



Ambient Air Quality Monitoring

- THE TRINIDAD & TOBAGO PERSPECTIVE

AIR POLLUTION, NCDs AND COVID-19: CHALLENGES AND OPPORTUNITIES FOR A HEALTHY RECOVERY

WHY MONITOR AIR QUALITY?

“Effective Management Demands Effective Monitoring.”

CONTINUOUS BASELINE DATA CAN BE USED TO

- Access the extent of air pollution- *“You can't manage what you don't measure.”*
- Evaluate emission sources and develop targeted strategies e.g., Black carbon
- Provide air pollution data to the public - [Air Quality Index](#)
- Support research (e.g., long-term studies of the health effects of air pollution).



OUR LOCAL CONTEXT



Regulatory Agency established in 1995 under the Environmental Management Act Chapter 35:05.

LEGISLATION/ POLICY CONTEXT



EM Act
Sections 49 & 50



Air Pollution Rules,
2014



National
Environmental
Policy, 2018



UN Sustainable
Development
Goals

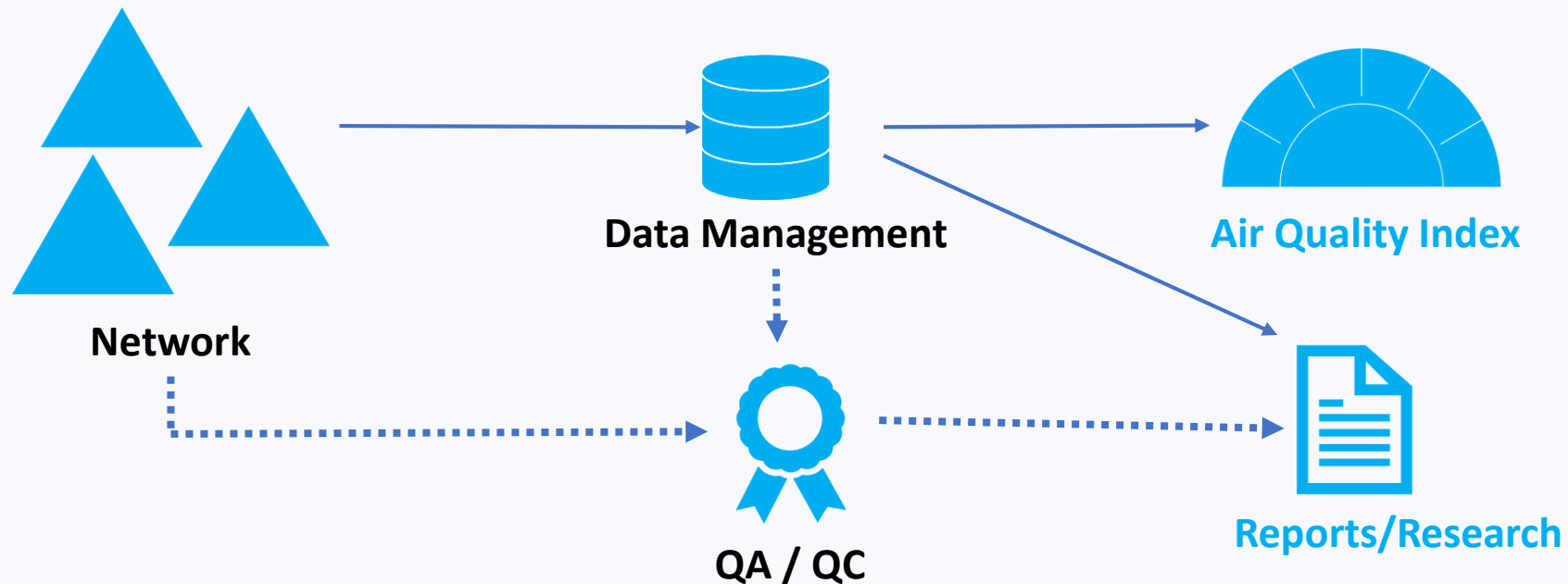


TRINIDAD AND TOBAGO'S AIR MONITORING NETWORK

OBJECTIVE

“Establish a National Ambient Air Quality Monitoring Network to collect data that can be used to make informed decisions to best manage and improve ambient air quality; and safeguard human health and the environment.”

