taxes on vacant lands (i.e., not built up). By contrast, all other lands with standing buildings, including offices, shops, factories, banks, and residential units (provided that the owner owns more than one unit) were and continue to be subject to annual property taxation also known as *Daribat al Amlak al Mabniyya*.[4]

[4]*Ibidem.*

7.2.4 Urban Planning Law

Lebanon's urban planning law dates back to 1983 (Legislative Decree 69 dated 9/9/1983). Comprehensive and visionary, the law is divided into seven parts: (1) organization and structure of the Higher Council of Urban Planning, (2) urban master plans and planning regulations for villages and cities, (3) implementation of regulations and urban master plans in villages and towns, (4) construction permits, (5) regulations for quarries and crushers, (6) land parceling, and (7) various provisions and applications. Drafted and approved during a period of great civil unrest and insecurity in the country, the law astonishingly mentions the terms environment and nature 16 times.

[2]Cadastral archive of Beirut

The following excerpts from Legislative-Decree 69/1983 highlight the most important environmental provisions:

Article 7 *Urban planning for sustainable development:* urban planning should take into account the relationship between communities and surrounding areas, and it should balance built-up areas with the protection of environmental sites, agricultural activities and forest areas.

Article 8 *Urban master plans* must define the criteria for land use including the possibility of banning construction within the studied area (declaring no-construction zone).

Article 9 *Placing unplanned zones under study:* based on the proposal of the Minister of Public Works and Transport, and after consultation with the HCUP and the concerned municipality, an area may be placed "under study" for a period of up to two years. During this period, no permits may be issued (construction, parceling, etc.).

Article 17 *Restriction on exploitation coefficients:* Any restriction on building coefficients (including setbacks, number of floors, building height and color) that is deemed necessary to protect public health and safety, or the natural environment, is not compensated.

Article 19 *Land swap to protect heritage or landscape:* duly authorized agencies may expropriate private land (to serve the public interest) by compensating its owner with a nearby land of equal value. In effect, the authority is implementing a land swap.

Article 20 *Land reparceling to protect or enhance urban planning.* In cases where the prevailing distribution and delineation of lands impedes meaningful urban planning, the relevant authority may reparcel the entire area to facilitate urban planning.

Article 23 *Land bartering to protect forests*: In cases where forests or green spaces are located near residential areas, the Government or the municipality can barter the forested land with the owner by offering another piece of land.

Article 24 *Public-private partnership to access forest and natural sites on private lands.* Municipalities or federation of municipalities may enter into a contract agreement with private owners to provide public and recreational access to private forests and other natural areas. Municipalities would in return charge an admission fee to pay for rangers and upkeep.

The importance and foresight of the Urban Planning Law of 1983 cannot be stressed enough. Unfortunately, there is very little evidence that urban planning departments are using it and that civil society is cognizant of this Decree-Law.

7.2.5 Construction Laws and Permits

The First Construction Laws

Lebanon's early construction laws stem from Beirut during the late 1800s. The Municipality of Beirut developed building regulations that were subsequently adopted by other municipalities in response to the densification of certain areas and neighborhoods. These early municipalities saw the need to control and manage urban landforms, and prevent and/or resolve legal disputes between adjacent land parcels (i.e., boundaries, setbacks, height). It was A. Abdel Nour, an engineer at the Municipality of Beirut, who was tasked with writing and consolidating construction laws and expropriation decisions into a compendium *Qanoun al Abniah Wa Qarar al Istimlak* dated 1896.

According to those first legal instruments, property owners had to present a construction permit to the municipality before all works. The permit had to include a hand-written application describing the proposed works, as well as design drawings that primarily focused on the building dimensions (length, width and height). In case of non-conformity with the approved building dimensions, builders called *Moallem* and owners were held accountable. Non-compliant works were immediately terminated and the municipality would impose hefty fines and require the parties responsible to demolish the illegal construction (Abed el Nour, 1896).

In practice, these early construction laws required that buildings align existing roads and they recognized five road categories based on

road width. (The road width is calculated from the edge of a building to the edge of the opposite building). This restriction was a decisive factor in the development and evolution of linear and more harmonious urban landforms (Abed el Nour, 1896). Today, it is Construction Law 646 dated December 2004 (also known as Building Code) that is the centerpiece of all construction activities in Lebanon. In some regions, construction activities are further impacted and modulated based on urban master plans that follow linear and/or radial zoning patterns. The overarching premise of a master plan is the delineation of an urban space into homogenous zones with different building coefficients. The underlying logic behind the early urban master plans was to afford the center of towns and cities the highest building coefficients –areas renowned for their urban and architectural heritage.

Construction Law 646/2004

Construction Law 646 of 2004 introduced a number of changes to the sector. Some of the changes appear to benefit the construction sector while others are important for landscape protection and environmental sustainability in general. See short analysis of new construction law in Table 7.5.

