



PROJECT REPORT

Phase I: Assessing the Impact of 'Air Pollutants' on the Health of Traffic Police

in Bengaluru, Karnataka

May- November 2016



Anti-Pollution Drive (APD) Foundation in association with Eureka Forbes Limited

ABOUT THE PROJECT

The Status of Air Pollution:

Recent reports of the quality of air in Indian cities shows that it houses 13 of the 20 most polluted cities in the world¹, leading to 10,000 – 30,000 premature deaths annually. The metrics of Air Quality Index (AQI) seem to vary across reports & remain insufficient in capturing the actual ‘experience’ of pollution at ground, as felt by people at large. With a large percentage of children in metros suffering from ‘severe’ lung problems², cities are moving towards creating a generation whose vital organs, physiologically are not mature enough to deal with the polluted environment. The rising number of heart & respiratory diseases³ is leaving people with no option but to move out of these cities⁴.

Bengaluru has been in the grip of rising air pollution over the past few years. More than 85% of 15 monitoring locations have shown pollution data that exceed permissible levels. Official ambient air quality monitoring has already shown 57% increase in particulate matter in just 4 years (2010-2014) and 23% in one year. CSE exposure monitoring has provided clinching evidence of an alarming dose that ‘an average Bangalorean breathes on a daily basis in different parts of the city – 3 to 12 times higher than the ambient level recorded by official monitors’⁵. ***The key contributors remain vehicular emissions, dust from construction and the burning of garbage.***

The health impacts of breathing this polluted air has already manifested itself in the most exposed and vulnerable groups of people. A survey based on a preliminary lung health screening test (LHST) on children aged 9-15 years, exposed that 36% of school-going children in Bengaluru suffer from

¹ http://www.who.int/phe/health_topics/outdoorair/databases/cities/en/

² <http://www.dailymail.co.uk/indiahome/indianews/article-3067818/Nearly-HALF-Delhi-s-children-suffer-severe-lung-problems-air-pollution.html>

³ <http://indiatoday.intoday.in/story/pollution-chill-delhi-witnesses-rise-in-respiratory-diseases/1/167485.html>

⁴ <http://www.firstpost.com/india/most-indian-cities-highly-polluted-delhi-doctors-ask-residents-to-leave-capital-2182033.html>

⁵ <http://bangalore.citizenmatters.in/articles/bengaluru-could-be-the-next-city-after-delhi-to-be-hit-by-air-pollution>



poor lung health⁶. Additionally a health camp for the 3000+ traffic police in the city showed elevated lead content in the blood of 37.57% of the personnel tested⁷

Air Pollution and its Impact on Health:

As a first step towards gauging the scale of the problem at hand, the intent is to augment the understanding of the science of air pollution and to assess the impact of pollutants on public health.

Many of us experience some kind of air pollution-related symptoms such as watery eyes, coughing, or wheezing. The actual risk depends on the person's current health status, the pollutant type and concentration, and the length of exposure to the polluted air. Those most vulnerable are - Outdoor workers (Traffic Police, Auto/Bus/Taxi Drivers, Street Vendors, Street Sweepers and Construction workers), children under age 14 (whose lungs are still developing), individuals with heart disease, individuals with lung disease, pregnant women and those engaging in outdoor recreational activities (jogging and walking outdoors). ***This project aims to assess the impact specifically on the health of the Traffic Police and Traffic Wardens in Bengaluru as a Phase I of the study.*** A similar study has already been conducted by Anti-Pollution Drive (APD) Foundation in Mangaluru (**Annexure I**). The project aims to:

- Conduct health tests like the PFT (Pulmonary Function Test) to capture actual impact.
- Develop new health-impact indicators with a special focus on traffic and reporting on health impacts and related costs via a Health Meter
- Stimulate dialogue between stakeholders.