MODEL



AIR QUALITY MONITORING STATIONS

FACTORS TO CONSIDER :

POLLUTANTS



PM₁₀



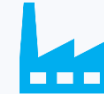
PM_{2.5}



CO



NO_x



SO₂



O₃

MONITORING METHODS / EQUIPMENT



Internationally Approved -
Federal Reference or Equivalent
Methods (FRM/FEM)



High quality
data



Local capacity to
operate



Suited to local
conditions

LOCATION/ SITING REQUIREMENTS

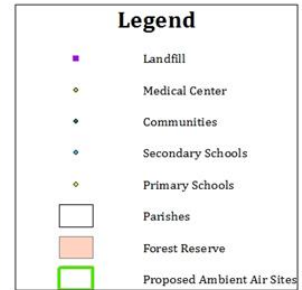
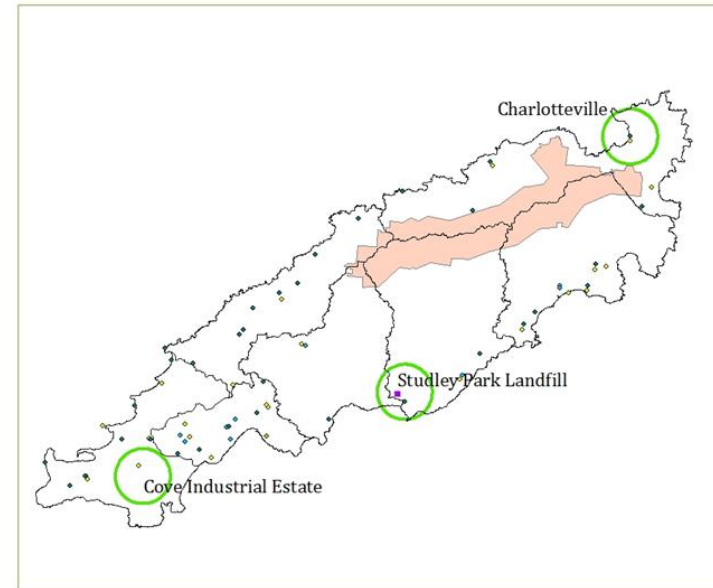
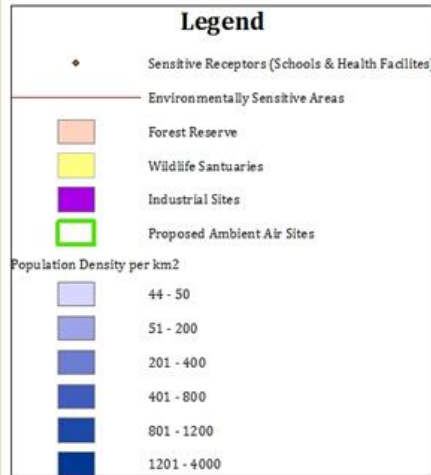
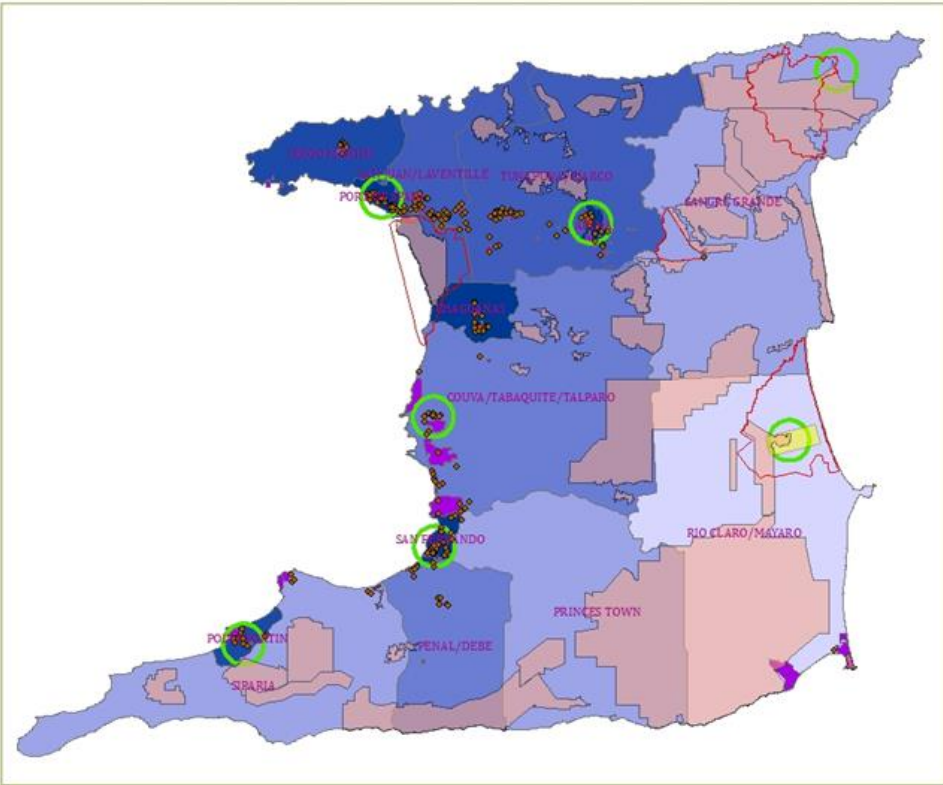


