

CASE STUDY

Air Quality and Health City Outlook

City: Lima

1. Air Quality Management and Health Indicators

| Indicator | Value | Units | Reference |
|--|---|-------------------|--|
| Annual mean concentration of fine particulate matter (PM _{2.5}) in urban areas (µg/m ³). Year: 2019 | 31.5 | µg/m ³ | QAir. (2022). 2021 World Air Quality Report – Region City & PM _{2.5} Ranking. |
| Annual mean concentration of particulate matter (PM ₁₀) in urban areas (µg/m ³). Year: 2019 | 64.66 | µg/m ³ | Diagnosis of air quality management in Lima-Callao. |
| Total number of air quality monitoring stations | 17 reference stations and 35 stations with low-cost sensors | Units | Ministry of the Environment and Metropolitan Municipality of Lima. |
| Number of fine particulate matter (PM _{2.5}) monitoring stations | 17 reference stations and 35 stations with low-cost sensors | Units | |
| Number of particulate matter (PM ₁₀) monitoring stations | 17 reference stations and 35 stations with low-cost sensors | Units | |
| Emissions Inventories Year 2018 | No | NA | There is no inventory of air quality emissions. |
| Regulatory Framework Based on WHO Guidelines | Yes | NA | Environmental Air Quality Standards (ECA), approved by Supreme Decree No. 003-2017-MINAM |
| Health Sector Involvement on AQ Management | Yes | NA | Through the General Directorate of Environmental Health (DIGESA). |
| Total Population | 8,574,974 ¹ | inhabitants | National Institute of Statistics and Informatics (INEI) |
| Urban Population | 8,574,974 | inhabitants | |

¹ Data for the year 2017, however, the INEI made the population projection to 2022 and it would reach 10,006,141 inhabitants for the city of Lima.

| Indicator | Value | Units | Reference |
|--|---------------------------|-------------|---------------------------|
| Rural Population | 0 ² | inhabitants | |
| Population over 25 years | 6,004,770 | inhabitants | Calculated |
| Natural mortality excludes accidental A00 R99 | 2,243 | deaths | Estimated in this project |
| Ischemic heart disease mortality I20-I25 IHD | 1,181 | deaths | |
| Mortality due to cerebrovascular disease I60-I69 | Information not available | deaths | |
| Mortality due to Chronic Obstructive Pulmonary Disease COPD J40-J44, J47 | Information not available | deaths | |
| Lung Cancer Mortality C30-C39 | 71 | deaths | |

2. Advances in Air Quality Management

- Environmental Air Quality Standards (ECA), approved by Supreme Decree No. 003-2017-MINAM, establish the concentration levels of atmospheric pollutants that do not represent a significant risk to the health of people or to the environment.
- The Maximum Permissible Limits (LMP in Spanish) establish the measure of concentration of the maximum values of emissions for the specific sources of atmospheric emissions. Currently, our country has 05 LMPs approved for the mining-metallurgical sector, cement production manufacturing industries, fishmeal and fish oil industry, oil exploitation, processing and refining of the Hydrocarbons Sub-Sector, and for motor vehicles in circulation, vehicles new motor vehicles to be imported or assembled in the country and imported used motor vehicles.

² According to the INEI definition of what is an urban and rural area, the city of Lima fits into the category of a purely urban city, due to its status as a capital city and for having 2,000 or more inhabitants, where their homes are grouped contiguous, forming blocks and streets.

- The Action Plan for the Improvement of Air Quality in Lima and Callao 2021-2025, approved by Ministerial Resolution No. 142-2021-MINAM, aims to propose concrete and effective mechanisms to improve air quality in Lima and Callao, proposing actions under the principle of shared objectives and differentiated roles.
- The Lima-Callao Air Quality Management Diagnosis is an analysis that establishes the baseline for understanding the air quality problem in the city of Metropolitan Lima.
- Regulatory instruments have also been approved in relation to the quality of fuels for our country.³⁴⁵⁶⁷
- The Environmental Quality Index (INCA) was approved under Ministerial Resolution No. 181-2016-MINAM, which establishes the guidelines.
- The Local Climate Change Plan of the Province of Lima 2021-2030, approved by Ordinance No. 2353-2021, considers Air Quality Strategies as tools to implement actions that promote the use of sustainable mobility by citizens. Increasing pedestrianization, bike paths, the use of mass public transport and electric mobility, in order to improve air quality.
- The Urban Mobility Management of the Metropolitan Municipality of Lima, approved Management Resolution No. 0043_-2021-MML-GMU, which rules "exclude yourself from the scope of application of Ordinance No. 2461-MML, Ordinance that establishes restrictions to vehicular traffic on roads in the metropolitan area, to private hybrid and electric vehicles", as a measure to promote low-emission technologies to improve air quality in the city.
- The National Protocol for Monitoring Environmental Air Quality, approved by Supreme Decree No. 010-2019-MINAM, is an instrument that allows standardizing the technical criteria for environmental air monitoring in the country, in order to generate information quality, comparable, compatible, reliable and representative. This document includes low-cost sensors as an alternative and complementary method for environmental monitoring.

