ADOLESCENT PARTICIPATION IN MONITORING OF THE AIR QUALITY IN BELIZE: AIR QUALITY CHAMPIONS INITIATIVE
The Air Quality Champions Initiative

The Why

Worldwide, air pollution accounts for 7 million premature deaths each year.

3.8 million deaths are attributed to indoor air pollution from cooking: this is mostly in low and middle-income countries.

4.2 million premature deaths attributed to outdoor air pollution in both cities and rural areas.

93% of all children, and about 630 million children under 5 years are exposed to air quality which is considered unsafe.

In Belize (MICS data 2015) 15% of households use solid fuels (Charcoal/wood) for cooking.
The Air Quality Champions Initiative

• 11 adolescents aged 10-19 from the Children Advisory Body from Punta Gorda Belize, captured and reported on household air quality and the positive actions taken to address air pollution in their homes and communities.

• Reports were compiled onto a youth air quality blogging platform (Youth Voices), which can be used to support local and global climate advocacy projects.
The How

Four Pillars of Action for Adolescents

1-UNDERSTAND YOUR AIR!
2-MONITOR YOUR AIR QUALITY
3-RECORD YOUR AIR QUALITY
4-SHARE YOUR RESULTS!
The Air Quality Index (AQI), is a tool for reporting on air quality that links the levels of air pollutants to a system of color coding, alerts and public health advice.

Fine Particulate Matter (PM2.5)
Particulate matter is simply all the solid and liquid particles suspended in air. These may include ammonia, black carbon, mineral dust, nitrates, sulfates, nitrates, and water.

PM2.5 is particulate matter with a median diameter of less than 2.5 microns, (approximately 1/30th the width of average human hair). PM2.5 can penetrate deep inside the lungs, and it can enter the bloodstream, causing a variety of health problems including lung and heart disease and other cardiovascular complications and affecting the brain.
Children in Indonesia sent home early due to poor air quality, 2015.
India Gate, November 2018. Pollution levels 20 X above WHO safe air limit.
India Gate, December 2018.
Orange Walk school and community battles noxious New River

By Tuesday afternoon, multiple cases of students vomiting, catching headaches and related health issues were coming to the office and on the advice of the Orange Walk Public Health Department, classes were canceled.
Understanding the Air

The PM$_{2.5}$ Density or Concentration Scale (micrograms per m$^3$)

<table>
<thead>
<tr>
<th>PM$_{2.5}$ range (µg/m$^3$)</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>0-12</td>
</tr>
<tr>
<td>Moderate</td>
<td>13-35</td>
</tr>
<tr>
<td>Unhealthy for sensitive groups</td>
<td>36-55</td>
</tr>
<tr>
<td>Unhealthy</td>
<td>56-150</td>
</tr>
<tr>
<td>Very Unhealthy</td>
<td>151-250</td>
</tr>
<tr>
<td>Hazardous</td>
<td>251-500</td>
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</tbody>
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LOW

HIGH
Monitor the Air

The children used laser egg to monitor the air in their homes once in the morning and in the evening.
Record the **Household Air Quality**

- **DATE** (e.g. 1st May 2019)
- **TIME** (e.g. 830am)
- **LOCATION** (e.g. Kitchen, living room, bedroom).
- **PM2.5 RECORDING** (e.g. 35)
- **OBSERVATIONS** (e.g. cooking breakfast, cooking dinner, somebody is smoking inside)
*PM2.5 levels above 35 can be dangerous for sensitive groups – pregnant and breastfeeding mothers, newborns and infants, young children, the elderly, people with respiratory illness or weak immunity.

Each child noted the number of times the value for PM2.5 was higher than 35 and what was happening at these times (E.g. Somebody was cooking, sweeping, person was smoking).

The children used their data to write stories.

After 4 weeks the children came together with all other air quality champions to share their stories.
Share the results

Advocacy - Why is this important?

Voices of Youth

- Bring valuable insights to solutions
- Among most vulnerable and negatively affected
- Missing from conversation

Key Moments

- Climate Action Summit, September 2019
- COP25, December 2019
- CCAHY
Recommended Actions

**Be Air Aware**

- Understand the air quality in the children home and community
- Participate in local environmental activities

**Reduce Exposure**

- Reduce the time spent in areas where pollution is high, such as near or around areas of severe traffic congestion, or sources of industrial pollution
- Where possible, travel during times of day when air pollution is lower
- Stay away from people who are smoking, and from items that burn (candles, firewood), cooking fumes
Recommended Actions

*Reduce Air Pollution*

- Adopt cleaner cooking and heating fuels
- Use cleaner burning fuels
- Switch to more energy efficient appliances
- Don’t burn waste

*Stay healthy!*

- Eat a healthy diet
- Seek proper medical treatment if you have asthma or respiratory conditions
- Measures such as exclusive breastfeeding can also better protect children from risks of pneumonia associated with air pollution
Acknowledgements

• Child Advisory Body Members – Punta Gorda, Belize
• Punta Gorda Town Council
• Ministry of Labour, Local Government and Rural Development
• National Committee for Families and Children, Belize
• Statistical Institute of Belize
• UNICEF
Resources

Videos: Children’s Stories

• https://www.youtube.com/watch?v=iLbdUkk3nws
• https://www.youtube.com/watch?v=nbFgfmB3U68
• https://www.youtube.com/watch?v=zt3Ck5rO1DE
• https://www.youtube.com/watch?v=kMMq3zjAWRk