GIS Multi-criteria
Analysis

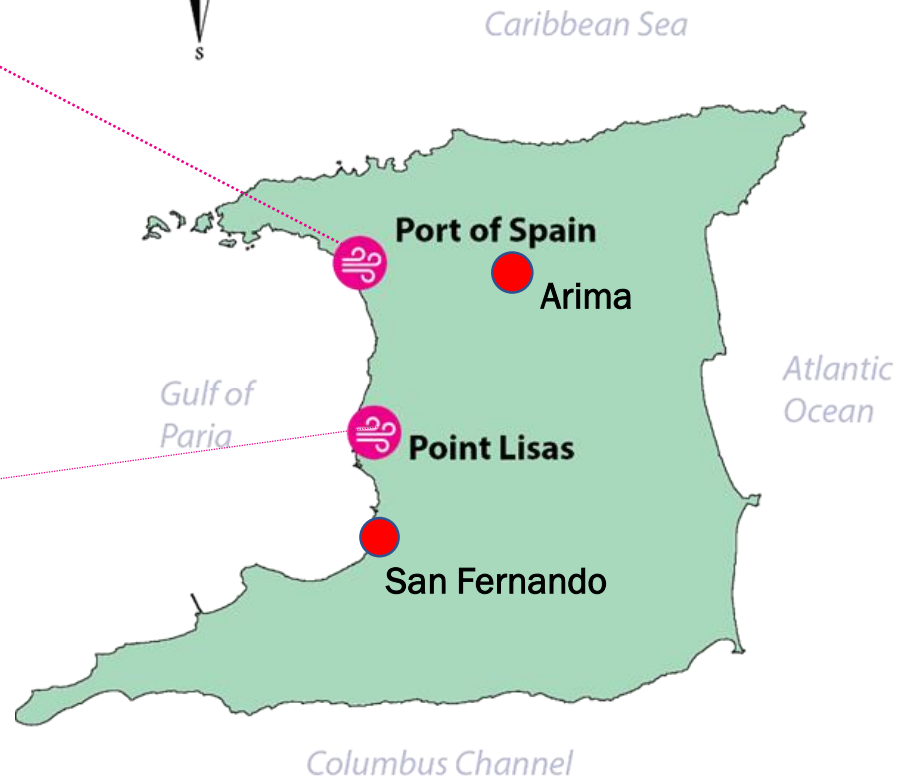
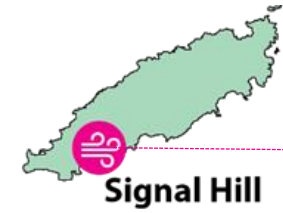
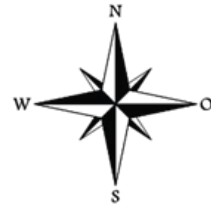


