

METRICS	TRENDS & LIMITATIONS
INTERVENTIONS & PLANS	MAIN RESULT AREAS
WHAT NL ACTORS DO	COLOFON

Lebanon

This country profile, commissioned by The Netherlands Ministry of Foreign Affairs (Department of Inclusive Green Growth), gives a snapshot of what is happening in the closely interrelated themes of Food & Nutrition Security, Water, and Climate (including Renewable Energy) in Lebanon. It provides basic statistics on Lebanon's performance on key indicators and indexes, but also analyses relevant national policies, current donor interventions, and the main trends on the abovementioned themes. Combined with an overview of Dutch support to Lebanon, this profile concludes by suggesting potential priority result areas for The Netherlands.

In total, 12 countries profiles have been made, plus one regional profile for the Sahel.

BURKINA FASO	CHAD	EGYPT
IRAQ	JORDAN	NIGER
NIGERIA	SENEGAL	SOMALIA
SUDAN	TUNESIA	SAHEL REGION



COUNTRY PROFILE LEBANON

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LEBANON, FACTS

Government

- Unitary parliamentary multi-confessionalist republic
- President: Michel Aoun
- Official language:** Arabic, French
- Religion:** Islam (54%), Christianity (40.4%), Druze (5.6%)
- Area:** Total 10,452 km² (162th)

Population

- 2018 estimate 6,093,509
- Prospect 2050 5,412,000
- Density 560/km² (21st)
- GDP (PPP) 2017 estimate**
- Total \$ 88.786 billion (86th)
- GDP (nominal) 2014 estimate**
- Total \$ 53.915 billion
- Per capita \$ 11,615

Metrics

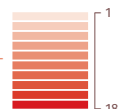
GENERAL INDICATORS

UN Human Development Index

188 countries: 1st = best opportunities for development



#76

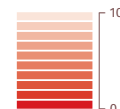


Anti-corruption and Accountability

100 = strongest policies and practices



N/A

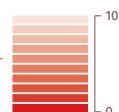


World Bank Doing Business Index

100 = most conducive environment for business



59.7

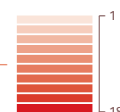


Gender Inequality Index

188 countries: 1st = smallest gender divide



#83



CLIMATE/RENEWABLE ENERGY INDEXES

World Bank ESMAP Electrification Index

population with access to electricity



100%

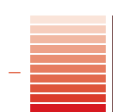


ND GAIN Index

181 countries: 1st = least climate change vulnerable, and best ready to improve resilience



#106



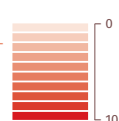
FOOD NUTRITION SECURITY INDEXES

Global Hunger Index (IFPRI)

Range 0 – 100: 0 = no hunger



14.7

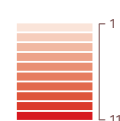


Global Food Security Index (Economist)

113 countries: 1st = best food security



N/A

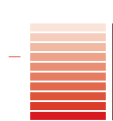


Land Management Index (UNCCD)

180 countries: 1st = most sustainable land governance



#68



WATER INDEXES

FAO AquaStat

Variation per capita internal renewable water resources



15.2%

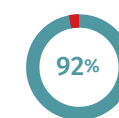


World Bank Drinking Water Index

population using at least basic drinking water services



92%



JMP Sanitation Index

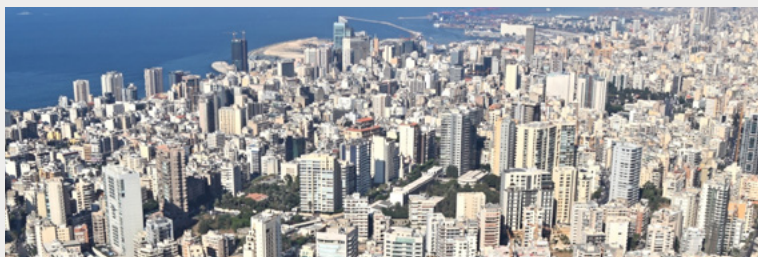
population with access to improved sanitation facilities



20.1%



Donor interventions and plans



Government policies

In terms of a policy document on climate change, Lebanon's INDC was submitted to the UNFCCC in September 2015. To date, no Intended Nationally Determined Contribution (INDC) has been submitted. The INDC Lebanon highlights climate change adaptation as a priority for Lebanon with a strong focus on forestry & agriculture and water.

