

## Lebanon Infrastructure Sector Overview

### 1.1 Economic Opportunity and infrastructure

Lebanon's biggest economic challenge is dealing with the spill over from the Syrian crisis, including refugee inflows and its impact on public infrastructure, services and growth. This coupled with Lebanon being the third most indebted country in the world (public debt equivalent to 151% of GDP). Debt service cost is 10% of GDP, 50% of government revenues and 36% of total government expenditures, all among the highest in the world. The lack of proper investment in electricity, telecoms, sanitation, transport, and water is causing major costs to the economy, to the productive capacity of all sectors, to household income, and to the health of every individual. The deposits in the Lebanese financial systems, with the proper use of available cheap international loans and guarantees, can help Lebanon close its infrastructure gap while minimising borrowing.

Lebanon's infrastructure was extremely damaged by the 1975-1990 civil war. The quality of public utilities decayed further after the war in 2006 and the Syrian war in 2011. Since then, Lebanon has lacked sustainable electricity, education, health, transport and other basic networks due to the chronic inability of successive governments to manage and plan them. As a result, the growth of the economy has been severely constrained.

Due to the limited budget resources, Lebanon has made no significant investments in infrastructure. Lebanon's high public debt hinders the government's ability to renovate the infrastructure. Investment in infrastructure plays a key role in the economy's potential and ensuring sustainable growth, in addition to improving the living standards of the population. One way to develop new infrastructure without crippling the country's fiscal policy would be via PPP.

The following opportunities are key to promoting inclusive growth:

- **Growth and job creation:** The World Bank has approved \$400m to support Lebanon's quest to expand nationwide employment opportunities, which have been severely impacted by the influx of Syrian refugees and the recent low growth trend of the economy. Expected to create 52,000 permanent jobs and 12,000 short-term opportunities. The program will enhance economic opportunities for vulnerable groups, specifically young men and women.
- **Inclusion and poverty reduction:** In addition to monetary poverty, a broader segment of the population suffers from nonmonetary dimensions of poverty (for example, inadequate levels of education, health care, and access to basic infrastructure). Although Lebanon is an upper-middle-income country, weak and deteriorating public institutions mean that the state is unable to deliver satisfactory public services widely to the population. While more affluent citizens are able to compensate by purchasing private goods and services (for example, private schooling, bottled water, and electricity generators), the poor and lower-middle classes are unable to compensate fully for their limited access to basic services. This inability adversely affects their living conditions and quality of life.
- **Investment in infrastructure:** Raising \$700m by issuing special bonds to unlock \$4bn of international funding for infra projects to boost the economy. Funding needs to be raised to release financing for 40 projects supported by the European Investment Bank, World Bank and others.
- **Climate and environmental resilience:** 70% of Lebanese live on the coast and much of Lebanon's economy relies on industries that are based there. Sea level rise could leave more than 2m people displaced and cause \$35bn's worth of losses in land, property and infrastructure.

### 1.2 Stakeholder Analysis

This section sets out in short bullet points the relative engagement of key players in infrastructure.

Public sector	<ul style="list-style-type: none"> <li>• Up to 1.5m Syrians, 25% of the Lebanese population, have taken refuge in Lebanon since the conflict started, straining Lebanon's public finances and service delivery.</li> </ul>
Private sector	<ul style="list-style-type: none"> <li>• Total investment committed to PPPs since 1990 in Jordan is \$333m.</li> <li>• The government continues to favour a strong role for the private sector in a liberal policy environment. The Lebanese economy, characterised by freedom of exchange and transfers, is based on private initiative.</li> </ul>
Donors	<ul style="list-style-type: none"> <li>• World Bank portfolio consists of 14 projects totalling \$1.7bn. The largest portion is for the water sector (\$674m).</li> <li>• 2018 CEDRE donor conference resulted in \$11.8bn in pledges of financial assistance.</li> <li>• International Finance Corporation's strategy in Lebanon focuses on financial markets (including microfinance) to increase access to finance for Micro, small and Medium Enterprises (SMEs).</li> <li>• IFC's portfolio in Lebanon has nearly doubled since 2010. Current portfolio stands at \$495m across 14 companies, mostly financial institutions, followed by construction.</li> </ul>