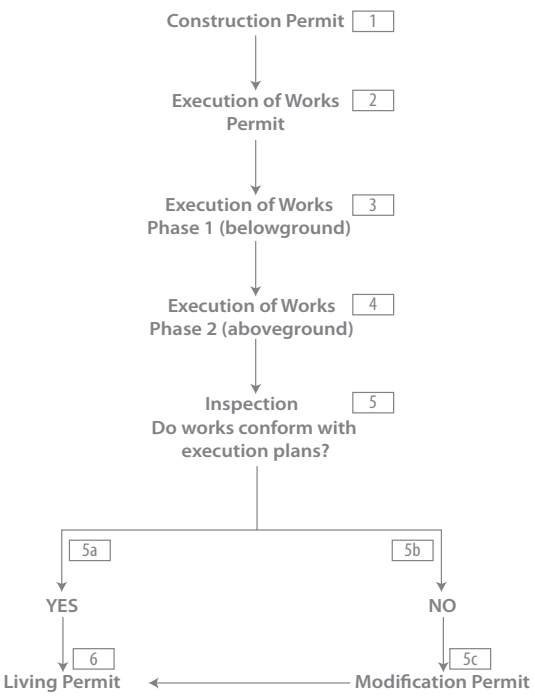
Table 7.5 Environmental implications of Construction Law 646/2004 (selection)

Changes Introduced	*Environmental Implications*
The validity period of a construction permit was increased from 4 to 6 years, with the possibility of a further 2-year extension without taxes.	Construction sites extend longer; in cities, this affects neighbors and pedestrians (dust, noise, prolonged obstruction of sidewalks); in villages, unfinished buildings impact the landscape. Fortunately, *Article 3* of the law regulates fines for buildings that are not completed within the permit period (8 years max). These fines came into force in December 2005 but have yet to be exercised.
Staircases (and elevator shafts) are excluded from the calculation of building coefficients provided they consume less than 20m^2 per floor	In practice, this means that buildings exceed the legal building coefficient by 20m^2 (lot coverage) which reduces water infiltration further. Small parcels are now more attractive to construction.
Every additional underground car park, above and beyond what is prescribed in the construction law, will be exempt from taxes.	This incentive encourages builders to maximize underground floor space. Unfortunately, in practice, underground construction is prohibitively expensive and underground parking is competing with other floor use such as warehousing (often illegally).
Article 13 requires that construction and demolition activities comply with environmental regulations pursuant to Environment Law 444/2002.	The article identifies conditions for not granting construction permits (safety, public health, landscape, architectural). It also allows urban planning authorities to require developers to provide additional infrastructure including WWTPs and gardens.

The Permit Process

Construction in Lebanon goes through a complicated permitting process. This report presents a simplified overview of the multiple permits needed, in an effort to understand the weaknesses in the system and implications on the environment. The overall process can be divided into six major stages illustrated in Figure 7.4:

Figure 7.4 Simplified Overview of the Permitting Process for Residential Buildings



Source: prepared by ECODIT for 2010 SOER

Annotated Legend:

Stage 1: The owner must designate a civil engineer or architect duly registered in the OEA in Beirut or Tripoli to apply for the construction permit. Once issued, the owner can proceed with the Execution of Work permit. *In theory,* permits should comply with the Construction Law, Building Coefficient and Urban Master Plan (if applicable). *In practice*, errors and deliberate deviations from the regulations may pass unnoticed or occur due to patron-client relationship.

Stage 2: The Execution of Work permit allows the owner to start construction works, which is divided into two phases, called Phase 1 and Phase 2.

Stage 3: Phase 1 of construction works include all underground works up to 1m above the ground level (mostly excavation, shoring, and other concrete works). *In theory*, Phase 1 must be completed and inspected by a civil engineer or architect from the regional department of urban planning *prior* to Phase 2 commencement. Inspection should verify elevation points, terracing, backfilling, etc. *In practice,* inspection is rudimentary if at all and nonconformity is easily settled through patron-client relationship.

Stage 4: Phase 2 of construction includes above ground levels and is contingent on the approval of Phase 1 works. *In practice,* owners often collude with members of concerned municipalities to bypass the mandatory inspection, proceed with aboveground works without prior approval, and then shift the burden of inspection (and settlement) to the end of all construction works. Owners can then obtain a delayed permit for Phase 1 from the DGUP's regional office. It should be noted however that in certain cases such a violation of the permitting process is not unreasonable considering the excessive period needed to obtain an approval of Phase 1 works even for buildings that are fully compliant.

Stage 5: After completion of all works, the building must be inspected by OEA and the local municipality and/or DGUP regional office to verify compliance with the as-built engineering plans and drawings, including the replacement of damaged and/or uprooted trees and the configuration of the septic tanks in non-sewered communities. If the building does not conform to the plans, then the Owner must apply for and obtain another permit prior to obtaining a Residential Permit. The aim of the Modification Permit is to modify the engineering drawings, in full respect of the Building Code, and obtain approval of the new drawings. *In practice*, modifications are not always in full compliance with the Building Code (or the approved Building Coefficient) but approvals are nonetheless issued using bribery and other forms of enticements.

