AN OVERVIEW ON THE ASSESSMENT OF AIR POLLUTION BY URBAN TRANSPORT IN DEVELOPING COUNTRIES WITH A FOCUS ON IT'S STRATEGIC MEASURES AN AWARENESS APPROACH PERTAINING TO WORLD BANK'S REPORT

SK CHAND BASHA,V.SUBHASHINI

Abstract: In the midst of Globalized era, The development is inevitably Coupled with Exploitation of Natural Resources deteriorating the Same. Humanization in the present Globalized era has been driven by technological advancements during this journey the Quality of Environment is compromised. At this juncture the paper stipulates the Air Pollution by Urban transport in developing Countries which effects not only the Quality of air but also the health of the masses. Air pollution is a serious problem in many developing country cities. Ambient concentrations of **Fine particulate matter** (Particulate matter, smaller than 2.5 μm (PM2.5), called *fine* or *desirable* particulate matter) which Is one of the most damaging air pollutants, are often several times higher in developing country cities compared to those in industrial countries. The largest human and economic impacts of air pollution are the increased incidence of illness and premature death that result from human exposure to elevated levels of harmful pollutants. Using damage to human health as the primary indicator of the seriousness of air pollution, the most important urban air pollutants to control in developing countries are Lead, Fine particulate matter, and, in some cities, Ozone. The Paper Extends it's Communication on different Strategic Solutions embodies on Improving the Traffic System, Fiscal Policies, Inspection and Maintenance, Fuel Quality, Vehicle technology. Finally the Paper emphasizes the dire need for involvement of vital Trio-Researchers, Policy makers, Public in Researching, Framing, Implementation of Eco friendly techniques that Uplifts the Quality of air.

Keywords: Fine particulate matter, Lead, Ozone, Vehicle technology.

Introduction: Urban air pollution from road transport is a growing concern in a large number of developing country cities. With rising income, the use of motorized transports expected to continue to increase in the coming years, potentially worsening air quality. Poor air quality in turn has been shown to have seriously adverse effects on public health. The World Health Organization estimated that 650,000 people died prematurely from urban air pollution in developing countries in 2000. Air pollution is a serious problem in many developing country cities. Ambient Concentrations of fine particulate matter, which is one of the most damaging air pollutants, are often several times higher in developing country**:**
cities compared to those in industrial countries. Using damage to human health as the primary indicator of the seriousness of air pollution, the most important urban air pollutants to control in developing countries are lead, fine particulate matter, and, in some cities, ozone. Air pollution impacts in
Transport as a Source of Pollution: Transport is a known source of many air pollutants. The first six listed below are termed "classic" air pollutants by the World Health Organization (WHO):
Lead from the combustion of leaded gasoline is the best-known toxin in this context. High lead concentration in the bloodstream may increase incidence of miscarriages, impair renal function, and increase blood pressure. Most significantly, lead retards the intellectual development of children and developing countries often fall disproportionately on the poor, compounding the effects of other environmental problems such as the lack of clean water and sanitation. While the impacts of urban air pollution have been documented in both industrial and developing countries, for policymaking purposes it is important to know the relative contribution of mobile sources(cars, trucks, buses, motorcycles), stationary sources(power plants, industry, households), and other sources (construction, re-suspended road dust, biomass burning, dust storms). In the transport and transport fuel-supply sectors, many actors must be part of an effective strategy for reducing mobile-source emissions. To be effective and sustainable over the long term, regulatory and policy instruments for reducing transport emissions must provide incentives for individuals and firms to limit the pollution from existing vehicles and to avoid delay in adopting new and cleaner technologies and fuels.
adversely affects their behavior.
Total suspended particles (TSP), also referred to as suspended particulate matter (SPM), is not a single pollutant, but rather a mixture of many subclasses of pollutants that occur in both solid and liquid forms. Each subclass contains many different chemical species. Particulate matter(PM) may be classified as primary or secondary. Primary particles are emitted directly by emission sources, whereas secondary particles are formed through the atmospheric

reaction of gases, such as the reactions between the formation of particles. TSP have historically been monitored and continue to be measured in developing countries. The size distribution of airborne particles matters for health impact. The WHO places special emphasis on suspended particles smaller than 10 microns (μm) in diameter(PM10), also called *inhalable* particulate matter, and those smaller than 2.5μm (PM2.5), called *fine* or *respirable* particulate matter. Emerging scientific evidence points to increasing damage with decreasing particle diameter. Particles larger than about 10μm are deposited almost exclusively in the nose and throat, whereas particles smaller than 1μm are able to reach the lower regions of the lungs. The intermediate size range gets deposited in between these two extremes of the respiratory tract. A statistically significant association has been found between adverse health effects and ambient PM10 concentrations, and recent studies using PM2.5 data have shown an even stronger association between health outcomes and particles in this size range. In response, industrial countries have switched from monitoring TSP, which is not directly correlated with health effects, to PM10, and increasingly to PM2.5.