⁶ <http://www.firstpost.com/living/world-asthma-day-35-of-indian-kids-fail-lung-test-survey-blames-rising-levels-of-pollution-2228664.html>

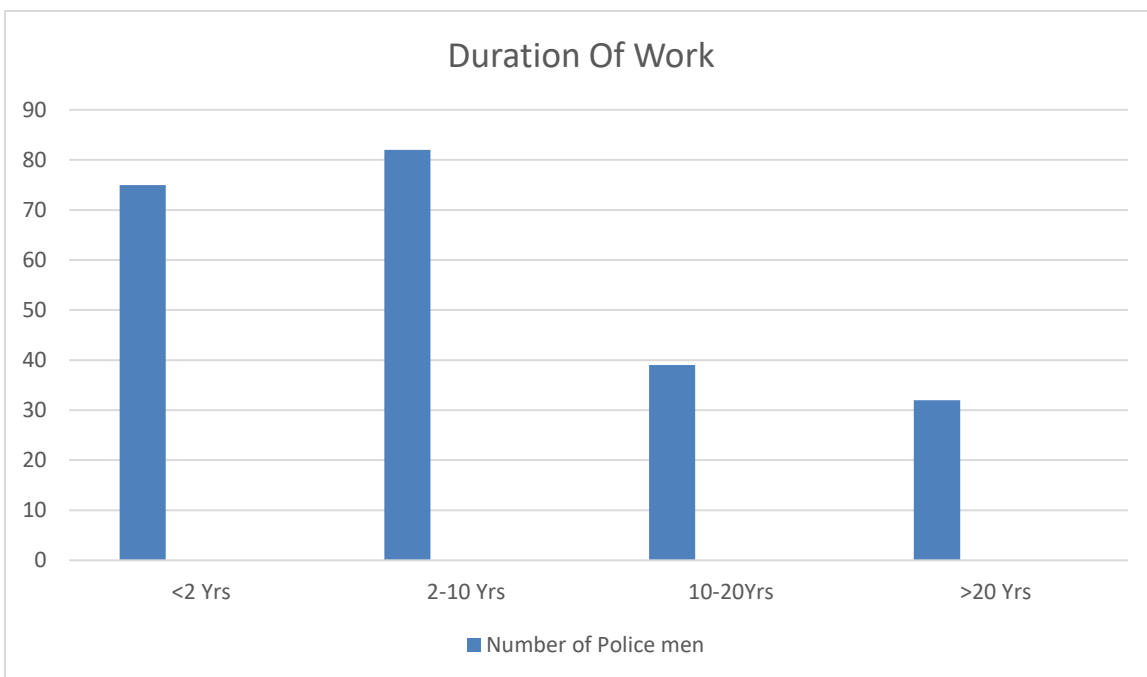
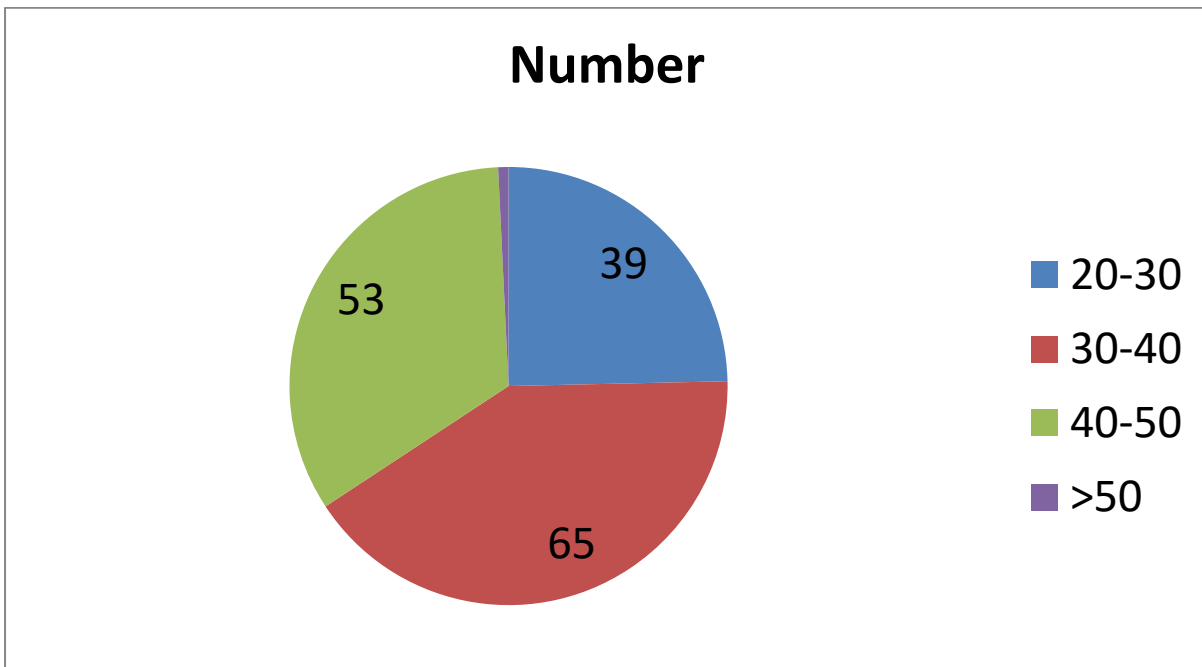
⁷ <http://www.thehindu.com/news/cities/bangalore/health-camp-for-traffic-police-to-detect-lead-content-in-blood/article6158383.ece>