Stage 6: After the building is inspected and determined to be compliant and suitable for living, the Municipality issues the Residential Permit.

To date, most construction permits that are submitted to the DGUP's regional departments or to the Federation of Municipalities (that have an urban planning department) are rudimentary and focus primarily on the building dimensions and overall form. The technical review and follow-up related to the execution of work permits remain the sole responsibility of the OEA in Beirut and Tripoli. Unfortunately, in practice, the activities of the OEA remains limited to administrative procedures. The supervision of key technical construction parameters, such as the specifications of cladding material, the execution and performance of plumbing works and the building structure is generally left to the discretion of OEA employees whose determination is not based on rigorous inspection. In addition, license approval at the municipal level usually focuses exclusively on whether building specifications comply with the law; they rarely consider other urban criteria such as urban morphology, urban landscape, setbacks, building appearance, urban skyline, and green spaces.

The construction permit and the execution of works permit involve many steps and alternatives based on the location of the proposed building and the presence or not of a local municipality. Figure 7.5 is a flowchart illustrating the process in a step-by-step approach, with a detailed legend.

Step-by-Step Legend:

1: Owner appoints an architect or a civil engineer

2: Architect or civil engineer applies for a construction permit at the Order of Engineers & Architects (OEA) in Beirut or Tripoli (depending on where the Architect or Civil Engineer is registered).

3a: In the case of Beirut, the application is sent to the Municipality of Beirut

3b: In the case of Tripoli, the construction permit is sent to the Municipality of Tripoli

3c: Outside Beirut and Tripoli, the application is presented at the Urban Planning Regional Office or the Municipal Federation if the federation has its own urban planning unit

4a: The Beirut Governor (in coordination with

the President of Beirut Municipality) issues the construction permit

4b: The President of Tripoli Municipality issues the construction permit

4c1: If there is no municipality, the Kaemakam issues the construction permit

4c2: If there is a municipality, the President of the municipality issues the construction permit

5: Owner (or his designee) collects the construction permit

6: Owner asks architect/civil engineer to prepare the execution plans for the permit of execution of works

7: Architect/civil engineer prepares the construction plans (civil and electromechanical)

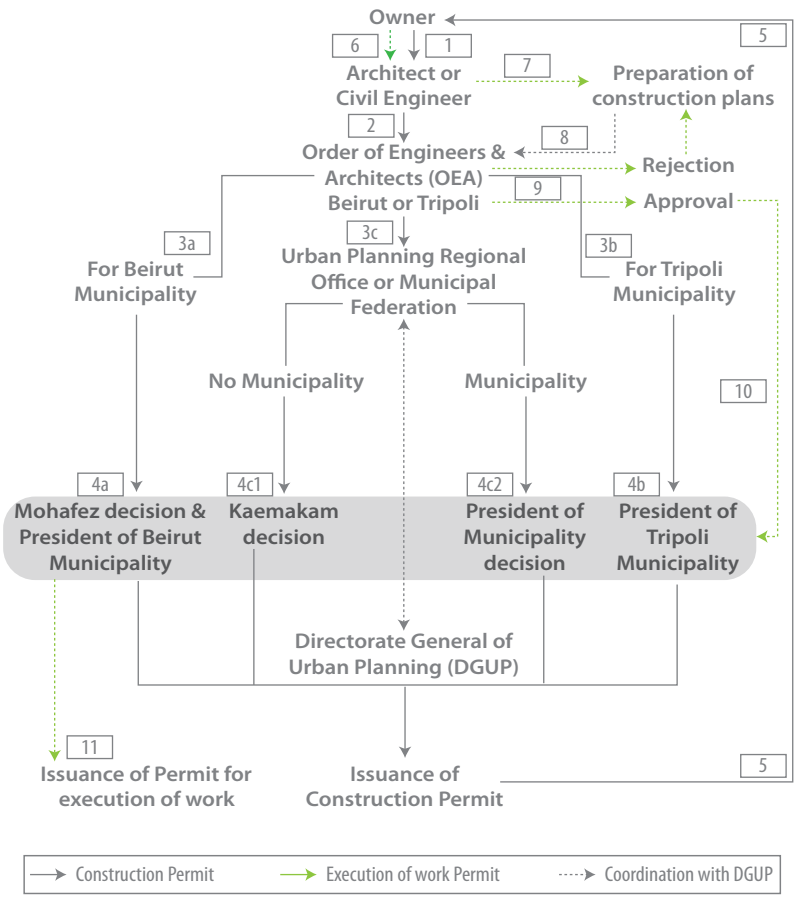
8: Architect/civil engineer presents the construction plans to OEA in Beirut or Tripoli (depending on registry)

9: OEA either approves or rejects the plans. If rejected, the applicant must revise and resubmit the plans

10: The architect/civil engineer should present the approved plans to the relevant municipality or kaemakam (if there is no municipality)

11: After reporting to the concerned municipality or kaemakam, the relevant OEA issues the permit for the execution of works

Figure 7.5 Detailed overview of the construction permitting process



Source: prepared by ECODIT for 2010 SOER

7.2.6 Implications of Haphazard Urbanization on the Environment and Urban Heritage

Poor zoning and construction regulations have rendered almost all territories open to construction (coastal, agricultural, natural, historic city centers, etc.), provided the land is serviced by an access road. A liberal market has invited investors and real estate promoters to build in all corners of the country with lasting impacts on the urban and rural landscape, and with severe implications on energy consumption. The following paragraphs explain key impacts on the environment, as well as the implications of haphazard urbanization on the urban heritage.