Ozone (O_3) has been associated with transient effects on the human respiratory system, especially decreased pulmonary function in individuals taking light-to-heavy exercise. Several recent studies have linked ozone to prematuremortality.1 Ozone also reduces visibility, damages vegetation, and contributes to photochemical smog. Oxides of nitrogen(NOx) and volatile organic compounds (VOCs) that are photochemically reactive (such as aromatics with two or more alkyl groups and olefins) are the two main precursors of ozone.

Carbon monoxide (CO), the largest contributors to which are typically gasoline-fueled vehicles, inhibits the capacity of blood to carry oxygen to organs and tissues. People with chronic heart disease may experience chest pains when CO levels are high. At very high levels CO impairs vision and manual dexterity, and can cause death.

Sulfur dioxide (SO_2), which is emitted in direct proportion to the amount of sulfur in fuel, causes changes in lung function in persons with asthma and exacerbates respiratory symptoms in sensitive individuals. Through a series of chemical reactions, SO_2 can be transformed to sulfuric acid, which contributes to acid rain and to the.

Nitrogen dioxide (NO_2) also causes changes in lung function in asthmatics. Like SO_2, NO_2 can react to form nitric acid and thereby contribute to acid rain and secondary (nitrate-based) particulate formation. In addition, nitric oxide (NO)and NO_2, or NOx as they are commonly called, are precursors of ground-ammonia and oxides of nitrogen or sulfur that lead to level ozone. Both diesel-and gasoline-fueled vehicles contribute to NOx emissions.

Other air toxin emissions of primary concern in vehicle exhaust include benzene and poly-aromatic hydrocarbons (PAHs), both well-known carcinogens. Formation of secondary(sulfate based)particulate matter.

Air Quality Monitoring and Standards: The level and nature of air pollution varies substantially from city to city. Hence, the first requirement is the creation of an adequate knowledge base on local air quality on which to develop an air quality policy. Monitoring of ambient air quality is an important first step. It is especially important to measure small particulate matter. In a number of developing country cities, ambient concentrations of PM10 or PM2.5 are not measured regularly, or not measured at all. The absence of ambient data on what is probably the most important pollutant of concern makes it difficult to quantify the seriousness of outdoor air pollution. Common obstacles to systematic monitoring of PM10and PM 2.5 are a shortage of skilled staff and of funds to operate, maintain, and repair instruments. Many developing countries follow the U.S. or European standards for particulate matter.

The Determinants of Transport Emissions:

Transport activity characteristics: The major source of ambient lead is combustion of leaded gasoline: ambient lead concentrations have always been reduced significantly when lead has been banned in gasoline. However, while many countries have now banned lead, use of leaded gasoline continues in some countries, including Indonesia, Venezuela, and a number of countries in Sub-Saharan Africa. It is especially problematic in two-stroke engines because some alkyl lead added to gasoline as an octane enhancer may be emitted un combusted as organic lead, which is even more damaging to health than the inorganic lead formed as a result of combustion of alkyl lead. Fine particles are emitted as a product of combustion, especially from diesel vehicles but even from natural gas-fueled vehicles as a result of combustion of lubricants.

Strategic Measures in Improving the Quality of air (Guidelines)

General Guidelines for Improving the Transport System:

a. Formulating transit-oriented development strategies to reduce trip lengths and concentrate movements on efficient public transport axial routes.

b. Conducting air quality audits of all new major transport infrastructure projects as a required part of the environmental impact assessment to determine if the projects will lead to or worsen exceedances of air quality standards.

c. Giving priority to buses in the use of road infrastructure, and particularly the creation of segregated bus way systems, in order to improve and sustain environmental standards for buses.
d. Improving the efficiency of bus operation through the design of more efficient route networks, better cost control, and creation of incentives for improvement through commercialization and competition.
e. Establishing and implementing protocols for traffic signal system settings that result in reduced exhaust emissions.