The government of Lebanon has issued key relevant national development strategies and plans, including the Strategy for the Ministry of Agriculture (2015-2019), the Lebanon National Forestry Programme (2015-2025) and the Strategic Roadmap in Support of Fisheries and Aquaculture in Lebanon (2014-2019). Many of these strategies are being implemented, but the urgency and scale of the humanitarian response to the Syrian crisis demand that much focus and capacity is needed elsewhere.

From the INDC and the National Water Sector Strategy it can be deduced that the overall objectives of the Lebanese water policy are to increase water availability and improve water usage to decrease the sector's vulnerability to climate change impacts by:

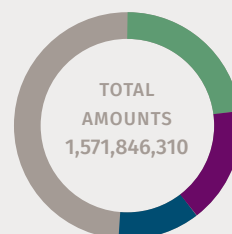
1. Improving water security such as through increasing artificial recharge of groundwater aquifers and increasing surface storage dams and hill lakes;
2. optimizing the use of the current water resources through the rehabilitation of the existing network and the installation of water meters;
3. increasing wastewater collection and treatment;
4. increasing water reuse, especially after wastewater treatment;
5. improving water efficiency and decrease water loss in irrigation.

Top 3 donors (based on 2017 IATI data¹) 2017

DONOR	AMOUNT (IN \$)
United Nations Children's Fund	350,677,000
United Nations World Food Programme (WFP)	267,280,000
World Bank Group	201,826,000

In the table the three largest donors in Lebanon are listed with their respective portfolio in 2017.

Most donors are active in the fields of developmental food aid / food security assistance and emergency response.



Top 3 Sectors attracting development funding

SECTOR	AMOUNT (IN \$)
Unallocated / unspecified	353,103,000
Developmental food aid / food security assistance	270,769,000
Emergency response	250,185,000

¹) This data originates from self-reported data in IATI by major donors. It should be noted that not all aid flows and financial sources are captured.

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What NL actors already do

Major commitments from the Netherlands (based on IATI)

BUDGET SPENT BY NL MINISTRY OF FOREIGN AFFAIRS (2017)	AMOUNT (IN \$)
Basic education	8,028,980
Emergency response	5,326,620
Secondary education	4,122,120
BUDGET SPENT BY NL ENTERPRISE AGENCY (IN 2016)	AMOUNT (IN \$)
Agriculture	28,099
Water and sanitation (Dutch Risk Reduction team)	20,916
Emergency Response - (Dutch Risk Reduction team)	20,916

Top three largest programmes supported by the Netherlands (active as of 2017)

THEME	ORGANISATION	TITLE	COMMITTED (\$)
Public finance management	Netherlands - Ministry of Foreign Affairs / IBRD	DSH WB Concessional Fin II	34,819,800
Civilian peacebuilding	Netherlands - Ministry of Foreign Affairs	Social cohesion in communities	12,585,700
Agricultural policy and administrative management	Netherlands - Ministry of Foreign Affairs / FAO	FAO Water and Agriculture	8,250,000

The Netherlands has developed a two-pronged approach to support the government in Lebanon after a thorough review of donor support:

1. Education, with a focus on vocational training;
2. Economic development and job creation, with a special focus on engaging youth.

This approach offers various opportunities for continued support through training on maintenance of technical equipment for water (to reduce leakages and improve lifetime), energy (to ensure optimal operations and minimal breakdowns) and agriculture (to increase job opportunities).

Specifically, The Netherlands has granted FAO two projects (2017-2020) which aim to yield results in food and nutrition security and water conservation²:

1. Promotion of agriculture livelihoods and employment through investment in land reclamation and water reservoirs. Improvement of livelihood of 1220 small farmers through land reclamation and water conservation and improve their know-how in establishing and managing orchards and irrigation systems. This project will create over 80 000 person/days job opportunities in the construction

and agriculture sectors. (US\$8.25 million, 2017-2020).

2. Upgrading the Technical Agriculture Education System in Lebanon. This project will help rehabilitating and upgrading the agricultural technical schools in Lebanon and modernizing their curricula. Young Lebanese and displaced Syrians will have the possibility to enrol in a three-year Agricultural Technical Baccalauréat (BTA) and/or in short-term vocational training courses. These new technical learning opportunities will increase their chance to access decent jobs in the agriculture and agro-industry sectors. (US\$5.4 million, 2017-2020).

The Dutch programme “Strengthening the Lebanese Water and Agriculture Sector” (2017-2018) will support Lebanon with advanced Dutch expertise in water and agriculture. It is being implemented by Waternet, the public water company for the City of Amsterdam and surroundings. The programme is part of a 86 million Euro aid package, made available by the Netherlands government in order to help Lebanon cope with the impact of the refugee crisis and its heavy toll on local infrastructure.