Report on Screening of Traffic Policemen.

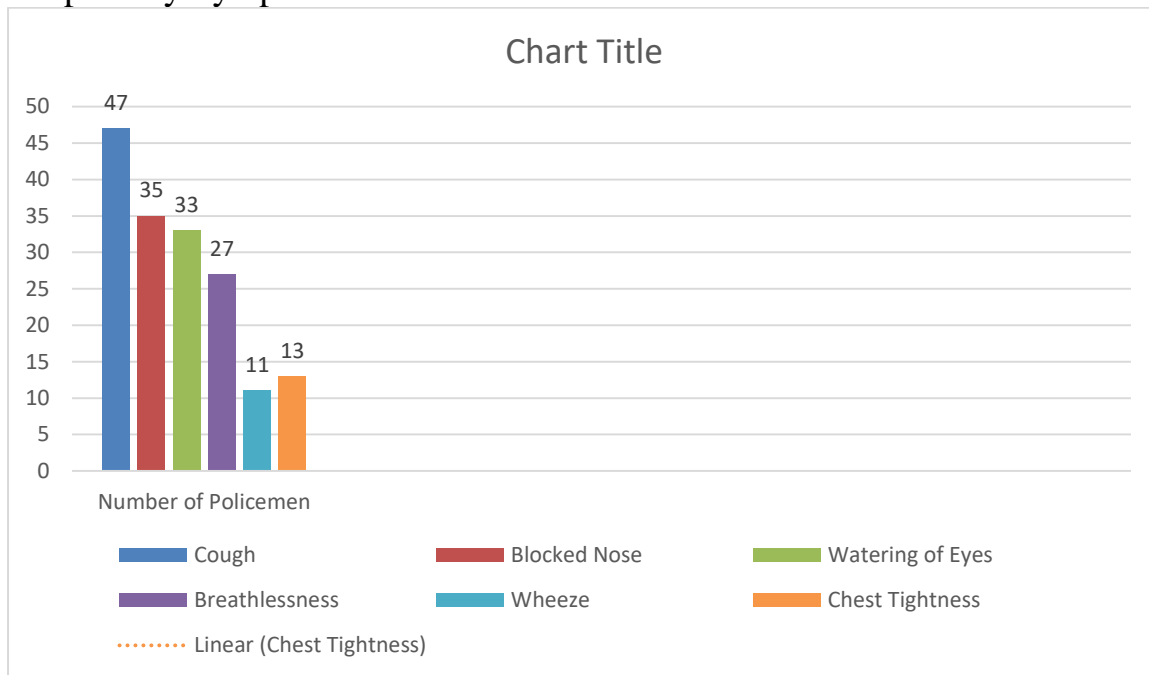
235 traffic police personnel in 8 traffic police station were screened from 15th to 19th November, 2016. Our survey found that 47 (20%) of these individuals had some form of respiratory symptoms. This is much higher than what was found in general population in the INSEARCH STUDY that looked at the Epidemiology of Asthma, Respiratory Symptoms and Chronic Bronchitis in adults.