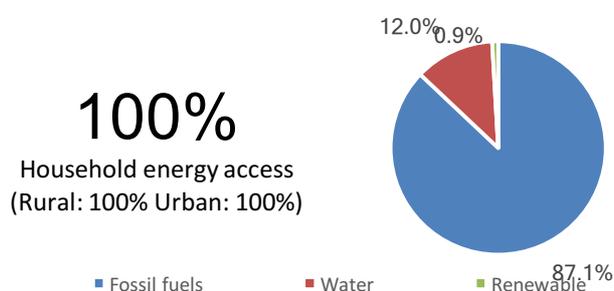
## 2 Sectoral analysis

### 2.1 Energy

#### Overview

- Scheduled power cuts of 3hrs a day in Beirut and sometimes 1 hrs or more outside the capital.
- The Ministry of Energy and Water (MoEW) and the Petroleum Administration (PA) are pursuing onshore and offshore hydrocarbon development.
- The public company Electricite du Liban (EdL) weighs heavily on the government's expenditures. Subsidies to EdL stood at an average of \$1.85B per year in the last 5 years. In addition, EdL is unable to supply houses and businesses with 24 hours of electricity, pushing them to use private generators.

#### Energy Access for households and business



#### Energy Planning

- The Lebanese Centre for Energy Conservation (LCEC) has published the National Energy Efficiency Action Plan (NEEAP). It presents initiatives to increase energy efficiency across sectors. The initiatives include also the promotion of electricity generation by renewable energies (solar, wind, hydro, geothermal, waste to energy). T
- The NEEAP has set a target for the growth rate of electricity consumption across sectors (industry, buildings, government, others & losses) to reduce by 5% in 2020 compared to the base year 2010.
- Government is targeting a reduced energy intensity of 0.42 kWh/\$ in 2020 compared to 0.44 in 2010.

#### Energy source sustainability

Oil: 40-675 million barrels

Gas: 96 trillion cubic feet

Solar potential: 31,608,742 MWh/year

#### Major Investments

- Second Deir Ammar Power Plant Project (\$500m)
- 2 New Power Plants at Zouk and Jieh (\$350m)
- Byblos (JBEIL) Power Plant Project (\$68.5m)
- Lighting up Beirut Project (\$50m)
- National Energy Efficiency and Renewable Energy Action (NEERA) (\$34m – taking overall international support for NEERA to \$100m+)

### 2.2 Transport

#### Overview

- The Greater Beirut Public Transport Project (GBPTP) shall overhaul Lebanon's decaying transport sector and secure employment for thousands of unskilled workers. It is the first project to benefit from a newly approved PPP law that aims to attract private investments in infrastructure to ease the financial burdens of a government struggling with high public debt and fiscal imbalances.
- Lebanon has approximately 8,000km of roads, as well as a highway network linking the country with Syria. There are three key road routes in the country, each radiating from Beirut.
- 95% of roads are paved. Traffic rate is increasing rapidly. Currently, Lebanon has one of the highest car/people ratios in the world with one car for every three people.
- The relevant government agency, the Ministry of Public Works and Transport in Lebanon is organised into four directorates: Land and Maritime Transport; Roads and Buildings; Civil Aviation and Urban Planning.
- Road infrastructure is outdated and need rehabilitation, in addition to the need of investment in new roads. Traffic jam is increasing every year with wasted time on the roads costing the economy hundreds of millions of dollars per year, with the country lacking a well-functioning and organised public transport.

#### Import / Export of goods

Top 5 Exports	% GDP	Top Destination
Gold	1.57	South Africa - 84%
Jewellery	0.67	Switzerland - 36%
Scrap Copper	0.24	Bulgaria - 22%
Electric Generating Sets	0.20	Iraq - 14%
Brochures	0.17	Algeria - 19%

#### Ports / Cross border trade

- Doing business rating: 133/190
- Av time to clear customs: 7.6 days
- The Port of Beirut is Lebanon's main sea port, an one of the busiest ports in the Easter Mediterranean. The Port of Beirut and the Beiru Rafic Hariri International Airport are Lebanon's main points of entry. The Port is a hub for Jordan, Syria, Iraq, and the Persian Gulf States. At the end of the Civil War, the government took back ownership of the port and formed a committee to manage the Port of Beirut. Since then, the port has been updated and expanded. Existing port facilities have been renovated and new facilities for port administration and handling containerised cargo have been built.