General Guidelines for Fiscal Policies:

a. In those countries where taxes on diesel fuel for transport use are very low, raising them to compensate for environmental damages, pay for road wear and tear, and encourage fuel-efficient vehicles and the use of cleaner fuels.
b. In addition to fuel taxes, considering separate vehicle charges based on vehicle weight, axle loadings, and annual mileage.
c. Introducing or raising taxes, import duties, and vehicle licensing disincentives for polluting vehicles and engines.

General Guidelines for Inspection and Maintenance:

a. The government must be willing and able to provide the resources for auditing and supervising the program (even if the supervision is outsourced) that are needed to guarantee its objectivity and transparency.
b. Centralized, test-only private sector centers with modern instrumentation, maximum automation, and "blind test" procedures are easier to control for quality; all centers should be subject to independent monitoring.
c. An up-to-date and accurate vehicle registration record is necessary coupled with a requirement to display a visible sticker certifying that the vehicle has been inspected and passed, under penalty of a fine large enough to deter evasion, to ensure that all vehicles in the designated categories report for testing.

General Guidelines for Fuel Quality:

a. Moving to unleaded gasoline as a first priority while ensuring that benzene and total aromatics do not rise to unacceptable levels.
b. Progressively implementing steps to reduce the sulfur content of both gasoline and diesel fuels to very low levels, taking into account the initial situation and human and financial resource constraints:
c. Where the sulfur content of gasoline is high, reducing it to 500 parts per million (ppm) and preferably lower as soon as possible, to ensure efficient operation of catalytic converters (following lead removal).
d. Where sulfur content in diesel is very high, identifying and implementing a strategy to reduce it to 500 ppm or lower.

General Guidelines for Vehicle Technology:

a. Setting emission standards for in-use vehicles at levels that are achievable by a majority of vehicles with good maintenance, and tightened overtime.
b. Progressively tightening vehicle emission standards for new vehicles to levels consistent with improving fuel quality.

Conclusions: There is no simple or universal strategy for reducing transport sector emissions. While the specific actions for reducing transport emissions will vary from city to city, there are several underlying principles that this report seeks to emphasize for building an effective policy package as depicted in 1,2.

1. Raise awareness among policymakers and the general public about urban air pollution
2. Press for sector reform that increases sector efficiency, benefits society at large by providing goods and services at lower cost, and at the same time reduces emissions.

Note: The information presented by the authors(1,2) is intended for awareness purpose only. Both the authors(1,2) Neither claim the information presented as their research work nor have any association with the information presented, Which are obtained from reliable sources pertain to the Urban transport pollution which are believed to be credible the author bears no responsibility for the damages to resources information.

References:

1. http://www.gtkp.com/assets/uploads/20091124-125631113;Reducing%20Air%20Pollution%20from%20Urban%20 Transport.pdf. Reducing Air Pollution from Urban Transport-Ken G william, Masami Kojima, and Todd Johnson(World Bank Report).
2. Airborne Particles Expert Group. 1999. "Source Apportionment of Airborne Particulate Matter in the United Kingdom."January.Available online[April26,2004] at:www.defra.gov.uk/environment/airquality/airbornepm
3. Chandra, Ajay, Ronald L. Gist, Ken W. Otto, and S. Craig Whitley.2001. "LPG Trade Patterns Continue Historic Change in 2000." *Oil and Gas Journal* June 25: 75–79.

4. The Economist. 2004. "Road Traffic Deaths." April 17–23: 102.Englebrecht, J.P., and L. Swanepoel. 1998. "Aerosol Monitoring and Source Apportionment in Qalabotjha, Free State, SouthAfrica." Report No. MC5 prepared for Mintek.

5. Freeman, A.M. 2003. *The Measurement of Environmental and ResourceValues: Theory and Methods.* Washington, D.C.: Resources for the Future Press.

***

Dept of Zoology, P.B.Siddhartha College of Arts & Science,Vijayawada.A.P
e-mail-mahashaf@gmail.com
H.O.D. Dept of Zoology, K.B.N College, Vijayawada, A.P.e.mail-subhashini_vsn@.co.in