AIRES NUEVOS
Driving Meaningful Air Quality Action in Latin America

Christi Chester Schroeder, Ph.D.
Air Quality Science Manager
GLOBAL DISTRIBUTION OF GROUND BASED PM\textsubscript{2.5} MONITORING STATIONS

- Red dots: government air quality monitoring stations
- Blue dots: independently operated air quality sensors
• Urban population growth is a major driver for air quality issues in Latin American countries.

• Sustainable air pollution reduction plans require alignment with social and economic realities of communities.

*Data taken from IQAir 2021 World Air Quality Report
REFRAMING AIR POLLUTION: EARLY CHILDHOOD DEVELOPMENT

• Multi-stakeholder collaboration built from a network of 90 public policy leaders in 18 countries
• Advocate regulatory and public policy framework that prioritizes the well being of children in the community
• Collaborative work to create community-driven, data informed, local action plans
• Outcome focused
MEASURE TO ACT

• Grassroots efforts

• Community engagement

• Action plans

• Scalable change
## LOCAL ACTION PLANS

### LIMA, PERU

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>CHILDREN PRESENT</th>
<th>AGES OF CHILDREN</th>
<th>POLLUTION SOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morales Duarez-Primavera Park</td>
<td>2 pre and primary schools</td>
<td>5 to 11 years old</td>
<td>solid waste, motor vehicles bare soil (coarse particulate matter)</td>
</tr>
<tr>
<td>Macro Apple PRITE Montessori</td>
<td>5 pre and primary schools</td>
<td>3 to 11 years</td>
<td>solid waste burning, motor vehicles</td>
</tr>
<tr>
<td>Historic Center</td>
<td>1 pre and primary school</td>
<td>5 to 11 years</td>
<td>motor vehicles</td>
</tr>
<tr>
<td>Enrique Meiggs Park</td>
<td>3 pre and primary schools, as well as children in the neighborhood</td>
<td>3 to 11 years</td>
<td>bare soil (coarse particulate matter), motor vehicles</td>
</tr>
<tr>
<td>SOS Pachacamac Children's Village</td>
<td>children’s home</td>
<td>0-12 years</td>
<td>solid waste burning, bare soil (coarse particulate matter)</td>
</tr>
</tbody>
</table>
DATA DRIVEN MITIGATION PLANS: PRITE MONTESSORI
LIMA, PERU

<table>
<thead>
<tr>
<th>DATA FINDINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seasonal trends in PM$<em>{2.5}$ and PM$</em>{10}$: moderate to bad concentrations in winter (June-September) with concentrations ranging from 26 µg/m$^3$ to more than 200 µg/m$^3$.</td>
</tr>
<tr>
<td>PM$_{10}$ presented moderate values between March and September with concentrations between 51 µg/m$^3$ to more than 200 µg/m$^3$.</td>
</tr>
<tr>
<td>Highest PM$_{2.5}$ concentrations in the hours 2am-10am.</td>
</tr>
<tr>
<td>PM$_{10}$ concentrations were moderate concentrations throughout the day except for the hours between 2pm-6pm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MITIGATION PLAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closing of streets by schedules for the passage of vehicles</td>
</tr>
<tr>
<td>Elimination of critical areas of accumulation of solid waste</td>
</tr>
<tr>
<td>Implementation of signage designating no idling zones</td>
</tr>
<tr>
<td>Execution of awareness campaigns/workshops for infants and caregivers</td>
</tr>
<tr>
<td>Pedestrianization of Jr. Coata (medium term)</td>
</tr>
</tbody>
</table>
DATA DRIVEN MITIGATION PLANS:
LIMA, PERU

Enrique Meiggs

Aldea Infantil SOS Pachomac

Centro Histórico

Morales Duarez Parque Primavera
Daily averages of PM$_{2.5}$ and PM$_{10}$ at the “Colegio Fe y Alegría” station between April and July 2021. Values in µg/m$^3$. Colors according to the INCA category.
IMPLEMENTED MITIGATION: LOS OLIVOS PARK
LIMA, PERU

436 m² transformed planting vegetation
LOCAL ACTION PLANS

OTHER COUNTRIES

**Quito, Ecuador**
- PM$_{10}$ analysis San Antonio de Pichincha sector

**Monterrey, Mexico**
- Implement tactical urbanism designs through painting to convert current spaces to pedestrian zones
- Designate low emissions and no idling zones around preschools

**Quilmes, Argentina**
- Afforestation of the garden patio and the surrounding area as a protective barrier against traffic emissions
- Installation of vertical gardens and garden workshops within the framework of food sovereignty and security and healthy eating
CONCLUSIONS AND FUTURE WORK

- Air quality monitoring and improvement plans are estimated to benefit:
  - 1.5M children under the age of four
  - 30M people in total

- Creating sustainable change starts in local communities

- Crowd sourcing research in hyperlocal environments → scalable air quality mitigation policies

- Special thanks to Marcela Otto and Loreto Stambuk.