

Air Quality Network in Metropolitan Lima

Low-cost sensors application

METROPOLITAN MUNICIPALITY OF LIMA

Air Quality and Environmental Assessment Division

What is the problem?

Fine particulate matter above the WHO guidelines

23.7
ug/m³



HOSPITAL
ADMISSIONS PER
YEAR

5,071

ATTRIBUTABLE
TO PM2.5 CITY
LEVELS

1,657

DEATHS PER YEAR
ATTRIBUTABLE TO PM2.5



Who are the most affected?



Children



Women and
elderly



Outdoor
workers



Diagnosis of Environmental Air Quality Management in Lima and Callao (2019),



MUNICIPALIDAD DE
LIMA

What is the problem?



Not enough stations to cover the extension of the city, which generates several gray areas

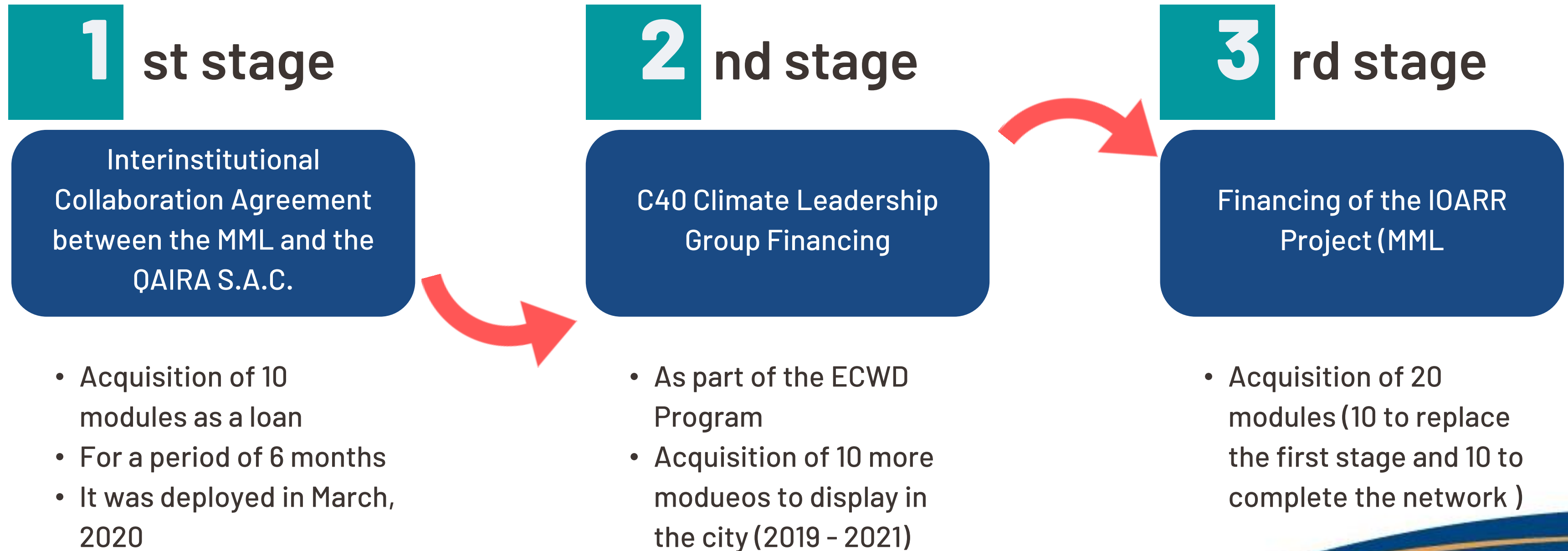


Proposal: strengthen the existing monitoring network with air quality modules under low-cost sensor technology in the city