The five components of the programme are:

1. a Water Operator Partnership (WOP) between the Bekaa Water Establishment and Waternet.
2. support to the Litani River Authority in water quality monitoring and algae control,
3. pilot artificial recharge projects demonstrating the feasibility of small scale artificial recharge to groundwater.
4. innovations in irrigation practices by smallholder farmers through affordable soil sensor technology and advisory services;
5. adaptable greenhouses: using advanced Dutch greenhouses techniques for the developments of demonstration greenhouses that are affordable and adapted to local conditions.

Waternet is implementing the two year programme in co-operation with Wageningen University & Research, Acacia Water and in close cooperation with local partners: the Bekaa Water Establishment, the Litani River Authority, Green Plan, the Lebanese Agriculture Research Institute, the Ministry of Energy and Water and other Lebanese institutions.

2] <http://www.fao.org/documents/card/en/c/a2cde06d-9b86-425b-92cb-3b04f4394e96>

Trends and limitations

Food security

Lebanon has the world's highest per capita refugee presence, estimated at one quarter of the overall population. It has made significant progress in the last decade and is currently ranked as an upper-middle-income country. However, poverty and income inequality remain high – with wide disparities among regions – and the participation of women in political life and in the job market is low.

The spill over from the ongoing war in Syria has exacerbated economic and social challenges, placing a strain on existing resources and already overstretched public services and infrastructure in host communities. The agricultural sector is weak and up to 80 percent of the country's food needs are covered by imports. These imports used to come from Syria, but the war has severely limited imports from Syria since 2015.

Lebanon's agricultural sector is nevertheless important for the country in terms of contribution to GDP and employment. Key agricultural products include fruits (mainly apples, oranges, bananas and grapes, but also significantly olives) which account for 31% of total agricultural production, and vegetables (such as potatoes, tomatoes and maize) which account for

63% of total production³. Unlike some of its neighbouring countries, Lebanon has large areas of fertile land, access to water resources, and a moderate climate. The bulk of agricultural production is for export, mainly to the Middle East.

According to a food security review carried out in May 2016, 49% of the population is worried about being able to access enough food and 31% said they were unable to eat healthy and nutritious food over the course of a year. Among Syrian refugees, the percentage of families estimated to be food insecure raises to 93%, with those headed by a woman particularly affected⁴.

Lebanon will have to continue importing large amounts of food in the foreseeable future due to limited agricultural production, water scarcity and large population pressures.

Water

Lebanon has 40 rivers of which 17 are considered perennial. The total combined annual river flow is estimated at around 3,900 million cubic metres (MCM), with most of the flow (75%) occurring from January to May. About half of Lebanon's water supply is sourced from groundwater. The natural recharge rate of aquifers is estimated at around 500 MCM/yr, but with extraction rates of around 700 MCM/yr, overexploitation forms a growing problem, especially in Beirut, Tripoli, South Lebanon and the Bekaa. Coastal aquifers are particularly affected and increasingly suffer from declining water tables and seawater intrusion⁵.

Lebanon hardly makes use of non-conventional water resources. Besides a few small-scale independent initiatives, there is no reuse of treated wastewater. Desalination is also limited, with small amounts being desalinated by the private sector (4.5 MCM/yr) and Electricité du Liban (5.5 MCM/yr).

According to Aquastat, 2014, the annual water availability in Lebanon is 933.8 m³ per person, which is just below the 1,000 m³ water scarcity threshold.

48% of the population in Lebanon (incl. refugees) has access to safe drinking water. 20% of the population has access

to safely managed sanitation^{6,7}.

Efforts of the government and donors are focussed on improved access to piped water supply through reduced non-revenue water levels, increased supply (dams) and reductions of water use in agriculture through improved irrigation techniques, and possibly waste-water re-use. Continued international tension with Israel and Syria on transboundary water resources will need to be managed to ensure existing levels of water security.

The implication is that with a growing population, massive refugee influxes, over-abstraction from aquifers, limited re-use and reduced transboundary flows, water scarcity will increase in the coming decades.

Lebanon's coastal cities are vulnerable to climate-related sea level rise. Saltwater intrusion into coastal aquifers is already occurring and will continue with rising seas. Reduced rainfall and increased temperature will result in a decrease in snow level, a vital water source, which will negatively impact Lebanon's water supply, particularly during the period for high demand of water for irrigation⁸.