7.2.6.1 Environmental Aspect

Excavation

Excavation and earth works are environmentally intrusive. Short-term impacts include noise and dust from earth moving equipment (noise levels measured in decibels can be unreasonable to neighboring houses). The long-term and irreversible impact is the permanent loss of top soil and the impermeability of the land to rainfall causing runoff. In fact, the building coefficients described in **Table 7.1** imply a restriction of the

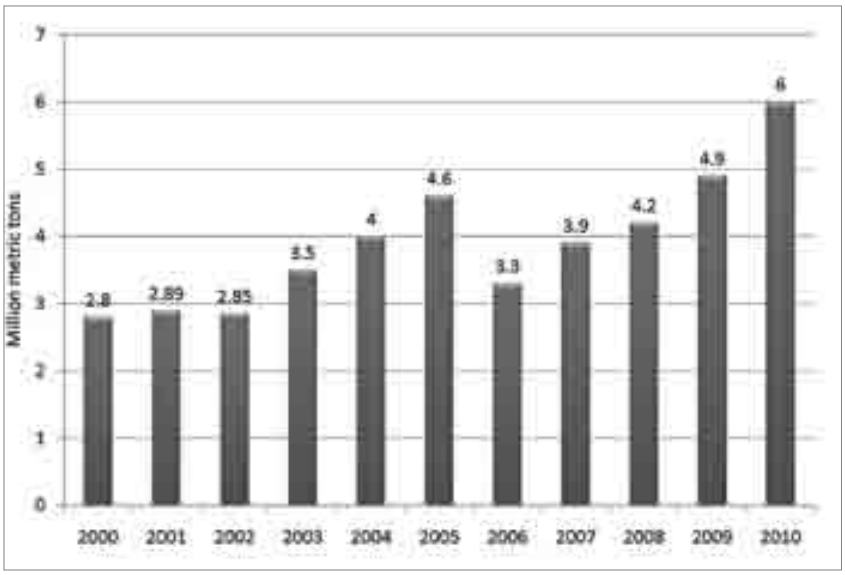
Excavation and earthworks

construction volume. This restriction however is limited to construction aboveground. In practice, owners can and will in most cases excavate the entire parcel, creating a large cavity, and use the underground space for other services including parking, fitness centers, warehouses, etc. During Phase 2 of construction, aboveground floors retract to respect the prescribed lot coverage (25% in unplanned areas, and up to 100% in planned areas depending on zoning regulations). Excavation of the entire parcel therefore destroys all standing trees, removes top soil, and may alter the shallow groundwater regime.

Construction material

Construction consumes a lot of material including cement, steel, aluminum, wood, gypsum, glass, ducting, etc. Most of this material is imported except concrete. Lebanon's five cement industries (Ciment de Sibline, Cimenterie National, Holcim (Liban), Cimenterie du Moyen-Orient, and Société Libanaise des Ciments Blancs) have been expanding production to meet local demand. At least three plants also produce cement and clinker for export to Syria and Iraq. According to the US Geological Survey, Lebanon produced in 2010 about 6 million tons of cement, up from about 2.8 million tons in 2000 (see Figure 7.6). These numbers are consistent with the data reported in the 2001 SOER (3.2 million tons in 1995 plus about 2,500 tons imported).

Figure 7.6 Lebanese cement production (2000-2010)



Source: Data for years 2000-2009 from USGS 2009 Minerals Yearbook; and data for 2010 from International Cement Conference, Beirut 2011

Lebanon's cement industry uses raw material (limestone) from natural quarry stone, usually located near the plants. The quarries consume lands, cause irreversible damage to landscape, and release fine particles into water and air. The transport of cement and concrete to construction sites affect road conditions and road safety, and contribute to total greenhouse emissions.

Loss of green cover and habitat fragmentation

Construction all over Lebanon, but mainly in and around forested areas, occurs at the expense of the green cover. The pine forests that used to cover the hills overlooking Beirut are shrinking rapidly to make way for buildings and resorts. Paradoxically, most of these developments are marketed and advertized as being located in a green oasis or surrounded by forests. While many building projects attempt to restore some of the lost greenery at the end of construction, landscaping usually relies on imported or introduced species that are not well suited for Lebanon. Also, much of this landscaping is confined to flower beds and other enclosures with no hydraulic continuity to groundwater. At the level of ecosystems, mountain resorts break up habitats into ever smaller units thereby impacting wildlife. Noise and artificial lights after nightfall may also disturb wildlife.

