

APS

Ambient Air Purification Systems



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APS – Ambient Air Purification Systems

Air pollution is a giant & silent killer. Breathing polluted air increases the risk of lung cancer, stroke, heart disease, chronic bronchitis etc. Air pollution is the world's fourth-leading fatal health risk, causing one in ten deaths in 2013.¹ About 87% of the world's population live in countries in which ambient pollution levels exceed air quality guidelines set by the World Health Organization.¹

OECD Policy Highlights Report² calculates impact of outdoor air pollution on labour productivity, health expenditure and agricultural crop yields. The OECD Report projects global costs of pollution to increase from USD 3.2 Trillion in 2015 to USD 18-25 Trillion by 2060. **In India the cost of air pollution is estimated to be Rs 3.39 lakh per second.**³

Impact of Air Pollution	India	Global
<i>Economic cost</i>	\$160Bn	\$2.9Tn
<i>(% of GDP)</i>	5.4%	3.3%
<i>Number of premature deaths</i>	350,000	4,000,000
<i>Reduction in crop yield</i>	US\$ 5Bn	US\$ 20Bn
<i>(% of yield)</i>	36%	5-12%

Pollution is a result of human mobility and development. Pollution occurring naturally, like dust, is extremely difficult to control at source especially in a country like India. It is even more difficult to reduce its concentration in the Gangetic belt and similar geographies across the globe. The Himalayan problem of pollution requires a Himalayan solution.

Tackling Particulate Matter (PM) pollution requires technologies and solutions which are scalable, economically viable and sustainable. The solutions should be capable of controlling pollution to reduce harmful exposure without adding any carbon foot print. Technology with the ability to adapt according to seasonal variations between PM2.5 & PM10 will be very important for optimum performance.

Umeandus Technologies has developed technology & solutions for PM which don't use electricity or land footprint and have lower maintenance cost. The objective is to match the capacity along with viability required to improve Air Quality for it to fall within the healthy region. The technologies and solutions developed by Umeandus called "**Ambient Air Purification System (APS)**" **overcome the problems faced by current solutions and provide innovative ways to combat pollution.**

Key Features of APS technology

- Technology for Ambient Air Purification without Land Footprint
- Solution with almost negligible electricity consumption
- Large Scale solution with Sustainability
- Centralised remote Operation, Management and Maintenance for efficient operations
- Capability to automatically adapt in accordance with variation in Ambient Pollution
- Doesn't change or degrade Urban Landscape

APS has the potential to make the ambient air of a city like Delhi comparable to any European city.

The Technology Innovation

Ambient Air Purification System (APS) are innovative solutions to remove the PM and gaseous matter from ambient air without requiring land footprint and have the ability to be configured dynamically according to the ambient air. The solutions are designed to reduce the harmful exposure and are deployable depending on the locations of the hotspots. The technology is sustainable and therefore is developed with the focus on reducing dependency on Land, Electricity and filters replacements to minimise capital and operating expenditures. These solutions are scalable, deployable and dynamically configurable according to the need to quickly bring pollution under control.

P-Ambient Air Purification System (P-APS) is an innovative solution that removes the PM from ambient air without using electricity, water & replaceable filters.

P-APS

It can be customised as per the requirements for both indoor and outdoor application primarily for bigger dust particles in the air. It can be configured according to ambient air conditions. P-APS key benefits are its low setup cost and low operating cost for indoor and ambient PM. This technology is suitable for static, mobile & also to augment efficiency and sustainability of other systems.

A-APS

A-APS is capable of removing PM2.5 & PM10 without requiring land footprint, electrical infrastructure. The system does not change or degrade the aesthetics of the urban landscape. The A-APS innovative design makes it technologically advanced, requiring lower operating expenditure, and is easier to maintain. The solution can be adapted to different ambient conditions based on seasonal variation of PM10 & PM2.5. **A fully deployed & operational A-APS is equivalent to 4500 smog towers, without Land footprint and without electricity consumption.**

APS

APS builds on the advantages of A-APS to provide large capacity & additional capability of removing gaseous pollution in addition to PM. APS is dynamically configurable, deployable on various platforms and uses multiple technologies for removing PM and gaseous pollution. The intelligent control system of APS automatically configures capacity & capability based on the ambient air quality. The intelligent control system could be on-board a mobile platform or static to ensure most optimum performance based on the ambient air quality, available resources and the performance expected. This system can be deployed, as needed, to a location, based on the availability of existing infrastructure. **The typical capacity for one such system will be equivalent to 150 smog towers for PM with additional capability for gaseous pollution removal without requiring Land footprint and additional electrical infrastructure.**

About Us

Umeandus Technologies India Private Limited is engaged in designing & developing innovative technologies focused on creating sustainable infrastructure for transportation, logistics and environment improvement to combat the various problems. Given the global urgency to accelerate environment protection, halt climate change and enhance sustainability, UTIPL objective is to design innovative solutions having commercial, economic and environmental viability.

APS is a vision for a clean & sustainable world.



REFERENCES

- 1: World Bank and Institute for Health Metrics and Evaluation (IHME) University of Washington, Seattle 2013: The Cost of Air Pollution Strengthening the Economic Case for Action
- 2: OECD Policy Highlights Report: The Economic consequences of Outdoor Air Pollution, June 2016
- 3: Greenpeace Southeast Asia and Centre for Research on Energy and Clean Air (CREA)