Cost effective

GIS MAPPING FOR SITE SELECTION



STATION LOCATIONS: PRESENT AND PROPOSED

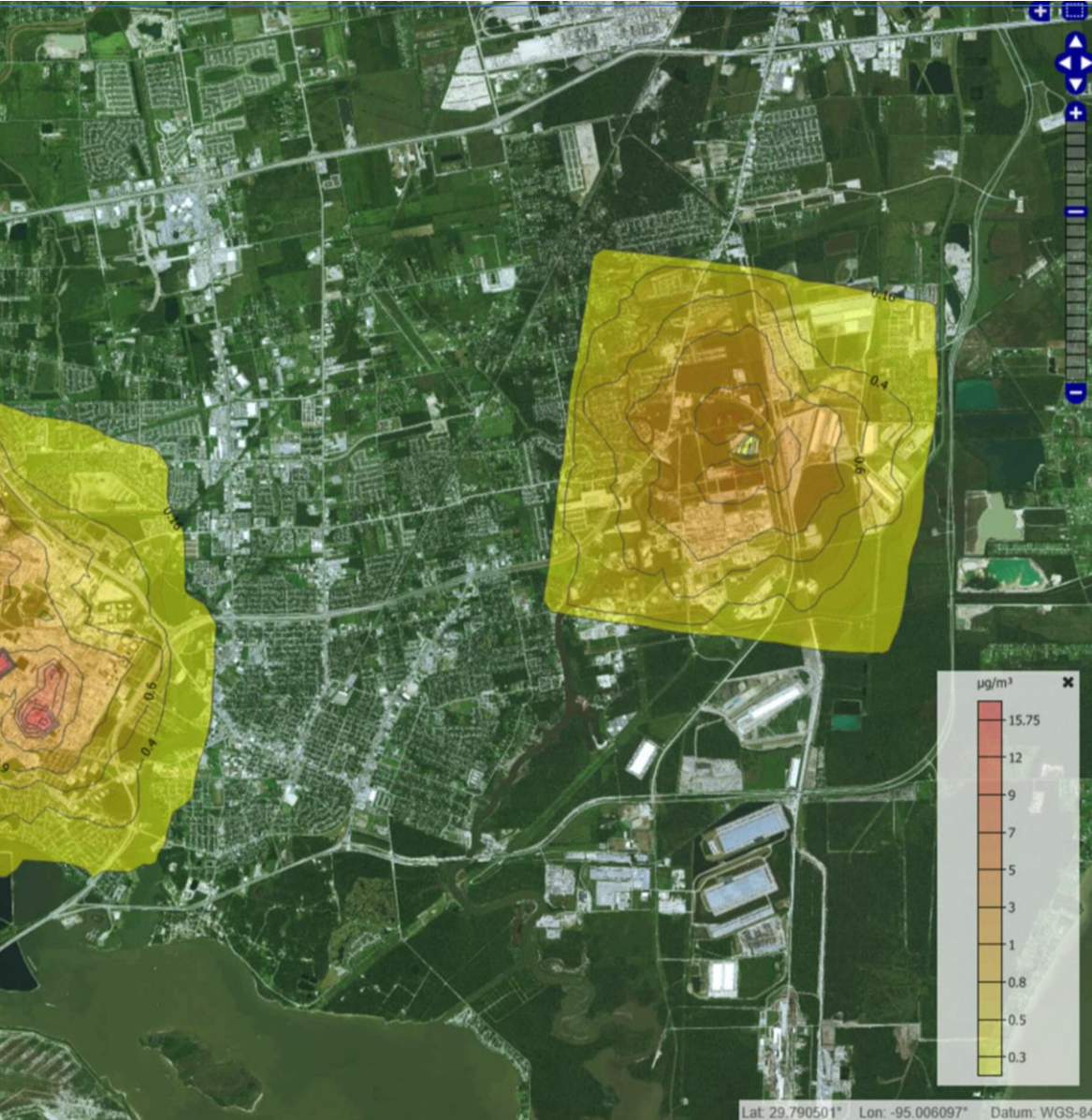


Current Locations



Future Locations

AIR QUALITY DATA MANAGEMENT



Real-time data processing



Emissions controls



Interactive map



Automatic QA/QC Calculations



AQI Values

AQMIS - Air Quality Management Information System



Welcome to AQMIS

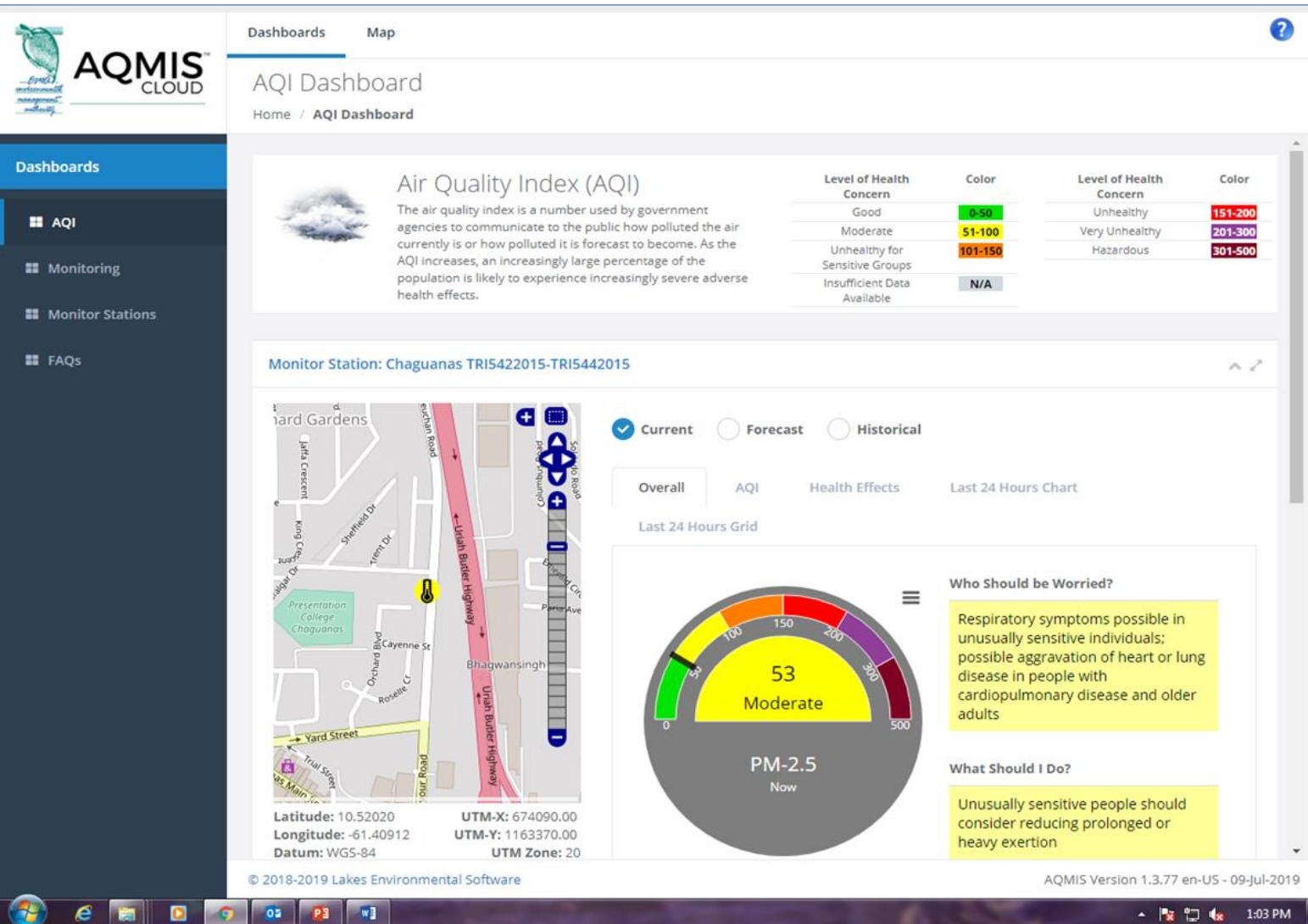
RTT Environmental Management Authority

Remember me

[Forgot Password?](#)

AQMIS Version 1.4.70 en-US - 01-May-2020
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Lakes
Software



AQMIS CLOUD

Dashboards | Map

AQI Dashboard

Home / AQI Dashboard

Air Quality Index (AQI)

The air quality index is a number used by government agencies to communicate to the public how polluted the air currently is or how polluted it is forecast to become. As the AQI increases, an increasingly large percentage of the population is likely to experience increasingly severe adverse health effects.