Impact on urban morphology

Current urban planning and building regulations have dramatically failed insofar as producing a coherent urban morphology. The emphasis on building coefficients and floor-area-ratios has resulted in the construction of cluttered buildings that are incongruent and non-aligned. In fact, in Beirut, there is a total laissez-faire in relation to how architects and/or civil engineers decide to position the buildings inside the parcel. Owners may decide to build any distance away from the main road and from the edge of the sidewalk, to optimize the building coefficients. Setbacks are not regulated. Adjacent buildings in Beirut are therefore disorderly and assume different heights. The building skyline in Beirut is notoriously irregular and tangled. A compounding effect to the urban morphology and skyline are the illegal annexes and implants built during the Civil War (and beyond), most of which constitute enduring eyesores.

Ribbon construction

As explained in Section 7.2.1, construction is not always concentric. Linear construction in rural areas, also known as ribbon construction, is unsightly and obstructs the view. For example,

ribbon construction along many roads stretches in the Bekaa Valley as well as in Akkar has cloaked the natural scenery on both sides of the road. Ribbon construction also voids communities of a city center and a central market where people congregate, and presents formidable challenges for pedestrians on both sides of the road. With time, built-up roads need to be retrofitted with speed bumps and/or traffic lights, as well as road medians and girders for separating opposite traffic lanes, and overpasses for pedestrians –all these measures eventually reduce traffic flow. It should be noted that linear construction is sometimes partially due to the absence of basic infrastructure in villages. Owners therefore choose to build along roads because roads can improve access to water, wastewater and electricity.

Loss of agricultural land and top soil

For decades, Lebanon's agricultural sector has been declining, both in terms of percent contribution to GDP as well as total arable land. The continued shift towards a service-based economy (banking, tourism, health, etc.) and the sustained demand in the construction sector is putting a lot of strain on agricultural lands. The comparative advantage of the Lebanese agricultural sector is losing ground due to regional competition and WTO requirements for the free flow of goods. Agricultural lands are also breaking up into ever smaller plots (through inheritance) which render agricultural production even more difficult and cost ineffective. The absence of a national policy to protect agricultural lands from unwanted development and incentivize farmers to modernize their production systems is leading to the rampant encroachment of buildings on fertile lands. Urban sprawl is most severe in the Bekaa valley and the Akkar plain (see example in Figure 7.6). The scale of construction on agricultural land will further compromise Lebanon's food security.

Groundwater pollution

Haphazard construction in rural areas not equipped with adequate wastewater and drainage networks is contributing to groundwater pollution. In non-sewered communities, most septic tanks are built amateurishly and by irresponsible engineers and contractors, with little municipal control and oversight, if any. In fact, many septic tanks are bottomless or built to leak or overflow so that owners don't have to pay for suction pumps to come and empty the tanks.

Reckless road construction and habitat degradation in Mètn

The skyline over Beirut and its suburbs is distinctly uneven and lack harmony

Figure 7.6 Pressure from urbanization on agricultural lands

(c) Akkar Plain in 2005

(d) Akkar Plain in 2010

Source: Google Earth imagery (2005, 2010)

Reckless disposal of construction and excavation waste in ravine, Wadi Jhannam (Baskinta)

Heat island effect

The urban heat island has become a growing concern and is increasing over the years. The urban heat island is formed when industrial and urban areas are developed and heat becomes more abundant. In rural areas, a large part of the incoming solar energy is consumed by evaporating water from vegetation and soil. In cities, where the extent of vegetation and exposed soil is negligible, most of the sun's energy is absorbed by urban structures, concrete and asphalt. These surfaces trap the sun during warm daylight hours and release much of that heat during evening hours. Meanwhile, less evaporative cooling in cities allows surface temperatures to rise even higher compared to rural areas. Additional city heat is given off by vehicles and factories, as well as by industrial and domestic heating and cooling units. These factors increase city temperatures by 1 to 6°C compared to surrounding landscapes. Impacts also include reduced soil moisture and intensification of carbon dioxide emissions.

Substandard infrastructure in mountains

Mountain resorts consume significant environmental resources during construction and operation. Planned resorts usually require the technical review of and approval by the Higher Council of Urban Planning (if greater than 10,000m^2). Unfortunately, the review process generally fails to ensure the provision of basic infrastructure that is environmentally sustainable. Mountain resorts are typically implanted in natural areas that have never been built before and therefore lack basic infrastructure including access roads, water supply networks, sewage collection and treatment systems, and electricity. Large scale resorts need a lot of water and generate a lot of wastewater as well as solid waste. On the social side, some mountain resorts tend to offer complete amenities to its tenants, including sports facilities and mini-markets, effectively eliminating reliance on the services offered in Lebanese villages and towns. Depending on their location, mountain resorts may even have separate access roads that may or may not be equipped with adequate drainage systems and usually scar the landscape well beyond the limits of the resort.

