

**PROJECT INFORMATION DOCUMENT (PID)
APPRAISAL STAGE**

Report No.: PIDA21451

Project Name	Lake Qaraoun Pollution Prevention Project (P147854)
Region	MIDDLE EAST AND NORTH AFRICA
Country	Lebanon
Sector(s)	Agricultural extension and research (10%), General water, sanitation and flood protection sector (90%)
Theme(s)	Water resource management (100%)
Lending Instrument	Investment Project Financing
Project ID	P147854
Borrower(s)	Ministry of Finance
Implementing Agency	Council for Development and Reconstruction
Environmental Category	B-Partial Assessment
Date PID Prepared/Updated	23-Feb-2015
Date PID Approved/Disclosed	23-Feb-2015
Estimated Date of Appraisal Completion	03-Apr-2015
Estimated Date of Board Approval	22-Jul-2015
Decision	

I. Project Context

Country Context

Lebanon is an upper-middle-income country, with a population of 4.5 million people and a gross domestic product (GDP) of US\$9,930 per capita in 2013. The country is highly urbanized, with more than 85 percent of its population living in cities. It has an open economy in which services and trade account for 60 percent of GDP and 73 percent of jobs. The economy is driven by a dynamic private sector and is dependent on financial flows from Arab Gulf countries. The country is well-known for the high quality of its education system, ranking 13th out of 122 countries.

The Lebanese economy expanded at a moderate pace (3.6 percent annually) during the past five decades. However, political instability, terrorism activities and the spillovers from regional conflicts made this growth erratic and unstable. Moreover, the ongoing conflict in Syria has resulted in a large inflow of refugees (estimated at 1.4 million in January 2015), accounting for 30 percent of the country's population. This complex political, social, and security environment put additional strain on the economy and public services. In fact, the GDP growth decreased from 8 percent in 2010 to just 0.9 percent in 2013.

Poverty affects nearly 28 percent of the Lebanese population (living on US\$4 per day) and extreme

poverty touches 8 percent (living on US\$2.4 per day). The highest concentration of poor is found in the North, followed by the South and the Beqaa. In addition, most refugees are concentrated in the already impoverished area of the Beqaa (35 percent) and North Lebanon (35 percent). The Syrian crisis is expected to have increased poverty among 170,000 Lebanese by 2014, with the existing poor becoming even poorer. In light of these challenges, job creation and social protection are among the main development priorities in the country.

Lebanon made considerable progress in shaping the legal and institutional framework and restoring infrastructure after the civil war (1975-89) and the more recent war with Israel (2006). However, the country is still at an early stage of transition to environmental sustainability. The cost of environmental degradation in Lebanon has been estimated at 3.2 percent of the country's GDP in 2005. Water pollution stands out as the country's major environmental problem, costing more than 1 percent of the GDP per year. This accounts for the damages caused by the discharge of untreated sewage, industrial effluent, and agricultural runoff into valleys, rivers, and the Mediterranean Sea.

Sectoral and institutional Context

THE LITANI RIVER AND LAKE QARAOUN

The Litani River is the principal artery of Lebanon. Rising from the Olleiq springs close to the city of Baalbeck, it flows 170 km through the Beqaa valley and the Qaraoun Lake, before it reaches the Mediterranean Sea. The upper Litani River catchment extends over an area of 1,500 km² (10 percent of the Lebanese territory) and comprises 99 towns distributed into 4 administrative districts: Baalbeck, Zahlé, West Beqaa, and Rachayya. The major water structure along the Litani River is the Qaraoun Dam, which forms the Qaraoun Lake (or reservoir).

POLLUTION OF WATER RESOURCES

Large stretches of the Litani River and of the Qaraoun Lake are polluted due to four sources of pollution.