### Major Investments

- The Greater Beirut Public Transport Project (GBPTP): \$295m
- Tripoli Bus Station (\$30m)
- Rayak-al-Karak Road Restoration (\$23m)
- New Port in Sidon Port (\$17m)

## 2.3 Digital Connectivity

### Overview

- The telecoms sector is wholly owned and controlled by the government, hindering technological advancement. Customers receive high rates, poor service and policies based more on political considerations than economic impetus.
- The mobile market penetration rate stands at around 50% in a region where the penetration rate of some countries exceed 100%.
- ISPs and data service providers (DSPs) are privately owned licensed entities subject to revenue-sharing arrangements with the government, but remain dependent on outdated government-owned infrastructure. It is through Ogero, the government-owned company acting as the country's fixed-line operator, that access to the internet is sold and distributed to the different ISPs and DSPs for resale to consumers.
- Many industry experts are of the view that privatisation is the key to improving Lebanon's telecommunications sector.
- The telecoms sector has proven to be a lucrative source of income for the government, injecting over \$1.6bn in net revenues to the treasury, second only to VAT.
- In 2015, the Ministry of Telecommunications unveiled a five-year plan to rebuild Lebanon's telecoms infrastructure with the aim of allowing internet users to enjoy fibre-optic connectivity by 2020.
- Its strategic location, educated population and low penetration rates make it a prime candidate for a thriving telecoms sector.

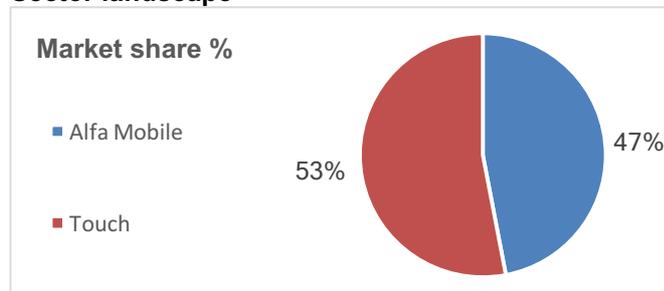
### Digital access

2G Network Coverage	GSMA index	97.22
	Rank (/170)	57
3G Network Coverage	GSMA index	99.00
	Rank (/170)	19
4G Network Coverage	GSMA index	95
	Rank (/170)	46
Cost of entry level basket (100 MB)	GSMA index	46.17
	Rank (/170)	108
Cost of entry level handset	GSMA index	90.72
	Rank (/170)	70
# of Mobile apps in national language	GSMA index	81.26
	Rank (/170)	58
Mobile phone subscriptions per 100 people		81.42

### Digital service accessibility

% of individuals using the internet		76.11
Internet Bandwidth per user	Bits per sec	51.6
	Rank (/170)	83
E-Government Score	GSMA index	51.45
	Rank (/170)	88/170

### Sector landscape



The telecom industry is considered a monopoly as there are only two government owned mobile operators in the country. Alfa Mobile, (Kuwait-based Zain operates the network on a management contract) and Touch (Egypt's Global Telecom Holding are the contract managers) set high quotes for their services.

### Planned Investments / Initiatives

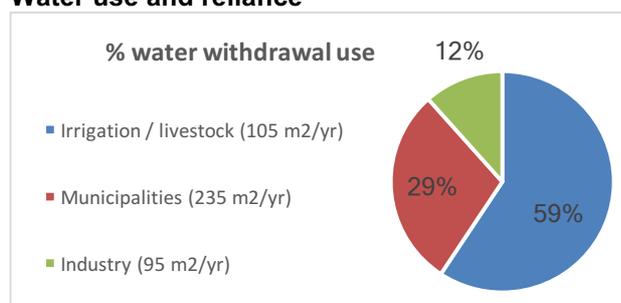
Government funding a \$283m fibre optics project (FTTX). Serta Channels and Huawei will deploy fiber optic cable in six areas: Beirut, Metn, Kesrouan, Jbeil, South, and Bekaa. The second joint venture between BMB Group and its US partner, Calix, will deploy in Chouf, Aley, and Nabatieh. Powertech and its Finnish partner, Nokia, will deploy its part of the FTTX in the North.