Living conditions in poorly serviced cities and suburbs

Haphazard or poorly planned construction, especially around cities, has produced urban communities with **substandard infrastructure** and living conditions. Selected suburbs around Beirut (e.g., Hay el Sellom, Nab'3a) and Tripoli (e.g., Bab al Tabbaneh, Jabal Mohsen) have regressed into slums, or shantytowns, with very modest services and amenities, if any. These areas evolved gradually, over many years, and as result of rural-urban migration. The earliest settlements were individuals seeking work in the ports of Beirut and Tripoli and/or the railway. With time, these early settlements became

denser with new and taller construction, rendering public spaces minimal and usually unhygienic. Furthermore, the majority of buildings in these impoverished suburbs and marginalized slums lack proper septic tanks or sewer connections. Buildings commonly discharge raw sewage on vacant plots, in nearby streams or abandoned water wells.

Many Lebanese cities (Beirut, Tripoli, Saida and Sour) are **densely populated**. Buildings are collated to one another, preventing natural ventilation and obstructing sun rays. Unhygienic conditions, including odors, may occur especially during summer. Open-top curbside waste containers further impact the street landscape, attract rodents and insects, and emit foul odors. Densely populated neighborhoods generate more waste than waste collection services have capacity to remove while preventing odors.

The impermeability of city surfaces to rainfall creates episodes of **localized flooding**. City dwellers in Beirut, Tripoli, as well as Zahle experience every year floods in low-lying areas, under bridges and in tunnels, and wherever stormwater networks cannot drain standing water fast enough. While it is true that stormwater network blockage is the result of inadequate or irregular maintenance, rainfall intensity combined with dwindling open spaces in cities will incontestably further increase flood incidents during winter no matter how effective the storm water networks are.

Street parking in Lebanon's major cities is very difficult, sometime impossible. Roads are narrow and congested and most buildings dating from the period pre-1980 were not equipped with underground car parks. In many cases, underground floors if present are designated shelters (a former requirement), most of which have been converted to makeshift car parks or warehouses.

Most importantly, Lebanese cities **lack public spaces** such as gardens, playgrounds, sanitary public beaches, designated sport areas, etc. Beirut is scandalously poor in terms of green areas (Sanayeh Park, Hassan Khaled Park and Sioufi Park) and the largest green spaces (Beirut pine forest and Beirut Hippodrome) are inaccessible to the public most of the time. The lack of urban green spaces in Beirut and other cities impairs living conditions and reduces opportunities for social interaction.

7.2.6.2 Urban and Historical Heritage

Cities modernize and sometimes develop at the expense of heritage. New architectural styles and new housing forms have sprung up in recent decades to replace traditional shapes and structures. Although conflict damaged a great number of historic buildings in the capital, the pace of demolition accelerated during post-war reconstruction efforts and the recent spike in property prices had a catastrophic impact on Beirut's dwindling heritage stock despite some legislation to protect historic buildings (see overview in **Box 7.5**). The heart of Beirut became a large shareholding company (Solidere) that was responsible for all town planning and reconstruction efforts. Although their work was largely criticized, either for having demolished conservable historic buildings or for removing valuable archaeological sites, the final result was a fine balance between economic gains, aesthetic concerns and historic considerations. The systematic transformation of Lebanon's architectural heritage is apparent in all major cities including Beirut, Tripoli, and Saida. Across the country, many important landmarks including the pink house in Manara, the historic coffee house in Gemayze (*Ahwet Al Ezaz*), the Beirut Dome, the 19th century historic opera house in Tripoli (*Masrah Al Inja*) and many more face eminent demolition. Other retro buildings of important cultural value have already disappeared (e.g., Raouche Carlton Hotel built in the 1960s).

Landmark heritage building in Beirut, overshadowed by high-rise tower

Box 7.5 Is the government doing enough to protect architectural heritage?

Protection legislation dates back to 1933, for buildings erected before 1700. In 1999, the COM enacted Decree 32 (dated 3/3/1999) which was based on the work of Khatib & Alami, recognizing five categories of historical buildings denoted A, B, C, D and E. Category A refers to buildings in very good condition and Category E are buildings that need a lot of work. The directive initially protected buildings under Category A, B and C. This was later amended by Decree 57 (dated 10/3/2010) to extend the protection to buildings of Categories D and E. In 2007, parliamentarians drafted a law to reinforce the 1999 directive but the General Assembly has yet to approve it. The Minister of Culture issued Decision 119 (dated 24/11/2010) to form a follow-up committee with architects and members of the Directorate General of Antiquities. In theory, demolishing buildings under Category A, B or C requires the approval of the Minister of Culture. In practice, developers have been able to declassify some buildings through lobbying or by presenting (false) evidence that the buildings are structurally unsafe, or simply by demolishing the building during odd hours. Conservationists have argued that protecting historic buildings scattered around the city is less effective and less meaningful than protecting groups of adjacent buildings that form an architectural ensemble.

