

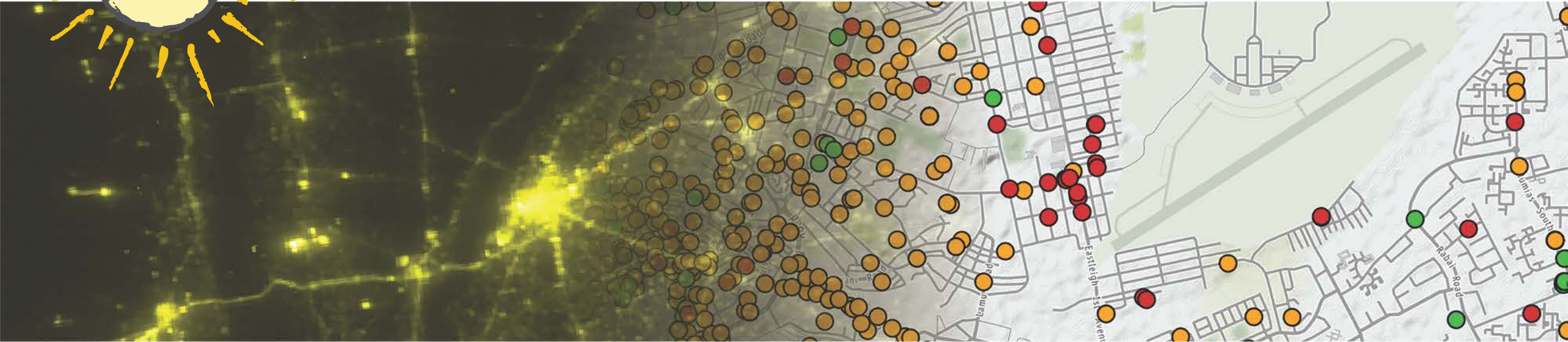


IE CONNECT FOR IMPACT

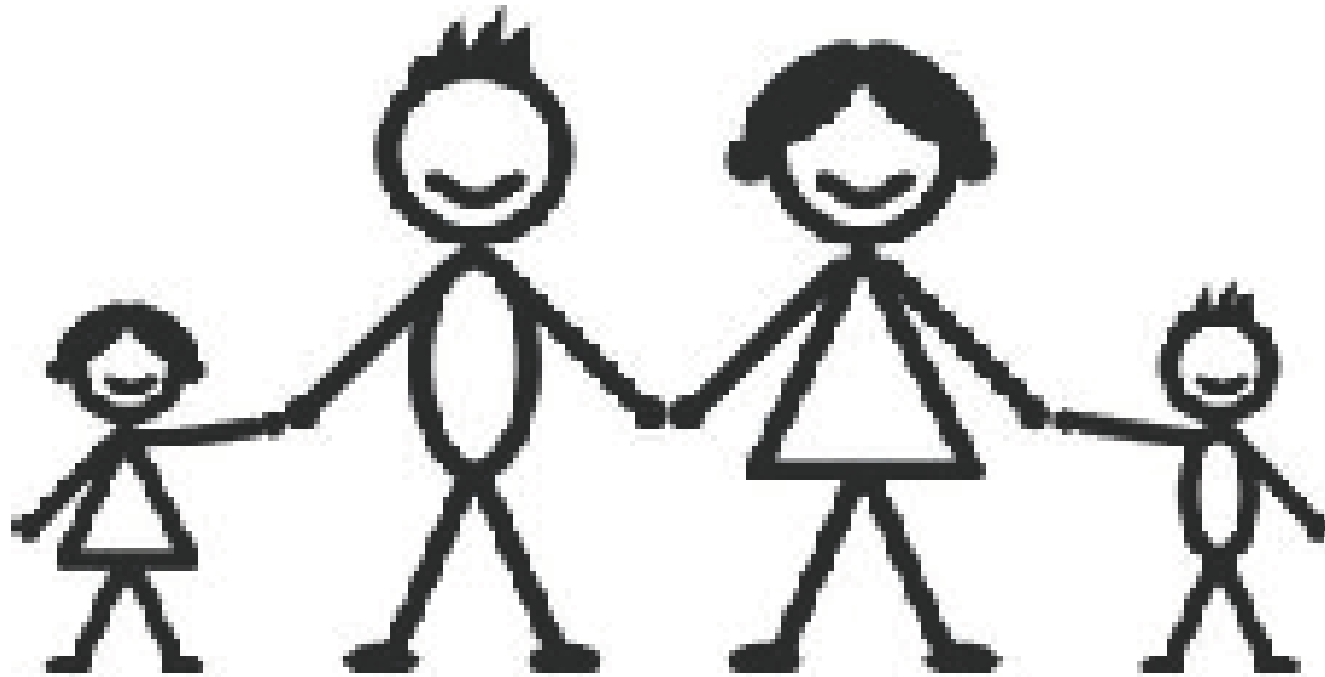
Transforming the Growth Potential
of Transport Investments

