

EPCA Report No: 28
Third Report on Particulate Pollution Reduction Strategy in Seven
Critically Polluted Cities

In Response to the Hon'ble Supreme Court Order Dated August 14, 2003
(In the matter of **W.P.(C) No.13029 of 1985; M.C. Mehta v/s UOI & others**)

This report provides information about progress in implementing the city action plans and the specific directions sought by the Hon'ble Supreme Court.

EPCA has set tight deadlines for implementation in each city, which it will monitor tightly and continue to bring reports on progress to the Hon'ble Court.

The impact of the programme is beginning to be visible with pollution trends in some cities being reversed. But there is substantial work to be done.

EPCA has identified four key areas that have the potential to engineer a fundamental transition. These include gaseous fuels programme (CNG and LPG), public transport and transport demand management, vehicle inspection and management of transit traffic and phasing out of old vehicles.

October 2006

Environment Pollution (Prevention & Control) Authority
for the National Capital Region

Background

The August 14, 2003, order of the Hon'ble Supreme Court had given the following direction:

"CPCB's report shows that the Respirable Suspended Particulate Matter (in short "RSPM") levels in Ahmedabad, Kanpur, Sholapur, Lucknow, Bangalore, Chennai, Hyderabad, Mumbai and Kolkata are alarming. It has been observed therein that air pollution is a serious problem and therefore, some measures are required to be taken immediately. It is admitted that most critical form of pollution is Respirable Suspended Particulate Matter (RSPM) and in all the above cities same is in the most critical form.....Issue notices to the States of Maharashtra, Andhra Pradesh, Gujarat, Uttar Pradesh, Karnataka and Tamil Nadu. In the mean time, we direct that the Union of India and the respective States shall draw a plan for lowering the rate of RSPM level in the aforesaid cities. After the plan is drawn, the same would be placed before EPCA. This may be done within a period of two months. We are excluding Mumbai and Kolkata where the respective High Courts are stated to be monitoring the RSPM levels in those cities. EPCA after examining the matter shall submit a report to this Court within a period of four weeks thereafter."

In response to the Hon'ble Court's order, EPCA submitted an interim progress report to the Hon'ble Supreme Court in November 2003. The report pointed out that the plans submitted by the individual states were weak and lacked data and proposals for controlling pollution. EPCA then assessed each plan and drew up a common format for the cities, so that they could plan for each element of the action strategy. EPCA discussed these plans with the state governments to draw up the first ever, comprehensive time bound action plan for each city.

EPCA submitted the final report to the Hon'ble Court in January 2004, detailing out the plans for each city, as agreed with the state and city administration. The report also outlined the crosscutting issues that needed attention. These air pollution control plans have since become the basis of monitoring and implementation in the 7 cities.

In February 2005, EPCA submitted its second progress report to the Hon'ble Court. The Report informed about the status and progress of work, observations and also highlighted the issues, which were impeding the successful implementation of the action plan.

EPCA has continued to monitor progress in the seven cities. EPCA members have visited the cities to review implementation and to take stock of the situation on the ground. EPCA has now set tight deadlines for implementation in each city, which it will monitor tightly and continue to bring reports on progress to the Hon'ble Court. This report provides information about progress in implementing the city action plans and the specific directions sought by the Hon'ble Court.

1. Including Pune in the critically polluted cities for monitoring

The city of Pune was listed in the directives of April 5, 2002 as one amongst the most polluted cities in India. The Court order states, '.....there appears to be no effective action plan to address the problem of these cities If no immediate action is taken, then it may become necessary for some orders being passed so as to bring relief to the residents of those cities.'" Subsequently, the May 9, 2002 order of the Hon'ble Court directed the Union government to develop gaseous fuel programmes in these key polluted cities of India. It states, 'Union of India will give a scheme with regard to compulsory switch over of all two wheelers, three wheelers and motor vehicles to LPG/CNG in cities other than Delhi which are equally or more polluted.' Following these Court orders Pune developed an action plan. However, Pune was not listed in the directive of August 14, 2003 of the Hon'ble Court that were asked to develop action plans to control particulate pollution and to place the same before EPCA.

While monitoring Sholapur which is in close proximity to Pune, EPCA was stunned by the extremely high levels of particulate pollution in Pune. EPCA believed that it was important to draw upon the precedence of the earlier Court orders and facilitate focussed implementation of the city action plan.