7.3 POLICY OUTLOOK AND THE WAY FORWARD

Urbanization is weighing heavily on Lebanon's natural resources as well as mountain and coastal landscapes. If the current rate of construction continues unabated, without legal and policy restrictions, Lebanon will undergo drastic and irreversible transformations in the coming decades. The following sections present a shortlist of policy recommendations that would help change the current course of urbanization to more sustainable urbanization and construction. These recommendations are divided into five sections:

1. Administrative reform
2. Urban planning reform
3. Reform of the construction permitting process
4. Restrictions on ownership by non-Lebanese
5. Public education on more sustainable construction standards

7.3.1 Administrative Reform

Public administration reform should be comprehensive and must include process changes related to organizational structures, decentralization, personnel management, public finance, results-based management, regulatory reforms etc. It can also refer to targeted reforms such as the revision of the civil service statute.

1) Afford greater administrative and financial independence to municipalities and municipal federations to improve and streamline procedures. Buttress the municipal work force with subject matter specialists who understand and can improve heritage conservation efforts including urban morphology and landscapes.
2) Recruit civil servants in key positions based on professional competencies and merit. Work actively to stop appointments that are politically motivated. Recruit more qualified personnel in urban planning departments and review and diversify the personnel prescribed in Decree 10490/1997 (DGUP).
3) Resume discussion to institutionalize the *Baksheesh*, so widespread in Lebanon and the Middle East. Although *Baksheesh* is a term used to describe tipping, charitable giving, and certain forms of political corruption and bribery in the Middle East and South Asia, it does not correlate with the European system of tipping, as it also includes demonstrations of gratitude, respect or veneration. Because the *Baksheesh* is entrenched in the construction permitting process (and in other sectors as well), it has reached staggering proportions. Formalizing the *Baksheesh*, some professionals would argue, will cap the amount spent on tipping for each type of transaction, improve transparency and reduce shame.

7.3.2 Urban Planning Reform

Urban planning reform is needed to contain haphazard urbanization and to produce homogenous urban neighborhoods. The reform process would need to address the following priorities:

1) Shield urban planning activities from political interference. By the same token, the GOL should stop and prohibit all legal settlement of illegal constructions. It should also implement firm measures to demolish and remove illegal constructions and revalorize the urban landscape.
2) Resume and complete the work initiated under the National Land Use Master Plan (SDATL) by developing detailed regional plans. Existing master plans would need to be amended to comply with the National Land Use Master Plan. New master plans would need to be prepared based on the National Land Use Master Plan.
3) Manage and control the natural expansion

of villages and towns by restricting urban sprawl, maintaining urban continuity, and reducing energy consumption.

4) Rethink urban master plans to:
   - Shift from *physical* planning to *strategic* planning. Strategic planning is inclusive of sustainable development goals and targets and would also entail EIA and/or SEA studies. The SEA process was successfully used to develop the urban master plan for the region of Tannourine in north Lebanon (mentioned in Chapter 6 Land Resources). The SEA process and the EPIK method for karst vulnerability assessment are indispensable tools in urban planning and for the protection of water recharge zones.
   - Protect natural landscapes and scenic outlooks, and maximize the use of sunlight.
   - Reduce the extent of excavation by limiting belowground works to the effective lot coverage aboveground. Reuse the excavated topsoil in gardens. Protect the remaining surface area (beyond the lot coverage) to enhance natural infiltration of rainfall.
   - Increase green spaces in cities by choosing heat and pollution-resistant ornamental trees and shrubs. Avoid introducing exotic species because they usually require excessive and expensive aftercare.
5) Improve protection measures of urban heritage buildings by increasing the budget allocated to the Directorate General of Antiquities and streamlining administrative procedures.
6) Improve, standardize and monitor the work of topographers. Use geodesic reference points for all cadastral and topographic studies, supported by GIS applications.

7.3.3 Reform of the Construction Permitting Process

Reform of the construction permit process will help reduce fraud and construction malpractices. Proposed measures include:

1) Redesign the permit process by streamlining procedures and applications.
2) Establish and staff a service inside all regional urban planning offices (or municipal federations) charged with the technical supervision of construction sites and without intervention from Internal Security Forces (ISF). ISF patrols may only interfere after express approval from the relevant urban planning office.
3) Review and enforce the role of OEA engineers in the inspection of construction sites to ensure compliance with approved engineering drawings and plans.
4) Promote environmentally-friendly and other forms of sustainable construction including Green Buildings if and when possible. Several universities (AUB, USEK, etc.) are actively promoting green design as part of their curriculum and the recently established *Lebanon Green Building Council* (an NGO) is promoting green buildings at the policy level.

