ENVIRONMENTAL PERFORMANCE INDEX – 2016
Lebanon country Overview

The 2016 Environmental Performance index was released last month; it highlights the country's performance on high priority issues in the areas of (i) protection of human health and (ii) protection of ecosystems. These two objectives are further divided into nine issue categories that span high-priority environmental policy issues, including air quality, forests, fisheries, and climate and energy, among others. The **Environmental Performance Index (EPI)[12]** indicators are calculated using a "proximity to- target" methodology, which assesses how close each country is to an identified target (international treaties, scientific thresholds, high performance benchmarks, etc.).

Lebanon has an overall EPI of 69.14, ranking at 94 in a pool of 180 rated countries. Regionally, it positions itself at rank 9 out of the 19 countries rated in the MENA region, overall performing better than some of these countries. Although at higher score compared to 2014, it loses 3 places on the overall ranking testifying to a slower progress on addressing environmental performance objectives. It is worthwhile noting that a number of changes and improvements have been introduced in the production of 2016 EPI invalidating any trend and progress analysis. **Furthermore, the results are not a fully comprehensive picture of national performance, mainly due to data gaps for a number of key environmental issues,** requiring Lebanon, among other countries, to improve its understanding of environmental quality on one end, and of its reporting capabilities to respond to its national and international obligations.

1. HEALTH IMPACTS

This indicator assesses the environmental health risks associated with exposure to poor air and water quality, replacing the Child Mortality indicator used in earlier EPIs. Lebanon scored 60.34 for this indicator, attributable to the burdens of unsafe water (only pathogens and not chemical risks), unsafe sanitation, ambient particulate matter pollution, household air pollution from solid fuels, and ambient ozone pollution and has been computed weighing the percentage of disability-adjusted life years (DALY) of each risk factor.

2. AIR QUALITY

With less than 5% of the population using solid fuels for cooking, household air quality is not considered an environmental issue. However, according to EPI 2016 and based on 2014 data derived from satellite instruments in combination with chemical transport modeling, the Lebanese population is exposed to poor air quality, namely to high levels of NO_2 and $PM_{2.5}$ the latter benchmarked with the 10 micrograms/m^3 threshold subscribed by the World Health Organization (WHO)thresholds. Accordingly, Lebanon scored 62.22 on the population's average exposure[3] to NO2 and 83.27 for that of $PM_{2.5}$ indicating a significant health risk, namely for PM2.5 exposure (PM2.5R is 0.454 with 0.063 and 0.93 being the low and high Performance Benchmarks, respectively).

3. WATER AND SANITATION

According to EPI 2016, the performance of Lebanon is the best in the area of Water and Sanitation assessing the population's access to sanitation services and safe drinking water. Indeed, on access to sanitation and safe drinking water, Lebanon scores 75.73 and 95.84, respectively. Health risk exposure calculated using data on the proportion of households with access to different drinking water sources and integrating the reported use of household water treatment indicates 52.25, highlighting the mild to severe risk exposure.

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[1] *Reported by the Yale and Columbia Universities in collaboration with the World Economic Forum and with the support of the Samuel Family Foundation and the McCall MacBain Foundation.*

[2] *The Index allows countries to compare their performance to neighbors and peers knowing that a country's lower score and consequently higher ranking are indicative of poorer environmental performance.*

[3] *Exposure was assessed using satellite instruments in combination with chemical transport modeling and not using the national ambient air quality monitoring network currently in place. No validation took place during this exercise.*

4. FISHERIES

Judging by the low Performance index (34.61) attributed to fish stocks overexploited and collapsed in the Lebanese Exclusive Economic Zone (EEZ), it is clear that poor measurement leads to environmental harm, knowing that discrepancies were noted in reported figures. Ultimately, with better understanding of the level of catches over time in the Mediterranean Sea, better monitoring, reporting and management systems could be established to ensure sustained benefit from marine resources towards reaching a target of Zero percent of fish stocks overexploited or collapsed, aggregated over Lebanon's EEZ.

5. BIODIVERSITY AND HABITAT

Lebanon's performance is considered average, with scores ranging between 50.12 and 57.94 for the different underlying indicators. The outlier of 16.03 reflects the low percentage of the country's exclusive economic zone that is under protection by a nationally designated marine protected area (MPA). The score is however expected to increase in future assessments on that front with the integration of additional Marine Protected Areas (currently in the pipeline).

6. FORESTS

According to the 2016 EPI, Lebanon score on the overall tree cover loss from 2000 to 2014 in areas with greater than 30 percent tree cover – what most countries consider "forested" area – is estimated at 60.93 based on data from a high-resolution map of forest loss and gain satellite data from Landsat 7. The forest loss indicator includes both anthropogenic removal and natural tree deaths and. This figure also does not distinguish between natural forest cover loss, which may be due to deforestation, and loss that occurs as a result of sustainably-managed plantations. In 2014's EPI, this indicator sat at approx. 75 but we are unable to attribute this score to better protection/management and reforestation efforts in the past or to a difference in the computation method.
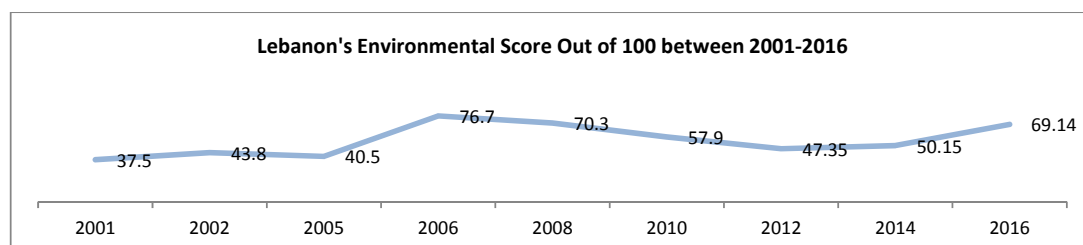
7. WATER RESOURCES

With no surprise, Lebanon's score for the *problématique* of wastewater treatment is the lowest among all 24 indicators assessed is this exercise. The score of 14.03 reflects the low proportion of wastewater that receives treatment weighted by connection to wastewater treatment rate.

8. AGRICULTURE

the 2016 EPI agriculture indicators assess the efficiency of fertilizer application and excesses that create environmental hazards, including soil contamination and water pollution. The Nitrogen Use Balance indicator measuring appropriate management of nitrogen resources for agricultural production indicates that Lebanon is within acceptable ranges between 0 and 79 kg/N/ha, knowing that Lebanon uses 75.34 kg of Nitrogen per ha (2010). However, the Nitrogen Use Efficiency a more important indicator for agricultural performance, scores 66.26 testifying to the need of better management of nitrogen resources for agricultural production.

9. CLIMATE AND ENERGY

The change in CO_2 emissions per unit GDP from 2002 to 2012 is negative with -0.030 with High and Low Performance Benchmarks of -0.23 and 0.13, respectively. Lebanon scores 85.51 on that indicator however when linked to CO_2 emissions per KWH, the performance of the country is clearly less shiny, requiring serious steps towards the reform and rehabilitation of the electricity sector.

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Lebanon's Environmental Score Out of 100 between 2001-2016

2001	2002	2005	2006	2008	2010	2012	2014	2016
37.5	43.8	40.5	76.7	70.3	57.9	47.35	50.15	69.14

History of Lebanon's environmental performance reflected by the Environmental Sustainability Index (2000-2005) and the Environmental Performance Index (2006-2016)