

Workshop on Air Quality and Environmentally Sustainable Transport

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Dialogue

Air quality and Sustainable Transportation Challenges -- Towards Clean and Livable Cities in South Asia: A briefing note

This South Asia dialogue series on clean air and sustainable mobility in South Asian cities is part of the ongoing effort of the New Delhi based Centre for Science and Environment to find the solutions to the scary air pollution challenge facing our cities today. This is part of the effort to engage with the policy makers and people of the South Asian cities to deepen public understanding and strengthen the policy action on air pollution and urban mobility and also share lessons from Indian cities like Delhi to chart the future course of action.

Delhi and Colombo both are rapidly growing cities in the South Asian region. There are already serious concerns about the likely adverse impact of motorization in these emerging cities. Also while the mega metro cities have an acknowledged transport crisis that has attracted major planning efforts, and extensive large-scale investment, the suburban cities surrounding our mega metro cities largely remain neglected. For effective management of air quality and transportation the mega cities would need a regional planning through immediate and effective policies. This is required to follow sustainable growth path at the early stages of motorization

Addressing the unique local challenges is essential. The air quality and mobility management solutions need to be customized for each city according to its imperatives and uniqueness. While the National governments may define the framework for national air quality management and national urban transport policies but city governments can respond more effectively to local problems and meet local targets due to their familiarity and outreach.

Strong public opinion, judicial and executive actions have accelerated action in Delhi and other Indian cities. The common minimum programme has evolved with milestones and timeline. City action plan for clean air developed for the city has created an opportunity for change. This provides the framework for controlling different pollution sources – transport, industry, power plants and helps to achieve the balance between the composite action and priority action. This experience can be used to inform action in other South Asian cities which are facing similar challenges.

What are the key challenges in our cities today?

The South Asian cities of Colombo and Delhi are falling into the toxic grip of motorization and dieslisation that is worsening its air pollution related public health crisis. At the same time protecting their sustainable urban commuting practices have emerged as some of the toughest challenges. Both the cities have begun to take action to cut pollution but this must build momentum to curb the toxic threat and the growing energy guzzling in the region.

Delhi, one of the most polluted cities in Asia has made strides in meeting air quality challenges, but has also slipped and made terrible mistakes of promoting pro-car policies. It has also slowed down the momentum of improving the vehicle technology and fuel quality to meet the global clean benchmark.

Colombo can take note of Delhi's experience and initiate preventive policies quickly – leapfrog to clean vehicle technology and fuels as well as strengthen sustainable mobility practices – bus, walking and cycling. . In fact Colombo is fortunate to have the advantage of its strength in high usage of sustainable public transport. Colombo has the opportunity to build on this advantage and strength.

The rapid review of the emerging information in these two cities has brought out the unique challenges and potential of this sub-region in South Asia: Vehicles pose a special challenge in the region as they are increasing rapidly and emit noxious emissions within the breathing zone. : In Colombo they are responsible for 60% of the air pollution load, in Delhi –more than 70% of the total pollution load.

Lag in vehicle technology and fuel quality adding to the public health crisis in our cities

- **Technology lag:** The region is suffering from serious technology lag and is far behind the global clean emissions benchmark. It is motorizing at a poor level of vehicle technology and fuels. Colombo has initiated Euro I/Euro II technology that is far behind Europe. India has just about implemented Euro III/ Euro IV but is still maintaining a lag of at least 5 to 10 years with Europe.

The region can beat its pollution problem if the new vehicles emit as little as possible and therefore technology improves as quickly as possible. Otherwise, polluting technology will continue to grow and also continue to pollute for a much longer time as the fleet turn over rate is slow. This will also lock up climate forcers as well as the toxics. The region is generations behind the near zero emissions targets and the current regulations are not technology forcing. If we delay decision we will suffer the adverse consequences.

- **The region is in the grip of deadly dieselisation:** Diesel vehicle fleet is expanding in a maniacal pace – especially the car fleet at a poor level of technology. This has serious public health implications. In India the diesel cars are already 30% of the new car sales and is expected to be half soon. In India cars are the second highest user of diesel in the country though it is taxed low in the name of agriculture etc. Diesel combustion is responsible for high PM2.5 levels in Indian cities. Studies have shown that its share can go as high as 61% during winter in cities like Kolkata.