The lung function testing of these personnel was done with a portable spirometer. The lung function testing showed that 72 (31%) had reduced lung functions.

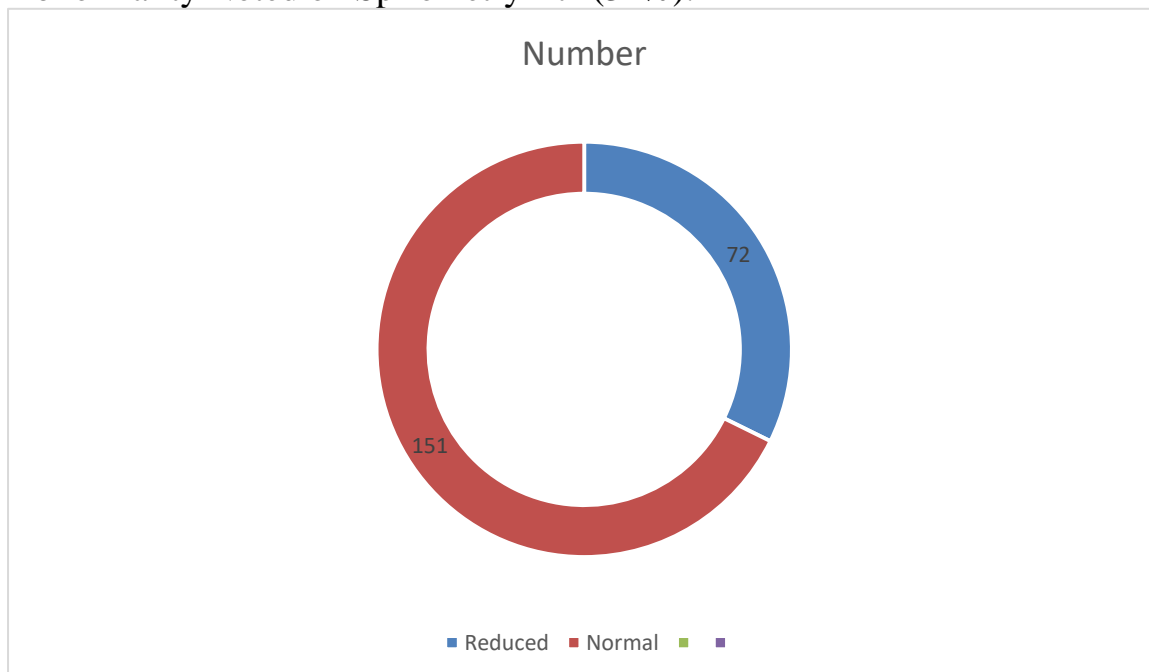
This would make it imperative for us to look into the respiratory health of all traffic policemen along with the monitoring of pollution level. They need to be screened and need to wear protective masks to prevent further deterioration of their respiratory health



Respiratory Symptoms



Lung Functions - 9 had obstructive defect ($FeV1/FVC < 70\%$)
Abnormality Noted on Spirometry - 72(31%).



3,000 Traffic Policemen, Wardens In Bengaluru To Undergo Tests To Prevent Further Damage

How does air pollution impact health of traffic cops? Lung scans to gauge risk

Rohith.BR@timesgroup.com

Photo for representation only

Bengaluru: The air we all breathe is foul but it is traffic cops who are the most vulnerable to pollution. Manning junctions for hours on end, the policemen are constantly exposed to pollutants, their thin masks and handkerchiefs barely shielding them from the noxious fumes. That they are at a health risk is known but the question is how grave is it?