- **Municipal wastewater.** In 2013, the volume of wastewater generated in the Beqaa was estimated at 63 million m³ with an annual load of 21,300 tons of Biochemical Oxygen Demand (BOD). Most wastewater is currently discharged untreated into the Litani River.
- **Industrial wastewater.** This is estimated at about 4 million m³ in the Beqaa. There are factories producing effluents that are conveyed to surface water through nearby tributaries. Out of 294 industrial establishments in the region, 120 are large-scale industries located within 400 m of the Litani River, its tributaries, or the Qaraoun Lake.
- **Municipal solid waste.** Waste generated in the upper catchment of the Qaraoun Lake is estimated at 650 tons per day. Because of the lack of sanitary landfills, most garbage is dumped in open dumps and in the Litani River along the Qaraoun catchment. Water pollution comes from littering and surface water runoff of solid waste. This is acute when the waste site is close to surface water streams. The main dump sites exerting pressure on the Litani River are Temnin El Tahta, Saadnayel old dump, Qabb Elias, Barr Elias, Hawch El Harimi, El Khiyara, Ghazzé, and Jeb Jennine.
- **Agriculture.** The largest use of land in the Litani River basin is for agriculture. In 2010, irrigated agriculture in the Beqaa covered about 54,000 ha, primarily concentrated in three districts: Baalbeck (24,000 ha); Zahlé (16,000 ha); and West Beqaa (10,000 ha). Vegetables, fruit trees, and industrial crops are the main irrigated crops in these areas. Agricultural water pollution originates

mainly from irrigation overflows and seepage. A field survey conducted in 2010 concluded that farmers in Beqaa are over-fertilizing their crops and many pesticides are being applied at almost twice the recommended rates. As a result, agricultural chemicals and non-degradable pesticides end up in waterways with irrigation overflows.

BUSINESS PLAN TO COMBAT POLLUTION IN LAKE QARAOUN

The Ministry of Environment (MoE) commissioned in 2010 a Business Plan to help the government of Lebanon (GoL) identify the major sources of pollution in the Qaraoun Lake and to recommend appropriate solutions to mitigate them (detailed information is provided in annex 2). The Business Plan was completed in 2011 and endorsed by the Presidency of the Council of Ministers in 2012. The plan includes detailed prioritized investments for each polluting sector, with a financing requirement estimated at about US\$255 million. In February 2013, the GoL requested World Bank assistance to fund priority activities of the Business Plan.

The Business Plan identifies the largest two pressures as agriculture and municipal wastewater. Action on agriculture sources of pollution is needed to improve the overall surface water while continuing to contribute to the agriculture sector, a key sector, in the Bekaa. On municipal wastewater priority actions identified relate to continue to increase the volume of wastewater treated in Zahle, Iaat, Temninm El Tahta, Anjar, Jeb Jannine where the population and economic activity are most dense.

INSITUTIONAL CONTEXT

The Ministry of Environment. The MoE is empowered to study, propose, and implement national environmental policies. It is considered the only regulatory environmental agency in the country. The MoE is primarily responsible for environmental policy planning; setting laws, regulations, and environmental standards; imposing the application of the Environmental Impact Assessment (EIA) on development projects; monitoring environmental quality; and identifying permitting conditions for new industry, agriculture, quarrying, and mining. In relation to the proposed project, the MoE is responsible for regulating the collection and disposal of solid waste.

The Ministry of Energy and Water (MoEW) is responsible for the strategic planning and management of water resources. Prior to 2000, there were 21 regional water utilities. Water Law 221 of year 2000 and its amendments merged them into four Water and Wastewater Establishments and one pre-existing river authority: North Lebanon, Beirut/Mount Lebanon, Beqaa, South Lebanon, and the Litani River Authority (LRA). This was a major step towards consolidating the responsibility of these establishments and clarifying their mandate as public agencies empowering them to better manage water and wastewater services. The ultimate role of the water establishment is to have full administrative and financial autonomy over the service provision of water and wastewater services and irrigation. The Beqaa Water and Wastewater Establishment (BWE) is the one responsible for the project area. The BWE inherited distribution networks in poor conditions, with very high levels of illegal connections and very low collection rates from those legally connected. LRA is a public establishment under the MoEW is primarily responsible to (a) exploit hydro electrical power plants; (b) construct irrigation scheme, (c) conduct preliminary studies and construct dams, and (d) monitor the quality of the Litani River.

The Ministry of Agriculture (MoA). The MoA has overall responsibility for the development of the

agriculture sector. While the MoEW has the overall mandate for water resources, including irrigation, the MoA has the prime responsibility for irrigation at the farm level. Sustainable management and conservation of natural resources is considered an important pillar of the MoA's strategy for 2010-2014. The strategy gives high priority to enhancing the efficient use of irrigation, expanding the use of treated wastewater for irrigation, and reducing water pollution from agricultural chemicals. The MoA is also responsible for the regulation of pesticide and fertilizer imports, marketing, and use, and it has launched a series of measures to enhance enforcement of these regulations and promote awareness about the proper use, handling, and disposal of pesticides.