Level of Health Concern	Color	Level of Health Concern	Color
Good	0-50	Unhealthy	151-200
Moderate	51-100	Very Unhealthy	201-300
Unhealthy for Sensitive Groups	101-150	Hazardous	301-500
Insufficient Data Available	N/A		

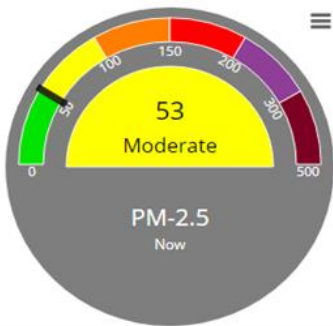
Monitor Station: Chaguanas TRI5422015-TRI5442015

Map: Chaguanas area showing Utah Border Highway and surrounding streets.

Current Forecast Historical

Overall | AQI | Health Effects | Last 24 Hours Chart

Last 24 Hours Grid



Who Should be Worried?

Respiratory symptoms possible in unusually sensitive individuals; possible aggravation of heart or lung disease in people with cardiopulmonary disease and older adults

What Should I Do?

Unusually sensitive people should consider reducing prolonged or heavy exertion

Latitude: 10.52020 UTM-X: 674090.00
 Longitude: -61.40912 UTM-Y: 1163370.00
 Datum: WGS-84 UTM Zone: 20

© 2018-2019 Lakes Environmental Software AQMIS Version 1.3.77 en-US - 09-Jul-2019

T&T's National AQI can be accessed via the Air Quality Management Information System (AQMIS) public website:

<http://ei.weblakes.com/rttpublic>

OR via the EMA website

www.ema.co.tt

QUALITY CONTROL AND QUALITY ASSURANCE

FACTORS TO CONSIDER :