## 2.4 Water and Sanitation

### Overview

- Even though water is abundant in Lebanon, it is polluted and wasted, due to leaking distribution infrastructure.
- Lebanon is currently facing a critical standing in terms of water shortage, driven by a changing climate with rising temperatures and unprecedented scarcity in rainfall.
- A planned network of 27 water retention dams has been delayed for decades.

### Water use and reliance



### Agricultural water use

- Primary crops consist of fruit trees (26%), cereals (22%), olives (22%), vegetables (19%) and industrial crops (11%)
- The cultivable area is estimated at 360 000 ha, or 35% of the total area. The cultivated area is 328 000 ha (91%).
- 8% pop deriving livelihoods from agriculture and 12% of the population are rural.

### Infrastructure condition and investment

- Lebanon stores only 6% of its total water resources as compared to an average of 85% across the MENA region.
- The Greater Beirut and Mount Lebanon region has over 20,000 illegal wells
- Residents pay up to 15% of their total household expenditure on securing water to their homes
- Lebanon is constructing the 'Water Supply Augmentation Project'.

### Transboundary dependencies

The first three river basins cover about 45 percent of the country. The Asi-Orontes and Hasbani rivers are transboundary rivers, while the Litani River flows entirely within Lebanon. In 2002, the water resources of the Hasbani basin became a source of mounting tension between Lebanon and Israel, when Lebanon announced the construction of a new pumping station at the Wazzani springs.

### Major Investments

- Jbeil Caza Water and Wastewater Project (€38m)
- Greater Beirut Water Supply Project (GBWSP) (\$370m)
- Bisri Dam / Greater Beirut Water Supply Augmentation Project (GBWSAP) (\$617m)
- Zahel Potable Water Network (\$30m)
- Janna Dam Phase (\$200m)
- Qaissamani Dam (\$23m)
- Balaa Dam (\$40m)
- Keserouan Wastewater Project (KWWP) (\$205m)
- Litani Project (Canal 800 Project) (\$360m)
- Litani River Clean Up Plan (\$730m)
- Dannyeh Water Rehabilitation Project
- Al Ghadir Wastewater Plantjeita Spring Protection Project (JSPP) (\$146m)

## 2.5 Urban Infrastructure

### Overview

- Lebanon has for decades witnessed a rapid and uncontrolled urban growth and sprawl.
- With limited planning regulations in place or enforced, the urban areas are covering increasingly large areas.
- Most new construction is taking place at the coastal zone, where the majority of the Lebanese population resides, contributing to the uncontrolled urban expansion.

- Lebanon has a waste problem. In 2015, a large landfill site closed and the government failed to implement a contingency plan in time to replace it. Dumping and burning waste on the streets became widespread. In 2016 it was decided to dump waste from Beirut and Mount Lebanon in two new coastal landfills, in Bourj Hammoud and Costa Brava however these are almost full. This has led to a growing environmental disaster that threatens the health of its citizens and is impacting the beaches.
- The cities, especially Beirut, have successful high end districts however the urban divide and inequality is growing deeper.

### Urban Structure

% urbanised	88
# urban residents	5.28m
# living in informal settlements	246,126
Urban poverty (%)	28.6
Urban employment (%)	
- Total	93.7 [national]
- Youth	83.5
- Female	89.6 [national]

City size	# Cities	% Nat pop.	Tot pop.
Over 1m	1	27.5	1,650,000
500k-1m	0	0	0
100-500k	4	16.7	1,000,000
50-100k	1	1.5	90,000
0-50k	6	2.8	177,500

### Urban infrastructure overview

Energy	% household access Power outages per month	100% 50.5
Water	% access to improved water % connected to mains	99% Av. (80%); Beirut (96%); North (55%)
Sewerage	% with household toilet	58%
Urban transit	Modal split in cities  % household spend transport Commute time in large cities  Air pollution deaths in cities	71% private car; 19% jitney and taxi; 10% buses and minibuses 3.1%  40mins (Beirut)  400

**3.0 Ongoing x-HMG Engagement**

<b>Dpt / Org</b>	<b>Initiative</b>	<b>£ value</b>
DFID	Lebanon Municipal Services Programme Phase 2	25.3m
	Contribution to EIB trust fund supporting economy	25m
	Economic Resilience Initiative in the Syria region	25m
World Bank	Lebanon-Water Supply Augmentation Project	474m
	Lb – Greater Buirut Water Supply	200m