To determine the effect of air pollution on the community, 3,000 traffic cops and wardens will undergo lung tests soon. The unique project conceived by the Anti-Pollution Drive (APD) Foundation, in association with the police department, will study the impact of air pollution on the cops' health through Pulmonary Function Tests (PFT).

The project, Assessing the Impact of Air Pollutants on the Health of Traffic Police, was recently approved by the police department. Abdullah A Rehman from APD said the project is a first of its kind when it comes to the scale of coverage. It will be replicated in Mumbai and Delhi based on the Bengaluru results.

"Bengaluru has witnessed an increase in air pollution over the past few years. Medical camps have revealed many traffic policemen have excess lead content in their blood. Through the project, we aim to assess the impact of air pollution on the health of traffic cops and wardens so that further damage can be prevented through the necessary remedies," he added.

A pilot project launched by the foundation in Mangaluru has thrown up specific results.

"As the project rolls out, we will develop new health-impact indicators with a special focus on traffic. The health impact and related costs will be uploaded on a portal to stimulate dialogue between stakeholders. The next step will be to provide guidelines to health professionals on helping patients reduce exposure to pollutants and evaluate strategies de-



THREAT ON THE ROAD: Medical camps revealed many traffic policemen in Bengaluru have excess lead content in their blood

signed to curb air pollution," Abdullah said.

A senior traffic police official said they have a total strength of 3,200, of whom 1,868 are constables and 838 head constables who are continuously exposed to vehicular pollutants. "The others — 266 assistant sub-inspectors, 170 sub-inspectors and 45 inspectors — are also vulnerable as they also do the rounds," he said.

A team from St John's Medical College and Hospital

will conduct the lung tests. "Traffic cops are on the road day in and day out. We don't know their pre-existing conditions and the threat they are facing by being exposed to toxic air. Once the test results are out, we will be able to assess the critical cases and advise those cops to opt for alternative jobs in the department and provide them the necessary protective gear," said Dr Priya Ramachandran, a pulmonologist with the hospital.



LET BANGALORE BREATHE

TOXIC AIR

- Over 85% of 15 pollution-monitoring locations in city have recorded that pollution levels exceed permissible limits
- Key contributors: Vehicular emissions, construction debris and burning of garbage
- Survey based on a preliminary lung health screening test (LHST) on children aged 9-15 found 36% of schoolkids suffer from poor lung health

FINDINGS OF M'LURU PILOT

- About 115 personnel of the 150-strong Mangaluru traffic police force underwent lung tests
- Tests showed lungs of many personnel were affected by air pollution
- 22.3% cops with five and lesser years of service showed signs of restrictive lungs

- 26.3% cops with more than five years' experience showed restrictive lung capacity
- Significant correlation in lung function and exposure to vehicular pollutants. The number of traffic policemen with restriction increased with duration of exposure
- Scientifically designed masks which offer higher degree of protection were provided to cops, along with pamphlets on health remedies

NGO to test traffic cops for lung capacity function

HARSHA @ Mangaluru

Mangaluru-based NGO Anti-pollution Drive (APD), will soon be screening traffic policemen in Bengaluru to ascertain the extent of the impact of pollution on the health of traffic personnel.

"Based on our previous work with traffic policemen in Mangaluru, Additional Commissioner of Police (Traffic) R Hitendra, accepted our proposal to screen over 3,000 traffic personnel for lung capacity function, free of cost," founder and chief coordinator of APD Foundation, Abdul-

lah A Rehman, told 'Express'.

A total 115 traffic personnel manning traffic in Mangaluru had undergone 'pulmonary function tests' (PFT) conducted by the Foundation in association with the department of respiratory medicine, Yenepoya Medical College (YMC).

A majority of the 115 traffic cops, who had undergone PFT, had been diagnosed with weak lung function due to pollution. The foundation, after realising that a significant number of traffic personnel in Mangaluru suffered from abnormal lung func-

tion, had embarked on another drive to provide scientifically-designed anti-pollution masks, each costing ₹400, to traffic policemen, in a phased manner.