Similarly, in Colombo and Sri Lanka diesel vehicles are 45% of the total fleet already that use up more than 90% of the diesel fuel. The policy to undertax diesel and maintain a wide gap with petrol prices is largely responsible for this trend in the region. Also import policy is aiding dieselization in Sri Lanka: Studies in Sri Lanka have attributed Rs 22-17 billion to health damage cost owing auto diesel emissions in Colombo. Diesel vehicles are responsible for 96%-89% of SO₂ and PM₁₀ from the transportation sector (University of Colombo).

There are serious health concerns over increased use of high sulphur poor quality diesel. Total air toxics from a diesel car that are very harmful and carcinogenic are 7 times higher than petrol cars. The International Agency for Research of Cancer (IARC), WHO, United States Environmental Protection Agency, etc have all classified diesel emissions as carcinogenic. The evidence from India shows that Euro III diesel cars that are sold across India emit 7.5 times more toxic particulate matter and 3-5 times more NOx than comparable petrol cars.

All Governments earn much less from excise on a litre of diesel used by cars, as opposed to petrol, revenue losses per litre of diesel will be compounded with increase in diesel car sales. But diesel car owners recover their premium within a few years, given lower diesel prices. This perverse subsidy to the rich comes at an enormous cost to public health. In countries like Brazil diesel cars are actively discouraged because of the policy to keep taxes lower on diesel. In Denmark diesel cars are taxed higher to offset the lower prices of diesel fuel. In China taxes do not differentiate between petrol and diesel.

Diesel cars may emit less carbon dioxide emissions compared to their petrol counterparts as they are more fuel efficient. But even this benefit is at risk of being negated as diesel fuel has more carbon content than petrol. If more diesel fuel is burnt, as is likely given its cheaper prices and rising number of cars and SUVs, the heat trapping carbon emissions will increase. Moreover, even the carbon soot from diesel vehicles are now implicated for global warming.

The region therefore needs to quicken the transition to meeting Euro V and Vi emissions standards as quickly as possible.

Mobility crisis hits the region

The biggest challenge that confronts the two cities and the countries is the rapidly increasing vehicles numbers that threatens to undo the small incremental gains. Growing congestion is crippling cities.

- In Sri Lanka motor vehicle fleet has doubled in one decade (1991 to 2000) and the trend in recent years shows an even steeper growth. Colombo is facing the brunt. Delhi shares the same dilemma. Studies carried out in Sri Lanka have shown that the country incurs a massive financial and man-hour loss due to traffic congestion. Peak Hour journey speed in Colombo is steadily declining as in Delhi.
- Learn from Delhi's experience. Delhi has not been able to solve its problem of pollution and congestion by building more roads and flyovers for cars. Delhi is most privileged to have more than 21 per cent of its geographical area under road space. Delhi has built the maximum roads and flyovers. Yet its roads are totally gridlocked. Peak hour traffic has even slumped to below 15 km/hour. Cars and two-wheelers in Delhi occupy 90 per cent of the road space but meet less than 20 per cent of the travel demand. More roads are not the answer.

First generation action in Delhi and Colombo has delivered. But not enough

Action on air pollution has begun in our cities and even shown results.

- Colombo has already initiated its first generation action to clean up its air that includes a wide gamut of measures. These include – introduced Euro emissions standards, mandatory annual vehicle emission testing programme launched in 2008, banned import of two-stroke engines; initiated conversion of 3-wheelers to LPG/ electric; constructing refinery that can produce Euro IV diesel by 2012 and plans to introduce Euro 4 in 2012 and so on. This has stabilised PM10 levels

in Colombo. This gives the immense confidence for the future action -- if we act we will see results.

- Delhi's first generation action also includes improvement in emissions standards, implementation of CNG programme, strengthening of the in-use vehicle programme, relocation of industries, etc. Initially these interventions helped to stabilize the problem and also helped to save more than 3500 premature deaths a year. But phenomenal increase in vehicle numbers has negated these gains.

Both Colombo and Delhi face the same dilemma of the mega cities. They now faces the second generation challenge. South Asian cities will have to leap ahead to keep ahead of the problem.