The Council for Development and Reconstruction (CDR). The CDR, established through Decree no.5 of 1977 is responsible for preparing national development plans, implementing infrastructure project, and mobilizing external financing to lead the reconstruction and development of the country. The CDR is accountable to the Council of Ministers.

The Qaraoun Committee. In June 2012, a committee was established to study the pollution problems of the Litani River and Qaraoun Lake and to propose remedial measures. The committee included representation of all key stakeholders and was active in the preparation and review of the Business Plan for Combating Pollution of the Qaraoun Lake. Once the Business Plan and subsequent roadmap were agreed upon, the study committee was dissolved. In May 2014, the Qaraoun Committee was established to follow up on the implementation of the roadmap to combat pollution in Lake Qaraoun. The committee includes 16 members representing key stakeholders and has assigned the secretariat responsibility to the Litani River Authority.

II. Proposed Development Objectives

The development objectives of the project are to reduce the quantity of untreated municipal sewage discharged into the Litani river and to improve pollution management around Qaraoun Lake.

III. Project Description

Component Name

Component 1: Improve the collection of municipal sewage

Comments (optional)

This component will finance activities that increase sewerage collection in areas where wastewater treatment plants have been constructed (or planned to be constructed), to maximize the use of these investments. The criteria used for the selection of the investments on the expansion of the network are the following: (i) network for a currently underserved WWTP; and (ii) network for WWTP completed or expected to be completed within the project implementation period.

Component Name

Component 2. Promotion of good agricultural practices including integrated pest management to reduce agrochemical pollution in upper Litani basin

Comments (optional)

This component will promote adoption of sustainable production systems among farmers in the upper Litani basin, by introducing selected IPM (for example, reduced pesticides application) and GAP (for example, reduced fertilizer application and other conservation practices). These practices are expected to provide increased quality of agricultural products (without reducing yields); farmers' savings (through decreased cost of production); and reduced pollution of the Litani River.

Component Name

Component 3. Technical Studies in Solid Waste, Water Quality Monitoring, Capacity Building and ~~Projects~~ **Projects (optional)**

This component will fund technical, environmental and social studies in solid waste. It will strengthen LRA capacity in water quality and water resources modeling and fund awareness /clean up campaign around the Litan river. It will improve BWE capacity in the supervision of wastewater infrastructure, the improvement in water fee collection and financial administration.

IV. Financing (in USD Million)

Total Project Cost:	50.00	Total Bank Financing:	50.00
Financing Gap:	0.00		
For Loans/Credits/Others			Amount
Borrower			0.00
International Bank for Reconstruction and Development			50.00
Total			50.00

V. Implementation

The Qaraoun Committee -formally established by COM decision 32 of May 2014—already includes a representative from each institution involved in pollution management along the Qaraoun. The committee will have an oversight role in the implementation of the proposed project. Its main role is to ensure coherence and consistency between the proposed project and all other ongoing and planned investment in the upper Litani watershed area.

Given the multisectoral aspects of the project, the CDR will be the implementing agency. CDR has wide experience with Bank operations, and is familiar with fiduciary and safeguards aspects. A Project Management Unit (PMU) will be headed by a project coordinator under the CDR's responsibility. The PMU will be responsible for contract management, fiduciary and safeguards oversight, auditing, monitoring and reporting, coordination, and so on. Line ministries will be associated in the preparation and implementation of the project from the onset. As such, technical experts will be recruited by the CDR as part of the PMU but will be assigned to the line ministries/agencies and will report to the PMU project coordinator at the CDR and their respective sectors. This arrangement will facilitate and bridge the gap between the CDR and the line ministries. It will also contribute to raising capacity in the different sectors involved.

VI. Safeguard Policies (including public consultation)

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment OP/BP 4.01	x	
Natural Habitats OP/BP 4.04		x
Forests OP/BP 4.36		x
Pest Management OP 4.09	x	
Physical Cultural Resources OP/BP 4.11		x
Indigenous Peoples OP/BP 4.10		x
Involuntary Resettlement OP/BP 4.12	x	
Safety of Dams OP/BP 4.37		x
Projects on International Waterways OP/BP 7.50		x

Projects in Disputed Areas OP/BP 7.60		x
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Comments (optional)

VII. Contact point

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