Abdullah told 'Express' that he was in discussion with a couple of private hospitals in Bengaluru, to conduct PFTs on traffic personnel. "A private company has come forward to bear the entire cost of conducting PFT for traffic personnel, not only in Bengaluru, but also in other tier II and III cities," Abdullah said.

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with a sense of pride.

APD to test lung functioning of Bengaluru traffic police

Vinobha.KT @timesgroup.com

Mangaluru: Anti-Pollution Drive (APD) Foundation, a Mangaluru-based NGO, will soon launch a drive in Bengaluru to save 3,000 traffic policemen in the capital city from dust pollution. APD Foundation, after successful completion of the first round of drive in Mangaluru, will conduct pulmonary function tests (PFT) on traffic policemen in Bengaluru in the next phase. Foundation's proposal to conduct PFT on 3,000 traffic policemen of Bengaluru City has received nod from officials. APD, in association with Yenepoya Medical College had conducted PFT and distributed scientific anti-pollution masks costing nearly Rs 400 to 35 traffic policemen in Mangaluru recently.

Abdullah A Rehman, founder of the Foundation, told TOI that plans are afoot to conduct PFT for all traffic cops working in 43 traffic police stations in Bengaluru city. "APD Foundation has al-

The results of PFT conducted in Mangaluru have indicated that 22.3% of the policemen, having five and less years of service, are showing signs of restrictive lungs. As many as 26.3% policemen having more than five years of experience, are showing restrictive lung capacity

ready held discussions with R Hitendra, additional commissioner of police (traffic), Bengaluru city. We have plans to conduct PFT tests for traffic policemen in a phased manner in each zone. We have a target of covering 2,000-2,300 policemen in the first round of campaign," Abdullah said.

APD Foundation will have a tie-up with hospitals and

medical colleges in Bengaluru to hold the campaign. As many as 115 traffic cops had undergone PFT conducted by the Foundation in Mangaluru in October 2015 with a mission to work towards mitigating air pollution. The Foundation provided advanced scientific anti-pollution masks costing Rs 400 each to 35 traffic cops, who are diagnosed with weak lung functioning due to dust pollution. Since the number of traffic policemen in Bengaluru is large and the level of pollution also is very high, the Foundation will have to get the support of more doctors and sponsors, he said, adding that the campaign will commence soon after the initial talks with hospitals and sponsors.

About the PFT conducted in Mangaluru, Abdullah said, "The results have shown 22.3% of the policemen, having five and less years of service showing signs of restrictive lungs. Meanwhile, 26.3% policemen having more than five years of experience are showing restrictive lung capacity."

Finolex gets people together.

your past will open up a door that has been shut

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ಇತ್ತೀಚಿನ ದಿನಗಳಲ್ಲಿ ವಾಹನಗಳಿಂದ ಹೊರಬರುವ ಮಾಲಿನ್ಯದಿಂದ ಜನಸಾಮಾನ್ಯರು ಶ್ವಾಸಕೋಶಕ್ಕೆ ಸಂಬಂಧಿಸಿದ ಖಾಯಿಲೆಗಳಿಂದ ಬಳಲುತ್ತಿರುವುದು ಹೆಚ್ಚಾಗಿ ಕಂಡುಬರುತ್ತಿದೆ. ಶ್ರೀ ಅಬ್ದುಲ್ಲಾ ಎ ರಹಮಾನ್, Anti Pollution Drive ಸಂಸ್ಥೆಯವರು ಈ ಬಗ್ಗೆ ಸಂಶೋಧನೆ ನಡೆಸಲು ಆರೋಗ್ಯ ಇಲಾಖೆ ಹಾಗೂ ಪೊಲೀಸ್ ಇಲಾಖೆ ವತಿಯಿಂದ ಅಗತ್ಯ ಸಹಕಾರ ಹಾಗೂ ಅನುಮತಿ ನೀಡುವಂತೆ ಕೋರಿರುತ್ತಾರೆ.