Colombo can avert the mobility and pollution crisis

Both Colombo and Delhi need urgent policies to protect and build their strength. The second generation reforms will need tough action. Cities can not delay transportation plan to promote public transport, walking and cycling. If dependence on personal vehicles continue to increase pollution and congestion will increase. At stake could be people's health. Colombo will see more smog and pollution; more wheeze and asthma

- Understand Colombo's strength. Public transport buses form less than 10% of the vehicles kms but they carry 60% of the passenger km. This means they use much less road space but meet significant share of travel need of the city. But private vehicles – cars and two-wheeler dominate vehicles km in the city at 60%, occupy more road space, but carry just about 25 per cent of the passenger Km. With the help of scaled up public transport Colombo can easily make the transition to the low polluting and low carbon mobility paradigm that the world is trying to achieve today to be more sustainable. Colombo must recognize and build on this strength.

Colombo must not repeat Delhi's mistake. The public transport and non-motorised components will have to be the foundation of the transportation plan. Colombo urgently needs a public transport strategy. In fact a study carried out by the Asian Development Bank for Colombo has shown that an increase in bus share from 76% to 80% can save 104,720 tonnes of oil equivalent, or 3% of the fuel consumed in the baseline case. This means 5% reduction in total vehicles and freeing up of road space equivalent to removing 62,152 cars. This can also lead to 5% reduction in total vehicles (47,716), release road space (equivalent to removing 62,152 cars from the road). This represents an enormous benefit.

- Learn from Delhi. Even though Delhi still has high usage of bus, walk and non-motorised trips, car centric policy is steadily marginalising and edging out the bus and non-motorised trips. Already within a decade bus ridership in Delhi has dropped from 60 per cent in 2000 to 40 per cent now. Delhi is now under immense pressure to reverse this trend. The Delhi master Plan has now set the target of 80 per cent of public transport ridership by 2020. Only such stringent targets and aggressive action can have the potential to check the slide.

Only more roads are not the answer. Colombo still has the chance to plan its future growth differently and avoid the path of pollution, congestion and energy guzzling. Design roads for public transport, cycling and walking. Not cars. This is the option for the city to cut killer pollution, crippling congestion, expensive oil guzzling and global warming impacts of vehicles.

Control fuel guzzling

It is also clear that the rapid motorization can threaten energy security in the region. Not only the car numbers increasing in the cities of South Asia the markets are also shifting steadily towards bigger

cars. While in the Indian car market big cars form 36 per cent of the new car sales, in Colombo cars are predominantly big partly aided by the import of used cars and cheap diesel. This can seriously threaten energy security. Sri Lanka imports 85% of its energy demand. CO2 emissions from the transport sector dominate the CO2 inventory in the country at 45%.

It is evident from global studies that show even a 10 per cent increase in large vehicle sales can roughly result in a 2 per cent deterioration in fleet fuel economy. This means roughly, an additional 17,500 barrels of oil that will be consumed annually by those 10 per cent large vehicle sales. Cities are bearing huge cost on account of luxury consumption of fuel. These cities immediately need fuel efficiency measures and standards to conserve fuel in the transportation sector and strengthen energy security.

The way ahead

Colombo's and Delhi's first generation action shows that it can make a difference. It is time to set new terms of action. Soft options have all been exhausted in South Asia.

More aggressive decisions -- reducing personal vehicle usage, upgrading public transport, walking and cycling, leapfrogging vehicle technology and fuel quality, and getting clean diesel are the key options left for us. Let us quickly move to clean benchmark for vehicle technology and fuel quality, especially diesel. Also plan cities for people not vehicles.

- Immediately set the emissions standards roadmap for vehicle technology and fuel quality and set the timeline for the introduction of Euro V/VI emissions standards. .
- Continue to strengthen the LPG and electric vehicle programme to leapfrog to cleaner emissions. Set stringent inspection and safety regulations for the LPG vehicles.
- Scale up and accelerate bus transport reforms. Integrate public transport, and non-motorised transport. Cities need to integrate bus, cycling, walking and para-transit systems.
- Build pedestrian infrastructure: Design pedestrian guidelines for approval of road projects and enhancement of the existing ones. Without proper walking facilities public transport usage cannot increase.
- Introduce a parking policy to reduce congestion.
- Strengthen emissions checks on in-use vehicles.
- Use tax measures to discourage personal vehicle usage and inefficient use of fuels
- Introduce energy saving regulations and fuel economy regulations for vehicles.
- Enforce clean air standards