Energy and Transport

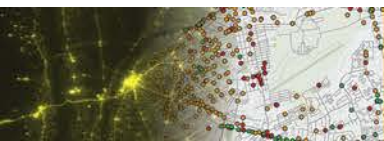
Measurement of Air Pollution



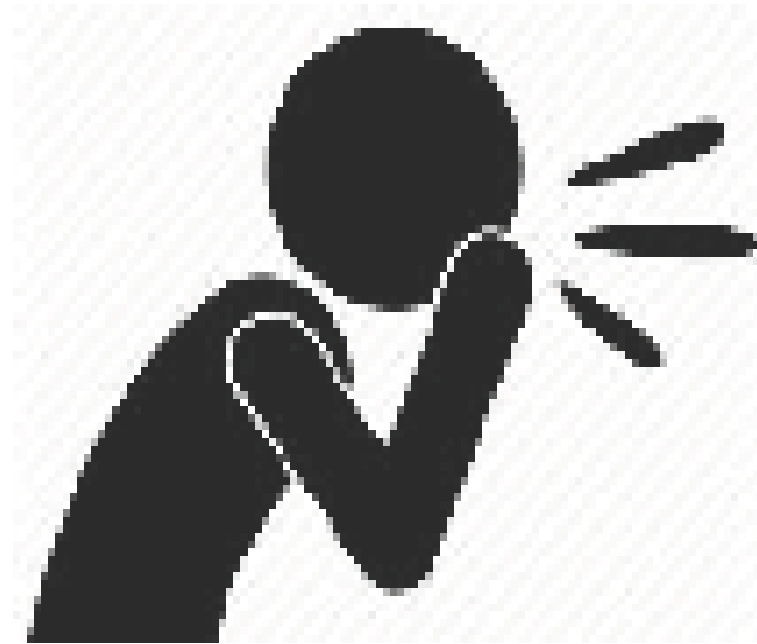
Air Pollution Impacts and Measuring These Impacts



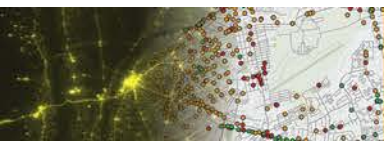
Source: clipartstation.com



Health and Education



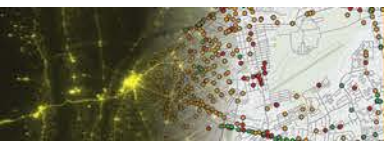
Source: Shutterstock.com



Labor Supply and Earnings



Source: Clip-artLibrary.com



Health and Productivity



Source: Clker.com

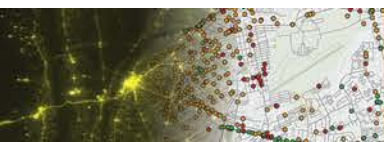
Health and Education



Source: Zazzle.co.uk

Impacts of Air Quality

- Health
- Education
- Labor Supply
- Income
- Productivity

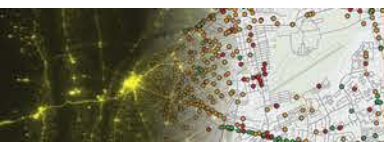


Measuring Air Pollution

- PM2.5
- PM10
- Ozone
- Sulfur Dioxide
- Nitrogen Dioxide
- Carbon Monoxide



Source: Firstpost.com



Data Systems for Measuring Air Pollution

- Satellite remote sensing
- Ground stations
- Mobile monitors

Satellite Remote Sensing

- No investment cost
- Globally available
- Availability and accuracy depend on weather
- Better for spatial and temporally larger measurement



Source: Spacenews.com

Ground Monitoring Stations

- Require large investment
- Precise measurement in a given location
- Measures changes in air quality in a specific place over time



Source: Alamy.com

Mobile Monitors

- Low-cost
- Measure an individual's exposure over a time period
- Measure air quality along a path



Source: aircasting.org

Sensor Comparison

	Speak	AirBeam2	RTI MicroPEM
Designed Use	Indoor	Wearable Indoor/Outdoor	Wearable Indoor/Outdoor; research
Pollutants Measured	PM2.5	PM1, PM2.5, PM10	PM2.5, PM10
Advantages	Individually calibrated and uses ML to increase accuracy	High accuracy as reported by EPA;	High accuracy as reported by EPA; measurements can be as fast as 10 seconds; accelerometer facilitates dose monitoring
Disadvantages	Not included in EPA accuracy comparisons; not designed with research in mind	Uncertain frequency of readings	
Cost	\$150	\$250	Not listed; looking for research partners

More information and more sensor comparisons: <https://www.epa.gov/air-sensor-toolbox/evaluation-emerging-air-pollution-sensor-performance>