7.3.4 Restrictions on Ownership by Non-Lebanese

In February 2009, 10 members of parliament presented a draft law (No. 94/2009) that would amend Law 296 dated 3 April 2001. Proposed amendments include:

- Introduce a clear method for calculating the total land area acquired by non-Lebanese at the *caza* level (10% in Beirut and 3% in all other *cazas*).
- Amend the restriction on total land areas owned by non-Lebanese at the *caza* level by removing from the stated percentages all municipal lands *mashaa*, as well as lands owned by the state *aradi jamhourieh*, protected areas and forests, as well as all other areas that have a lot coverage of five percent or less. The 3 and 10 percent restriction should be based solely on lands approved for construction (not total land area).

Other proposed restrictions:

- Increase land registration taxes for non-Lebanese (currently at par with Lebanese buyers)
- Reduce land registration taxes for Lebanese who buy property from non-Lebanese
- Introduce capital gain tax to dissuade speculators (Lebanese and non-Lebanese)
- Accelerate and complete the cadastral demarcation all over the Lebanese territory. This will help calculate the percentage earmarked for non-Lebanese buyers.
- Return to the state all lands owned by non-Lebanese who have not started (or completed) construction within the prescribed five-year period.

7.3.5 Public Education and Mass Media

Reforms without public education will not go far. It is important to educate the public, including landowners, builders, contractors, and investors on the need to revamp the Lebanese

construction sector to protect national heritage and landscapes. This is not easy, especially when the return on the investment or the transaction is high. The GOL should collaborate with all major media outlets (TV, radio and newspapers) to insert messages related to construction, urbanization, and heritage conservation. TV inserts, debates, and spots should also remind the people of the benefits of compliance and law enforcement, and the repercussions of fraud and malpractices. Banks can and should play a key role in this effort as they are the principle lenders and beneficiaries of the construction sector.

Historical building in Gemayze

REFERENCES

Abed el Nour, 1896	Abed el Nour A., *Qanoun el abniah wa qarar el istimlak,* Municipalité de Beyrouth, 1896.
Aveline, 1997	Natacha Aveline, Compte-rendu de mission sur le foncier et l›immobilier à Beyrouth, Beyrouth : Centre d'études et de recherches sur le Moyen- Orient contemporain, 1997.
Boustany, 1983	E., *Code de la propriété foncière : Les codes libanais en texte français*, Beyrouth : Librairie Antoine, 1983.
CAS, 2004	The Central Administration for Statistics (CAS), Census of Buildings, Dwellings and Establishments, 2004
CDR-NLUMP, 2004	Council for Development and Reconstruction - Lebanon, *National Land Use Master Plan (2004)*, Final Report, DAR/IAURIF. 2004.
COMAP, 2007	The Cadastre Operations Modernization and Automation Project. Funded by the World Bank and implemented by the Ministry of Finance, Directorate General of Land Registration and Cadastre (1995-2007).
Faour *et al.*, 2005	Faour Ghaleb, Haddad Theodora, Velut Sebastien, Verdeil Eric, 2005, *40 ans de croissance urbaine à Beurouth,* Mappemonde, no.79-3.
UNICEF 2007	At a Glance - Lebanon Statistics, UNICEF 2007
USGS 2009	*Minerals Yearbook – Lebanon*. US Geological Society, 2009
Verdeil *et al.*, 2007	Eric Verdeil, Ghaleb Faour et Sebastien Velut (2007), *Atlas du Liban: Territoires et Société*, ifpo/CNRS, Beyrouth, Liban.
WB, 2010	World Bank Data Base, November 2010 http://data.worldbank.org/country/lebanon

CITED LEGISLATION RELATED TO HAPHAZARD URBANIZATION

نوع النص	الرقم	التاريخ	عنوان النص
قرار وزارة المالية	٣٣٣٩	١٩٣٠/١١/١٢	قانون الملكية العقارية
مرسوم	١١٦١٤	١٩٦٩/٠١/٠٤	اكتساب غير اللبنانيين الحقوق العينية العقارية في لبنان
مرسوم اشتراعي	٦٩	١٩٨٣/٠٩/٠٩	قانون التنظيم المدني
قانون	٢١٦	١٩٩٣/٠٤/٠٢	إحداث وزارة البيئة
مرسوم	١٠٤٩٠	١٩٩٧/٦/٢١	إعادة تنظيم وتحديد ملاك المديرية العامة للتنظيم المدني
قانون	٢٩٦	٢٠٠١/٠٤/٠٣	تعديل بعض مواد القانون المنفذ بالمرسوم الرقم ١١٦١٤ تاريخ ١٩٦٩/١/٤ إكتساب غير اللبنانيين الحقوق العينية العقارية في لبنان
قانون	٦٤٦	٢٠٠٤/١٢/١١	تعديل المرسوم الاشتراعي رقم ١٤٨ - تاريخ ١٩٨٣/٩/١٦ قانون البناء

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Map 8 - Lebanon's Urban Expansion and Major Cities

This map was prepared by ECODIT based on National Land Use Master Plan (2004). Every effort has been made to ensure the accuracy of the information displayed on this map. The international boundaries are approximate. MOE/UNDP/ECODIT do not assume any responsibility for any decision that may arise from the use of the map.