3] FAOstat, and Lebanon National Accounts. http://investinlebanon.gov.lb/en/sectors_in_focus/agriculture

4] World Food Programme was consulted for details.

5] <https://water.fanack.com/lebanon/water-resources/> 6] <https://washdata.org/data#/lbn> 7] Other sources quote 92% access to safe drinking water, but a different definition is used. 8] Ministry of Foreign Affairs (2018, draft). Climate Change Profile: Lebanon. The Hague: Ministry of Foreign Affairs/IGG.

Trends and limitations

Climate/Renewable Energy

Currently Lebanon relies on importing fossil fuels to meet its domestic energy demand. 94% of the country's total primary energy consumption is for fossil fuels, while 88% of the installed energy capacity is fossil fuel fired. The remaining 12% comes from renewable energy; mostly hydropower (depending on water flow)⁹.

Lebanon suffers from a major gap between energy demand and supply, resulting in a deficit in energy of around 23%. This energy not supplied by public utilities is supplied by privately owned generators providing electricity to households and commerce during cut-off hours. All these generators work on gas diesel oil which is bought either directly from private fuel distributors or from gas stations¹⁰.

Renewed interest in renewable energy to meet energy demands has been strengthened by the establishment of the Lebanese Centre for Energy Conservation, now embedded within the Ministry of Water and Energy.

A revised National Renewable Energy Action Plan for Lebanon (2017) has been developed to guide investments and innovations in REN. This action plan aims to increase the supply of electricity through promotion of

renewable energy generation potential. With the current trend in Lebanon in which the demand is rising faster than available supplies, investments in energy and capacity building on energy efficiency will be required.

For climate change mitigation, Lebanon INDC has two targets: an unconditional target of 15% GHG reduction compared to business-as-usual (from the country's own resources) and a conditional target of 30% GHG reduction compared to business-as-usual (dependent on international support) that is to be realized by the introduction of renewable energy for power and heat as well as energy efficiency to reduce demand for power (compared to business-as-usual).

Nexus implications

The nexus between water, energy, food security and climate resilience is important in Lebanon. Reduced water flows result in a reduced potential for electricity generation and irrigated agriculture. Furthermore, the prevalent use of fossil fuels for power generation causes significant air pollution. Energy industries are responsible for around 50% of the total energy emissions in Lebanon (without transport). The Syrian crisis has resulted in an estimated 1.5 million refugees, increasing Lebanon's population by 30% in just over two years and exacerbating the already-stretched economy and natural resources and hindering the country's efforts to build a climate-resilient low carbon economy in accordance with its INDC.

Current political fragmentation, compounded by the refugee crisis, is limiting Lebanon's ability to address the water and energy issues.

⁹] <http://www.rcreee.org/content/lebanon>

¹⁰] <http://climatechange.moe.gov.lb/energy>

Ranking of main result areas

Based on the above analysis, the following result areas can be considered to be most promising for intervention. This ranking is indicative only. It is based on the country needs, complementarity to interventions by other donors, and match with The Netherlands' development policy, knowledge and experience.

The three directions suggested here are, in order of priority,

1. Transboundary Water Facilitation and Support,
2. Reducing emissions through use of REN, and
3. Agricultural livelihoods.

FOOD AND NUTRITION SECURITY	SUGGESTED DIRECTION	SHORT NARRATIVE
Malnutrition		
Agricultural growth	Agricultural livelihoods	Continue to invest in agricultural communities in order to improve their production, land/water use and efficiency. This will impact availability of jobs for Lebanese and displaced Syrian workers.
Sustainable food systems	Agricultural livelihoods	Continue to invest in agricultural communities in order to improve their production, land/water use and efficiency.
Enabling environment		
WATER	SUGGESTED DIRECTION	SHORT NARRATIVE
Water resources management		
Transboundary river basin management	Transboundary Water Facilitation and Support	Facilitation of transboundary water negotiations through the introduction of Dutch approaches to stakeholder engagement. Through a process of consensus building, training and facilitation, agreement can be sought to manage the headwaters of the Jordan River Basin in a more equitable way.
<ul style="list-style-type: none"> • Increased water productivity • Access to safe drinking water and sanitation 		
CLIMATE*/RENEWABLE ENERGY	SUGGESTED DIRECTION	SHORT NARRATIVE
Access to renewable energy	Reducing emissions through use of REN	A focus on improving energy supplies is an imperative for climate change mitigation. It will also strongly impact health. Together with the World Bank and the EU, through commercial loan facilities, incentives can be provided for investments in renewable energy. Through education and communication, the benefits, financial viability and relevance of renewable energy can stimulate young entrepreneurs to invest in renewable energy. The Embassy in Beirut is already supporting this approach. Parallel to this capacity building measures to improve the legal framework for net-metering may be considered.
Sustainable forestry management and related practices		

* The result areas under climate are partly integrated in the resilience components under the Water and Food and Nutrition Security results areas.