QUALITY ASSURANCE



Policies and procedures



International Codes and Practices



Certified Technician



Preventative Maintenance

QUALITY CONTROL



Calibration

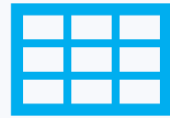


Precision and Accuracy Checks



Performance Audits

DATA PROCESSING AND REPORTING



Data Formatting



Data validation



Statistical Analysis



Reports



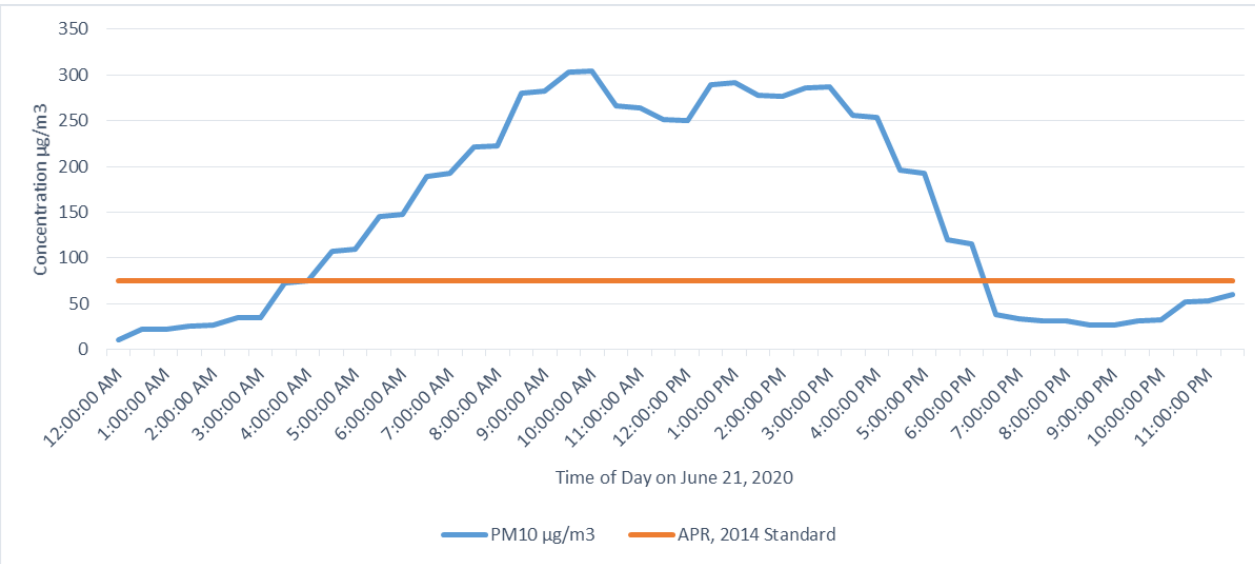
Research



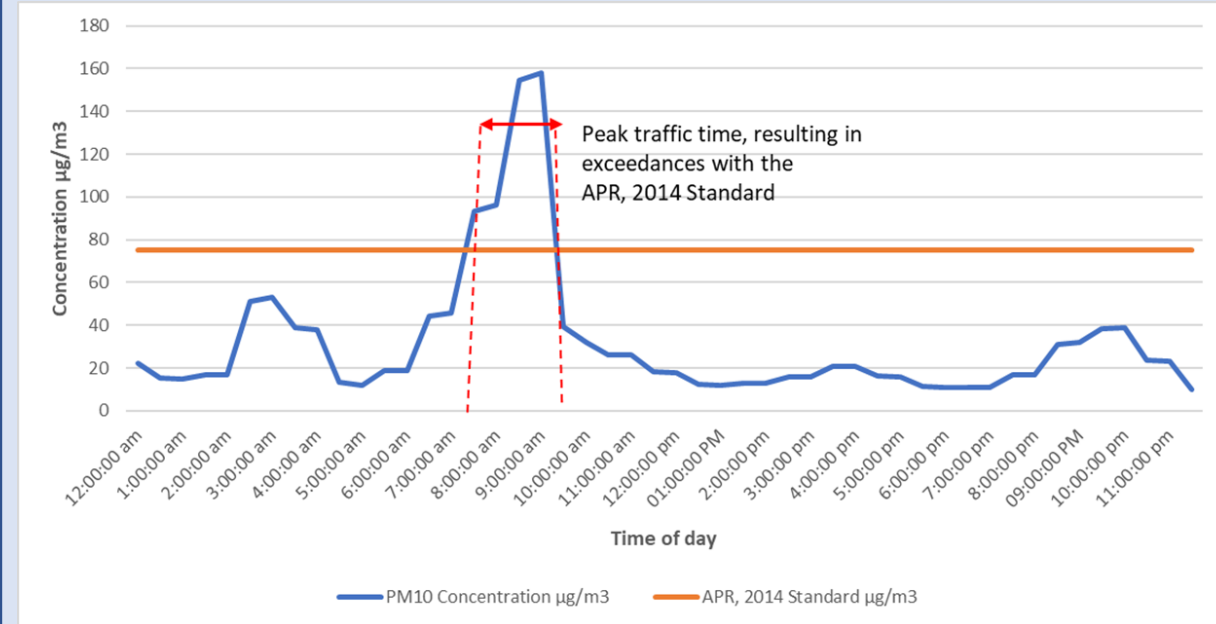
Visualization

EXAMPLE OF REPORTS

Saharan Dust and it's Impact on Air Quality

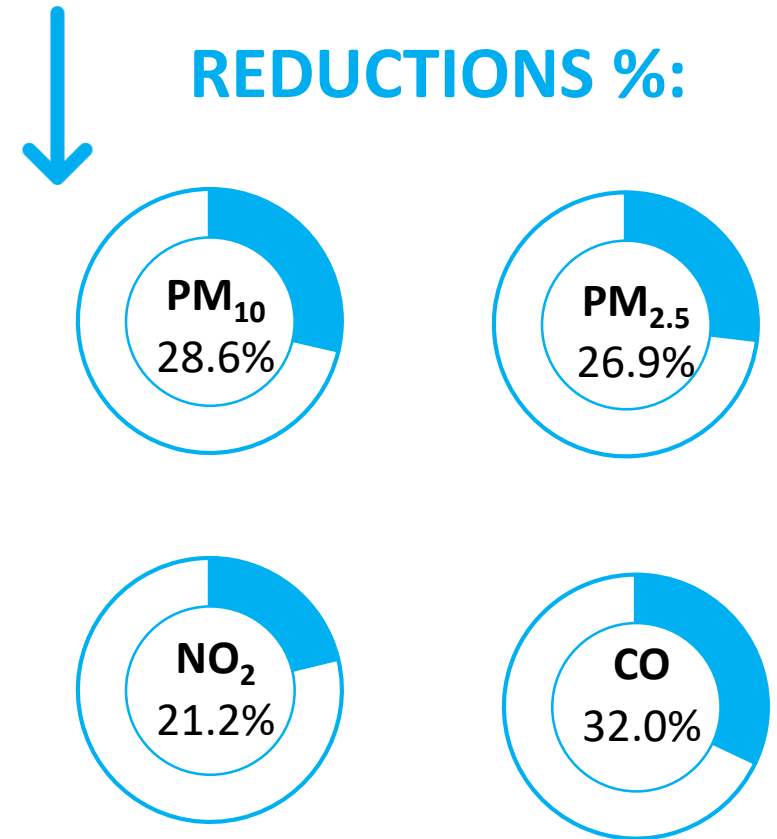


Vehicular Emissions Impact on Air Quality



COVID-19 and Air Quality

Date	PM _{2.5}	NO ₂	Date	PM _{2.5}	NO ₂
02-Mar-2020	28	18	16-Mar-2020	8	10
03-Mar-2020	21	16	17-Mar-2020	20	11
04-Mar-2020	35	N/A*	18-Mar-2020	27	8
05-Mar-2020	35	N/A	19-Mar-2020	37	15
06-Mar-2020	N/A	N/A	20-Mar-2020	31	10
07-Mar-2020	34	16	21-Mar-2020	24	13
08-Mar-2020	33	17	22-Mar-2020	14	7
09-Mar-2020	39	9	23-Mar-2020	16	7
10-Mar-2020	37	17	24-Mar-2020	18	9
11-Mar-2020	22	16	25-Mar-2020	17	8
12-Mar-2020	N/A	13	26-Mar-2020	27	9
13-Mar-2020	19	15	27-Mar-2020	20	21



AQI by Day: Point Lisas, Trinidad, for the period March 02-27, 2020

OPPORTUNITIES FOR A HEALTHY RECOVERY - WHO

“ The pandemic is a reminder of the intimate and delicate relationship between people and planet. ”

-WHO, Director General

WHO MANIFESTO FOR A HEALTHY RECOVERY FROM COVID-19

Climate Change



- Develop coherent multi-sectoral policies and actions across transport, industry, power generation, waste and wastewater management, agriculture, housing and land use sectors for preventing air pollution.