ಈ ಸಂಸ್ಥೆಯವರು ಈಗಾಗಲೇ ಮಂಗಳೂರಿನಲ್ಲಿ ಸಂಶೋಧನೆ ನಡೆಸಿದ್ದು, ಶಾಲಾ ಮಕ್ಕಳಿಗೆ ಹಾಗೂ ಪೊಲೀಸ್ ಇಲಾಖೆಯ ಸಿಬ್ಬಂದಿಗಳಿಗೆ ಮಾಲಿನ್ಯದಿಂದ ಆಗುವ ದುಷ್ಪರಿಣಾಮದ ಬಗ್ಗೆ ಮಾಹಿತಿಯನ್ನು ಸಂಗ್ರಹಿಸಿ ತಿಳುವಳಿಕೆ ನೀಡಿರುತ್ತಾರೆ.

ಆದುದರಿಂದ, ಸದರಿ ಸಂಸ್ಥೆಯವರು ಬೆಂಗಳೂರಿನಲ್ಲಿ ಸಂಶೋಧನೆ ಮಾಡಲು ಅನುಕೂಲವಾಗುವಂತೆ ಪೊಲೀಸ್ ಇಲಾಖೆಯ ವತಿಯಿಂದ ಸಹಕಾರ ನೀಡಲು ತಮ್ಮನ್ನು ಕೋರಿದೆ.

(ಯು.ಟಿ. ಖಾದರ್)

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Motley group to study air pollution impact on traffic cops in Bengaluru

BENGALURU, DHNS: Four professionals from different fields have come together to study the impact of air pollution on the health of traffic police personnel in Bengaluru. The Anti-Pollution Drive Foundation (APDF) will undertake a detailed study in August.

The group conducted a similar study in Mangaluru in May and found that 26% traffic police officials there have twisted lungs because of vehicular emission. A total of 115 police officials were studied in the port city. In Bengaluru, the study will cover more than 2,000 police officers.

The APDF had filed an RTI application with the Transport Department in January 2015, asking how many driving licences were revoked on account of vehicular emission in 2013 and 2014. The department replied that it had no in-



formation specific to Bengaluru and that no cases had been reported.

This prompted the group to undertake the study. The department registered cases against 25,411 vehicles in 2013 and 2014 and imposed a fine of Rs 1,18,60,080, but did not revoke a single licence though the Motor Vehicles Act provides for it, said Abdullah A Rehman, member, APDF. He said traffic police personnel were the worst affected by air pollution and a detailed study was needed to assess its impact

on their health.

The study will assess the lung capacity of traffic police personnel. Thereafter, the group will provide them face masks especially designed by a doctor who is part of the APDF.

In May, the team also conducted a study on air pollution in Bengaluru and found that ambient air quality had increased by 57% in particulate matter in the last four years and 23% in the last one year. Another test to screen preliminary lung health of children aged 9-15 years showed that 36% of school-going kids suffer from poor lungs.

The group also conducted a health camp on 3,000 traffic police personnel in Bengaluru and found that 37.57% of the respondents had lead content in their blood. Most of them also reported watery eyes, coughing or wheezing.

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City cops breathing ill-health

■ Respiratory ailments common among traffic policemen, reveals study

JOYEETA CHAKRAVORTY | DC BENGALURU, JAN. 17

Our city's traffic cops have a tough job - no argument there! And if managing the famed Bengaluru traffic isn't enough, they have one more thing to worry about: their health. A recent study on traffic cops revealed that a large number of them suffer from some sort of respiratory symptoms or have reduced lung functions.

The first phase was conducted on 235 city policemen by a team of pulmonologists from St. John's hospital over a period of five days. "We have covered eight traffic police stations from south East Zone (traffic) screening 235 traffic cops who underwent a pulmonary function test and filled out a questionnaire. Of the 235 cops screened,



Picture for representation only

72 showed reduced lung function," says Abdullah A Rehman, founder, Anti-Pollution Drive (APD) Foundation. The study also revealed that a majority of them suffered from persistent cough, blocked nose and watery eyes. "Chest tightness, wheezing and breathlessness were other ailments they mentioned," added Abdullah.