Colofon

Country profile: This country profile is part of a series of 12 countries in the Sahel, Horn of Africa, and MENA regions, covering per country the themes of Food & Nutrition Security, Water, Climate and Renewable Energy. Commissioned by the Netherlands Ministry of Foreign Affairs (Department of Inclusive Green Growth, IGG), and implemented by Wageningen Centre for Development Innovation (WCDI), as part of the Support Facility of Food & Nutrition Security.

Authors

Ele Jan Saaf (SaafConsult); Herman Brouwer, Bram Peters and Lavinia Plataroti (all WCDI). May 2018. © 2018 Wageningen Centre for Development Innovation
info.cdi@wur.nl | www.wur.eu/cdi

Photo's: Kateryna Levchenko

and Dia Karanouh, www.nl123rf.com

Design: <http://rco.design>

Methodology

These country profiles are considered a first reconnaissance for IGG in countries that currently do not have bilateral programmes on food, water, climate or energy. As a consequence, the design of these profiles is light and pragmatic. The consultants based these country profiles primarily on focus group discussions and interviews with staff of the Ministry of Foreign Affairs, Ministry of Agriculture, and RVO.

This data was augmented by interviews with country experts, databases from UN and World Bank Group, and IATI (a voluntary, multi-stakeholder initiative aiming to improve the transparency of aid and development resources. The Netherlands is committed to sharing data on its programmes and target areas in IATI).

Based on this data, the consultants offer for each country several result areas for consideration. These should be seen as general directions towards possible actions which (1) are needed and requested by the

country, (2) are complementary to what others are doing already, and (3) present an opportunity to cooperate on areas of Dutch expertise and interest. These possible result areas are not recommendations for specific programmes to be developed.

Special thanks

The authors thank all staff of the Ministry of Foreign Affairs and RVO for sharing information and ideas. Special thanks to Tessa Terpstra, Sven van den Berg and Irene Knoben and Frits van der Wal for suggestions and comments.

Documents consulted

Besides internal Ministry of Foreign Affairs documentation and public documents from other agencies (such as WBG, FAO, WFP, USAID, DFID), specific references are footnoted in the text.

Sources for metrics

General country statistics: sourced from CIA World Factbook, UNFPA, UNDESA, IMF, and Wikipedia.

Human Development: UN Human Development Index (2016) www.hdr.undp.org/en/countries

Anti-corruption and Accountability: Africa Integrity Indicators http://aai.globalintegrity.org/scores-map?stringId=access_information_openness&year=2017

Doing Business: WBG Doing Business Index <http://www.doingbusiness.org/>

Gender Inequality: Gender Inequality Index <http://hdr.undp.org/en/content/gender-inequality-index-gii>

Population 2018 estimate <http://worldpopulationreview.com/countries/>
Population 2050 projection UNDESA 2017 https://esa.un.org/unpd/wpp/Publications/Files/WPP2017_KeyFindings.pdf

Hunger: Global Hunger Index (IFPRI) <https://www.ifpri.org/publication/2017-global-hunger-index-data>

Food security: Global Food Security Index (Economist) <http://foodsecurityindex.eiu.com>
Land management: Land Management Index (UNCCD)

https://global-land-outlook.squarespace.com/s/Preliminary-draft-scoping-paper-from-LMI_May-2017.pdf

Renewable water resources: FAO AquaStat <http://www.fao.org/nr/water/aquastat/main/index.stm>. We calculated the Variation in per capita internal renewable water resources, by comparing the total internal renewable water resources per capita in 2014 (m³/inhabitant/year) with same values in 2007.

Drinking water: World Bank Drinking Water Index <https://data.worldbank.org/indicator/SH.H2O.SMDW.ZS>

Electrification: World Bank ESMAP Electrification Index <http://rise.esmap.org/>
Climate change vulnerability and readiness: ND GAIN Index <https://gain.nd.edu/our-work/country-index/>

IATI: <http://d-porta.org/> and <https://www.iatiregistry.org/>