DOCKETED

Docket Number:	16-IEPR-02
Project Title:	Natural Gas
TN #:	212014
Document Title:	UNEP Air Quality Monitoring System
Description:	Sami Dimassi Chief, Country Outreach, Technology and Innovation Branch Division of Early Warning and Assessment United Nations Environment Programme (UNEP)
Filer:	Raquel Kravitz
Organization:	UNEP
Submitter Role:	Public Agency
Submission Date:	6/29/2016 10:49:25 AM
Docketed Date:	6/29/2016

UNEP
Air Quality
Monitoring
System

Contact:

Sami Dimassi
Chief, Country Outreach, Technology and Innovation Branch
Division of Early Warning and Assessment
United Nations Environment Programme (UNEP)
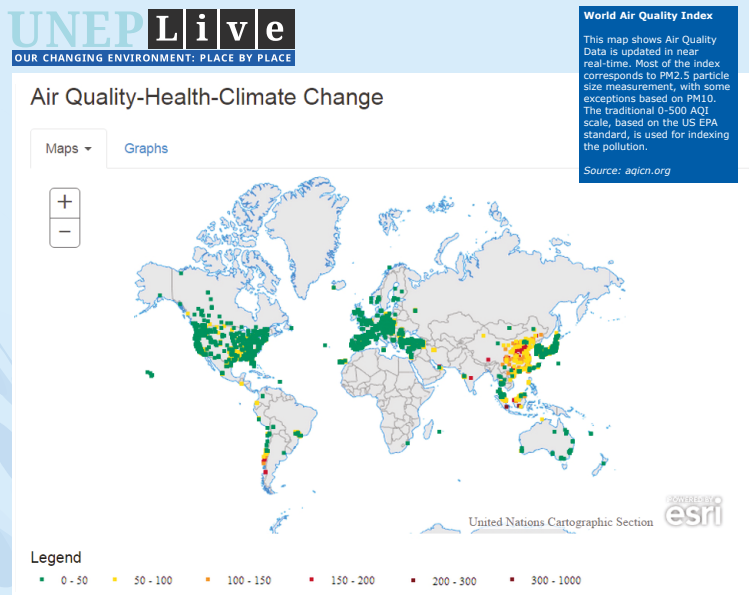P.O. Box 30552-00100 Nairobi, Kenya
email: uneplive@unep.org

Affordable Air Quality Monitoring Systems

The following map, available on UNEP Live shows the World Air Quality Index, which mainly corresponds to PM 2.5 counts, at 14:58, 21ˢᵗ September 2015.

Legend

■ 0 - 50   ■ 50 - 100   ■ 100 - 150   ■ 150 - 200   ■ 200 - 300   ■ 300 - 1000

http://uneplive.org/

To enable more developing countries to monitor air quality and estimate the health effects, especially in vulnerable human populations and ecosystems, UNEP has embarked on a series of ground-breaking efforts in partnership with national governments, research institutions and UN and international partners, including World Health Organization, UN Habitat, World Bank and World Meteorological Organization. They are part of the Global Platform on Air Quality and Health, to develop a framework, information and tools for the monitoring and evaluation of air quality and related health impacts.

As part of this, UNEP is designing an affordable national air quality monitoring network based on UNEP Air Quality Units for measuring particulates, key pollutants such as sulphur dioxide, nitrous oxide and ozone (USD 1500/unit), location and temperature, plus calibration units that have an additional set of sensors including for humidity.

The overall cost for a typical national network would range from USD 100 – 200K. This would be in contrast to the current cost of a single typical high-precision instrumented station of 250K USD.

The UNEP AQ Unit is comprised of an Optical Particle Counter PM1, 2.5 and 10 (OPCN2) sampling every 2 seconds, two gas sensors - SO_x and NO_x (Alpha Sense), a Global Positioning System (GPS) and temperature and humidity sensor, a Texas Beagle Bone data controller. Additional sensors, such as for ozone, and Volatile Organic Compounds (VOCs) can be added according to local needs and conditions. The unit is powered off 12 volts and can be used as a fixed station or mobile unit. The units are GSM enabled and designed to operate as nodes in a network to allow inter-calibration.

Due to its rugged design, the UNEP AQ Unit can be deployed across different terrains in a country. It can be linked in real-time to meteorological stations, county and national offices via wireless and telecommunication networks or run off-line.

UNEP will publish the blueprint for the UNEP AQ Monitoring Unit as a global public good. This will enable governments and organisations to purchase, assemble or fabricate the units themselves, thereby opening up opportunities for innovation and enterprise development.

The data from the network of AQ Units will be augmented by relevant satellite data flows and social and health surveys, via the Global Platform on Air Quality and Health, and in the first instance delivered to citizens and communities through mobile and on-line applications in UNEP Live (http://uneplive.unep.org/theme/index/2#.VeBh_vmLEXg)

The data from the UNEP AQ units will help provide improved statistics on air quality exposure of vulnerable populations in urban environments and underpin cross-sectoral policy-making decisions in transport, energy and urban planning. The data can also be integrated into UNEP's National Reporting System, as part of ongoing efforts to improve "SDG readiness".