



SECOND TECHNICAL MEETING OF COMMUNITIES OF PRACTICE ON AIR QUALITY IN ASIA PACIFIC:

SENSORS MAKING SENSE: USE OF HYBRID AIR QUALITY MONITORING SYSTEMS IN ASIA

Date	10 September 2021
Schedule	14:00 – 17:00 UTC +7 (3 hours)
Format	Virtual event – Zoom Registration link: https://bit.ly/hybridAQMt-asia
Language	English

BACKGROUND

Air pollution is a serious public health crisis in Asia. It is the greatest cause of non-communicable diseases and is responsible for over 2.3 million premature deaths¹ in many countries² in the region. Health impacts are largest among the vulnerable population, including women, children, elderly, people with co-morbidities and the poor with limited access to healthcare. Changing trends and patterns of activity related to economic development, population growth, urbanization and industrialization, transport, and energy use, are driving increased air pollution in the region.³

Air quality monitoring provides an understanding of air quality levels for public health protection, enables the assessment of air pollution trends and impacts, and helps guide the development and monitoring of effectiveness of policies and measures. While there have been great strides in monitoring systems and global earth observation, there are still significant data gaps and capacity challenges. Many countries continue to struggle to establish and sustain an air quality monitoring network. There is opportunity to address these challenges by supplementing regulatory air quality monitoring approaches with rapidly evolving technologies including non-reference sensors and satellite data, among others.

A hybrid air quality monitoring system combines non-conventional methods such as use of non-reference or low/medium cost sensors and remote sensing techniques, with conventional reference air quality monitors. The application of a hybrid system can address concerns of costs and extensive spatial coverage that is difficult to establish and maintain with the use of reference instruments alone. This method has been successfully implemented in several cities⁴ to track changes in air pollution from various sources, and lessons learned from these experiences can help other cities in Asia. To address concerns on accuracy of sensors, performance targets have also been published⁵ and users must be guided on the local calibration and assessment process.

To continuously foster a learning environment on emerging methods and developing monitoring systems, a regional community of practice on air quality monitoring must be strengthened to help more stakeholders

¹ Health Effects Institute, 2020. State of the Global Air 2020. Special Report.

² Project priority countries: Bangladesh, Cambodia, India, Indonesia, Laos, Malaysia, Mongolia, Nepal, Philippines, Thailand, Vietnam

³ Fifth ASEAN State of the Environment Report. Jakarta, ASEAN Secretariat, November 2017.

⁴ Clean Air Asia and UN Environment, 2021. Case Study on use of Non-reference Air Quality Monitors in Asia

⁵ US Environmental Protection, 2021. [Air Sensor Performance Targets and Testing Protocols](#); Clarity, 2021. Guide to Accurate Particulate Matter Measurements. How to Meet US EPA, EU, and Other Performance Targets for Air Quality Sensors

understand status of air quality through monitoring, and access air pollution data to inform policies and measures.

The UN Environment Programme (UNEP), Asia Pacific Clean Air Partnership (APCAP) and partners such as Clean Air Asia, with support from the United States Department of State, are supporting regional communities of practice on issues critical to air quality management in Asia-Pacific. This technical session will focus on understanding the status, developments, challenges, solutions, and lessons learned in the use of hybrid systems to strengthen the community of practice on air quality monitoring – providing a step closer to filling data gaps and informing action.

OBJECTIVES

The meeting aims to:

- To identify and discuss the challenges, solutions, and considerations for adopting hybrid air quality monitoring systems for air quality management;
- To share recent developments sensor technology and methods of evaluation for wider application in air quality monitoring; and
- To provide technical and management advice to air quality practitioners and help strengthen the community of practice on air quality monitoring, effectively contributing to the sustainability of air quality monitoring efforts.

FORMAT

The second technical meeting of the communities of practice on air quality will be organized virtually using a mix of panel discussion and World Café dialogues via an online meeting platform.

TARGET PARTICIPANTS

The following will take part in the session discussion:

- Decision-makers, policymakers, and technical officers from national and local environment agencies in the region, who are responsible for air quality monitoring and related activities⁶; and
- International and regional experts from academia, international organizations, and industries on air quality monitoring and management

INDICATIVE AGENDA

Duration	Agenda Item
15 minutes	1. Introduction Opening remarks <ul style="list-style-type: none">• US DOS representative• UNEP representative Meeting introduction and objectives <ul style="list-style-type: none">• Clean Air Asia
45 minutes	2. Satellite Measurement and Air Sensor Technologies: Maximizing Potential and Use This session will provide an overview of the status and future of technologies available to monitor air quality, through invited experts in the field. Insights on the capabilities and performance of monitoring technologies employed, as well as policy and technical recommendations to sustain these types of air quality monitoring systems, will also be discussed.

⁶ With invitation to project priority countries Project priority countries: Bangladesh, Cambodia, India, Indonesia, Laos, Malaysia, Mongolia, Nepal, Philippines, Thailand, Vietnam

Duration	Agenda Item
	<p><u>Proposed speakers and topics:</u></p> <ul style="list-style-type: none"> • Available technologies by representative from National Aeronautics and Space Administration (Pawan Gupta, Senior Scientist) • Policies and guidance in the use of sensors by a representative from the US Environmental Protection Agency • Use of hybrid systems through partnerships – (Karine Léger, Airparif Directorate-General)
10 minutes	Facilitated Q&A
5 minutes	Break
60 minutes	<p>3. Looking into the Community of Practice on Air Quality Monitoring in Asia (World Café format)</p> <p>Through an interactive approach, the session aims to gather insights and inputs from participants on what needs, challenges, solutions, and collaborations that can strengthen pollutant monitoring and the community of practice on air quality monitoring in the region.</p> <p>There will be three stations on:</p> <ul style="list-style-type: none"> (a) Enabling environment for uptake of (hybrid) air quality monitoring systems (b) Strengthening air quality management systems (challenges and solutions) (c) Potential collaborations (governments-industries-academia) <p>A visual illustrator assigned to each station will help capture the key discussion points in a visual summary, and which may be presented in the last 10 minutes of the session.</p>
30 minutes	<p>4. Technology as Solution: From Data to Action</p> <p>This panel discussion will provide a platform for national and local governments, private entities, and communities to share experiences and queries in the use of hybrid air quality monitoring, as well as approaches to using air quality data for different air quality management objectives.</p> <ul style="list-style-type: none"> • Governments' experience (national and city level) • Opportunities for developing nations to adopt approaches presented
15 minutes	Meeting summary, evaluation, and way forward