Dr Priya Ramachandran, Professor, Pulmonology and Respiratory Medicine at St Johns Medical

College and Hospital stressed the need for regular screenings and tests to ensure that they are safe from the various diseases caused by direct and prolonged exposure to air pollutants. "Air pollution has both acute and chronic effects on human health, affecting a number of different systems and organs. They should be screened before appointment at various locations and regular check-ups should be conducted as well. They

Air pollution has both acute and chronic effects on human health, affecting a number of different systems and organs. They should be screened before appointment at various locations and regular check-ups should be conducted as well.

should also be encouraged to have as healthy lifestyle, discourage smoking and also they should be encouraged to wear masks while on duty," Dr Priya explained. Studies also show that increased exposure to air pollutants leads to a higher risk of diabetes and heart disease.

Unfortunately, the city needs stricter law enforcement on the roads. "Rule 115, 116 of Central Motor Vehicles Rules (CMVR)

and Section 190 of The Motor Vehicles Act should be enforced. If a vehicle is not carrying a valid PUC certificate, it is liable to be prosecuted under Section 190(2) of the Motor Vehicles (MV) Act along with a penalty of ₹1,000 for the first offence and ₹2,000 for every subsequent offence has been prescribed under the law," explains Abdullah.

Police personnel, especially those on duty on the roads or in police stations located in congested areas are prone to lung disease caused by heavy vehicular traffic emissions, dust and industrial pollutants. They are more prone to catching allergies and infections which can lead to asthma, and in extreme conditions, cause the incurable Chronic Obstructive Pulmonary Disorder (COPD).

31% of the city's traffic cops have reduced lung functions: Study

EXPRESS NEWS SERVICE @ Bengaluru

IN a city of 66.31 lakh vehicles, Bengaluru traffic policemen, who are managing the chaotic traffic, are more vulnerable to air pollution and respiratory problems, according to a recent study.

The study conducted by pulmonologists from St John's Hospital, NGO Anti-Pollution Drive (APD) and private firm Eureka Forbes among 235 traffic policemen in the city has found that 31% of the traffic cops surveyed had reduced lung functions and 20% of them had some form of respiratory symptoms.

"This is much higher than what was found in the general population in the study that looked at the epidemiology of asthma, respiratory symptoms and chronic bronchitis in adults," said Dr Priya of St John's Medical College.

"Police personnel, especially those on duty on the roads or in police stations located in congested areas, are prone to lung diseases caused by heavy vehicular traffic emissions, dust and

industrial pollutants. They are more prone to catching allergy and infection which can lead to asthma, and in extreme conditions, can cause the incurable Chronic Obstructive Pulmonary Disorder (COPD)," said Abdullah A Rehman, founder of APD Foundation.

"Our target is to screen at least 80 per cent of the traffic policemen to assess the actual impact," he added.

When contacted, Additional Commissioner of Police (Traffic) R Hithendra said, "We are insisting on regular medical checks at least once a year for early detection. There is also transfer choice out of traffic duty after some years of service. We are also providing masks for reducing the impact of pollution. A two-shift system is also in place for the personnel."

Many traffic personnel say they don't have any other alternative. "I can see black dust particles on my uniform and body after a long shift. We have to stand through out the day and inhale the polluted air from vehicles," said a traffic police constable.



235 Total traffic policemen surveyed

RESPIRATORY SYMPTOMS

47	33	35
Cough	Watering of eyes	Blocked nose
27	11	13
Breathing problem	Wheezing	Chest tightness

Abnormality noted on spirometry Normal: 151 Reduced: 72 (31%)

EXPRESS READ

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ABOUT THE ORGANISATION

Name of the legal entity: Anti-Pollution Drive (APD) Foundation

Website: <http://www.antipollution.org/>

Mission: To work towards mitigating air pollution and improve public, environment and economic health in India

Vision: A clean and healthy environment

Organisation structure:

APD Foundation has four core teams. These are specified below:

- Public Health Team
- Awareness Team
- Legal Team
- Solutions and Strategy Team

Contact Details:

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