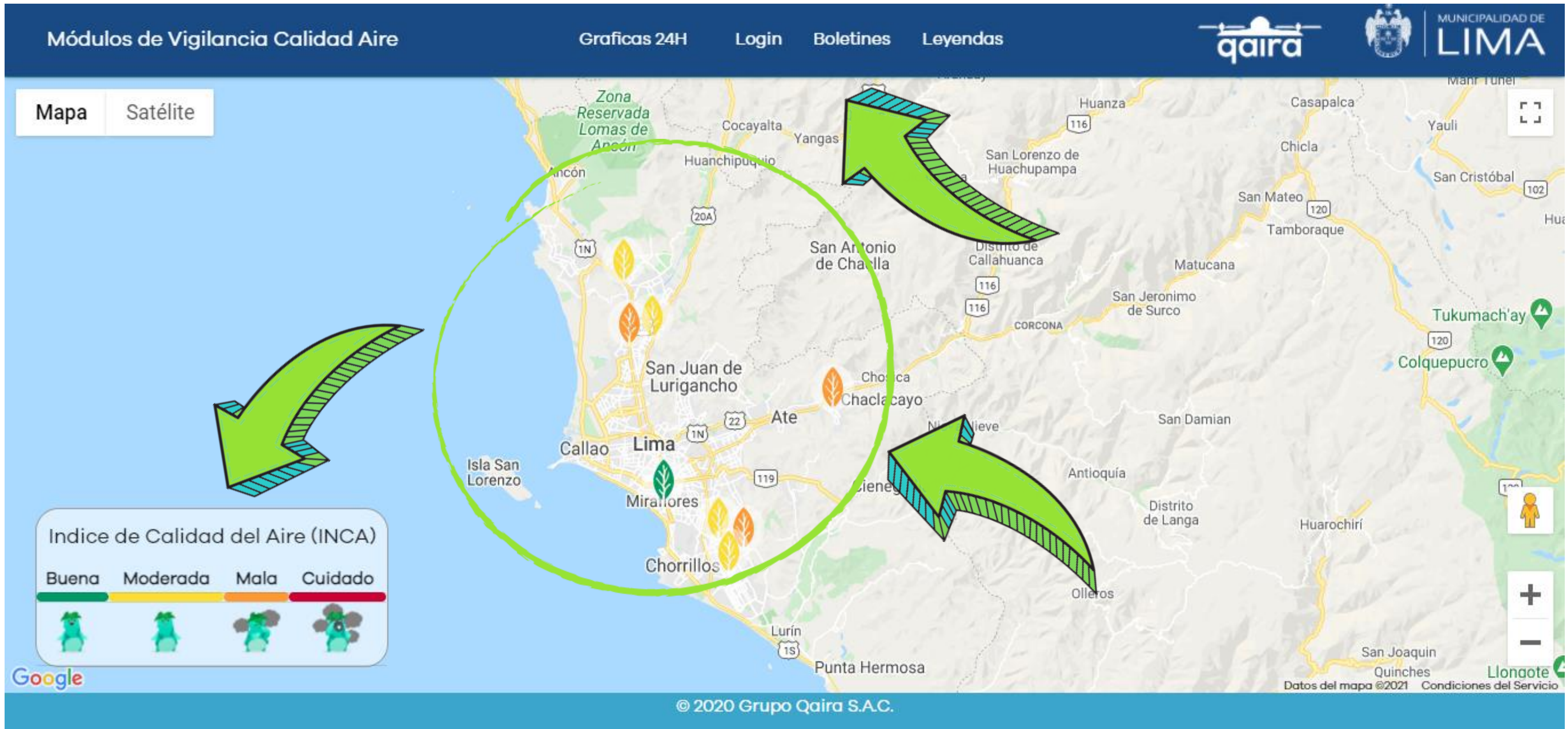


MUNICIPALIDAD DE
LIMA

The network



MUNICIPALIDAD DE
LIMA



The web platform

<https://qairamap.qairadrones.com/#/mml>



MUNICIPALIDAD DE LIMA

What do we measure?



Material particulado
Un contador de partículas óptico usa rayos láser, que miden el tamaño (PM 10 y PM 2.5) acorde a la dispersión de la luz.


Gases
Sensores electroquímicos detectan monóxido de carbono (CO), dióxido de nitrógeno (NO₂), dióxido de azufre (SO₂), ozono (O₃) y sulfuro de hidrógeno (H₂S).

Nivel de presión sonora
Un micrófono con preamplificador mide el nivel de ruido ambiental en decibeles (dB) en tiempo real.

Parámetros meteorológicos
Se miden mediante un sensor de temperatura y humedad (1), un sensor de radiación ultravioleta (2) y un sensor de presión atmosférica (3).

Módulo Qhawax

Air quality newsletters



MUNICIPALIDAD DE
LIMA

DICIEMBRE 2020

Vigilancia de la
calidad del aire en
Lima Metropolitana

Red de módulos de monitoreo
de la calidad del aire basada en
sensores de bajo costo

Monthly air quality surveillance newsletters that we publish through our SMIA platform

<https://bit.ly/Bol-etinesCalidadDelAireEnLima>



MUNICIPALIDAD DE
LIMA

Challenges



Intercomparison with reference stations

- The document "Guidelines for evaluating the field performance of low-cost sensors for air quality monitoring" was proposed.
- Has received input from different institutions (USEPA, PAHO, SCAQMD, etc.)
- Currently 10 modules are in this process with a reference station of the Ministry of Health



MUNICIPALIDAD DE
LIMA

Challenges



Capacity training

- Through the Union of Ibero-American Capital Cities, the AQ team made two guided technical visits to Mexico City and Sao Paulo, Brasil
- Participation in the C40 Air Quality Network Workshop (2019-2020)



MUNICIPALIDAD DE
LIMA



Challenges



Institutionalization of the network

- To give sustainability to the project and ensure its continuity of management in management, the "Protocol for the implementation of a network of air quality monitoring modules in Metropolitan Lima" is being prepared.



MUNICIPALIDAD DE
LIMA

Thank you



MUNICIPALIDAD DE
LIMA



*"Breathing clean air should not be a privilege but a
fundamental right"*

Contact:

- Eng. George Castelar Ulfe
- george.castelar@munlima.gob.pe