Air Pollution



- Establish and enforce air quality standards, in line with WHO's Air Quality Guidelines.
- Mitigate climate change by reducing greenhouse gas emissions and other climate changing pollutants like black carbon.

Clean air



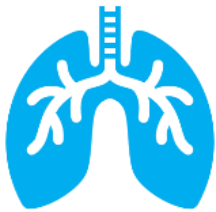
- Ensure cleaner air through implementing interventions in polluting sectors, such as in transport and industry, and through access to cleaner fuels and technologies for cooking, heating and lighting, adequate housing equipment and infrastructure development.

OPPORTUNITIES FOR A HEALTHY RECOVERY – T&T



Climate Change

e.g., Carbon Reduction Strategy (CRS, 2015); Nationally Determined Contribution (NDC, 2015); National Climate Change Policy



Air Pollution

Revision of the Air Pollution Rules, 2014 – Reduction of PM_{2.5} Standard to WHO Guideline; Inclusion of a GHG Reporting Schedule



Clean Air

Incentives and disincentives for private modes of transport; Projects e.g., Development of a solar park at Piarco Airport

CHALLENGES AND THE WAY FORWARD

CHALLENGES



Resources



Transitioning to the “New Normal”

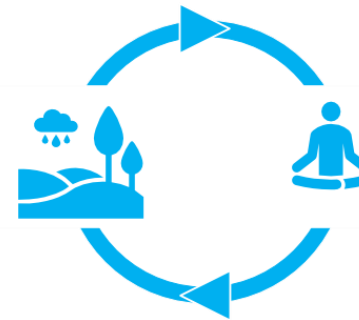


Finding the Solutions

THE WAY FORWARD



An Integrated Approach



Health & Environment



Celebrating
25 Years
1995-2020



THANK YOU

For more information, please visit our website or call our number.

 ema.co.tt

 226-4EMA (4362)

To contact the Air Unit directly, please email air@ema.co.tt