³ They establish criteria to determine geographical areas in which the marketing of diesel fuel with a maximum sulfur content of 50 ppm may be authorized (Supreme Decree No. 061-2009-EM).

⁴ Approves the Fuel Harmfulness Indices (INC) for the period 2018-2019, taking as a reference base the cleanest fuel available in the country (natural gas) (Supreme Decree No. 003-2018-MINAM)

⁵ It modifies the Selective Consumption Taxes (ISC) of fuels. These new ISC for fuels, better incorporating the environmental criteria and the polluter-pays principle, since cleaner fuels have a lower ISC (Supreme Decree No. 094-2018-EF).

⁶ It modifies the Selective Consumption Taxes (ISC) of the vehicles that are incorporated into the national automotive fleet. The most outstanding aspect is that new gas, hybrid and electric cars already have an ISC of 0% (Supreme Decree No. 095-2018-EF).

⁷ They update the Selective Consumption Taxes (ISC) of the vehicles that are incorporated into the national automotive fleet. The most outstanding aspect is that the ISC of 40% will be standardized for all old vehicles. Likewise, the % of ISC for new vehicles and motorcycles will be based on the size of the cylinder capacity of the aforementioned (Supreme Decree No. 181-2019-EF).

3. Main Challenges and Opportunities

- Environmental surveillance and monitoring are intended to generate information that guides the adoption of measures that ensure compliance with the objectives of environmental policy and regulations, however, to date the city of Lima only has 17 reference stations of air quality monitoring, of which 10 belong to the National Service of Meteorology and Hydrology of Peru (SENAMHI) and 7 to the General Directorate of Environmental Health (DIGESA). This lack of monitoring systems and open and systematized information hides the problem and makes it difficult for authorities and citizens to take action to protect the health of the environment and of people, so it is vital that actions be taken to reinforce the environmental monitoring of the city.
- The issue of air quality is not a priority issue on the political agenda of the city and the country. Population awareness of this problem is still incipient, so communication and socialization strategies are urgently needed to raise awareness among citizens.
- Baseline bibliography on the subject is required, that is, the information available at the city level on air quality is still limited, for example, we lack an inventory of air quality emissions, which limits the identification of pollution sources, likewise, the information available is outdated, for example, the MINAM Air Quality Diagnosis has an analysis of information from the base year 2016.
- The main source of pollution is the vehicle fleet (mobile sources), according to the MINAM Air Quality Diagnosis, the vehicle fleet is responsible for 58% of PM2.5 emissions in the city, which is accompanied by a predominant fleet of pre-euro technology. Based on this, actions should be directed towards reducing emissions in this sector, through the promotion of electromobility, sustainable transport and modal change in mass transport systems (BRT, train lines).
- From the Municipality of Lima, we have carried out 02 studies of environmental co-benefits, given that the evidence suggests that citizens are more likely to take action on climate change and other environmental problems, or more likely to support governments that take action on climate change, if the broader co-benefits of those actions are emphasized. At the city level, the potential of co-benefits is particularly important since citizens can often witness the results of political actions more directly in their daily lives, for the elaboration of this type of study, information is necessary. of local health, and our city has limited information in this area (hospital admissions for respiratory and cardiovascular diseases, value of a statistical hospital admission (VHA), value of a year of life (VOLY), local response concentration functions). Likewise, these studies have had a positive impact on the receiving population, so to socialize or disseminate projects aimed at improving the air quality of a space, it is recommended to present them through health indicators, it is an opportunity to increase acceptance. and citizen participation.
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4. Key Actors to Potentiate Air Quality Management

- Ministry of the Environment of Peru.
- National Service of Meteorology and Hydrology of Peru – SENAMHI.
- General Directorate of Environmental Health – DIGESA.
- District municipalities of the province of Lima.

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