The initial rounds of deliberations with the concerned state regulators have been very useful in setting in motion a process of implementation. This report presents some key developments and issues in Pune. In view of the encouraging and supportive response from the Pune administration and public EPCA is of the view that a specific directive from the Hon'ble Court to bring Pune within the current monitoring scope of the Hon'ble Court will help to improve surveillance and disciplined implementation.

EPCA would therefore like to recommend a specific directive from the Hon'ble Court to include Pune in the current list of cities.

2. The impact of implementation of the city action plans: state of ambient air quality

EPCA would like to take this opportunity to draw the attention of the Hon'ble Court to the fact that the sustained intervention and the interest of the Hon'ble Court has helped to make a distinct impact on the air quality in most of these cities. The air pollution data available from the Central Pollution Control Board show that in many of these cities particulate levels though high, have begun to decline. In the rest the levels have begun to stabilise. This is encouraging and proves that with disciplined action change is possible (see graphs). This is the time for the next stage of intervention to ensure that these cities are able to build momentum for more effective impact.

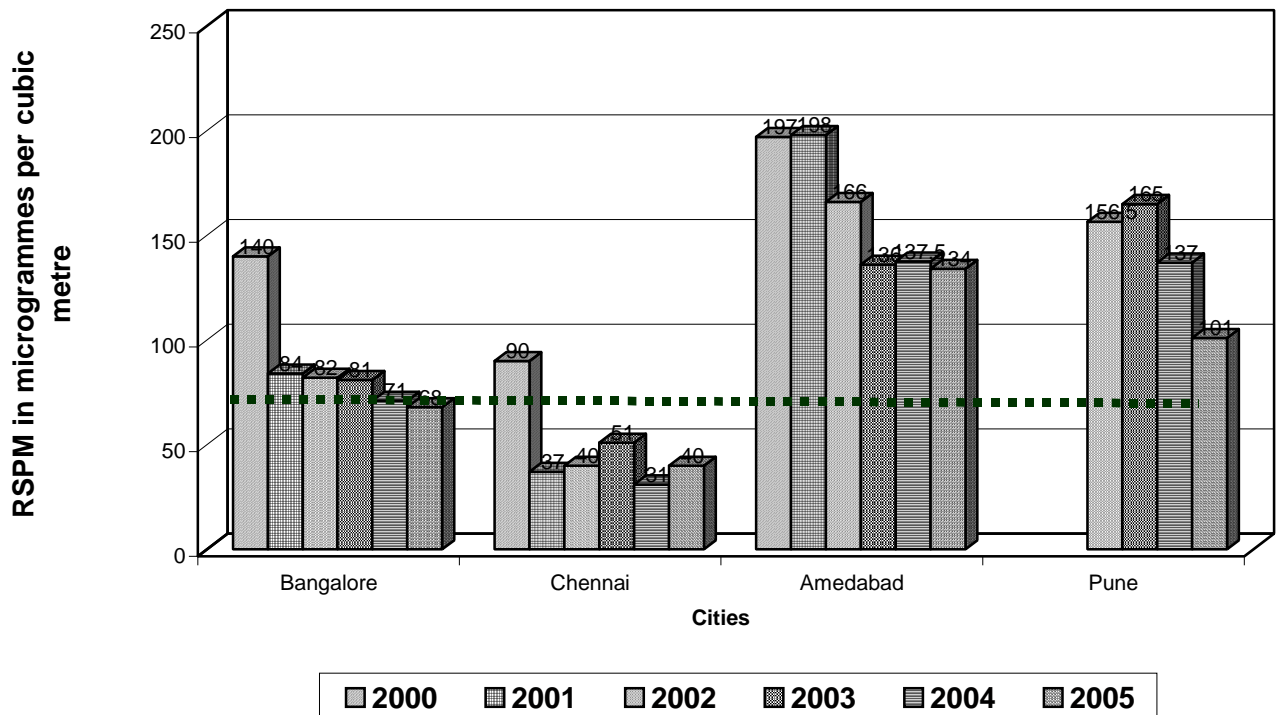
Graph: The PM10 levels in the eight cities being monitored by the Hon'ble Court:

There is a perceptible downward trend and stabilisation of this toxic air pollutant in all cities over the past 3 years. Only in Lucknow the levels in 2005 have exceeded the previous year. However, the city's programme for CNG driven buses should help make a transition.

However, in Ahmedabad, Lucknow, Kanpur and Pune, the pollution levels are still above the ambient air quality standard. The levels are generally lower in the southern cities of Chennai, Bangalore and Hyderabad where local meteorology also play a role.

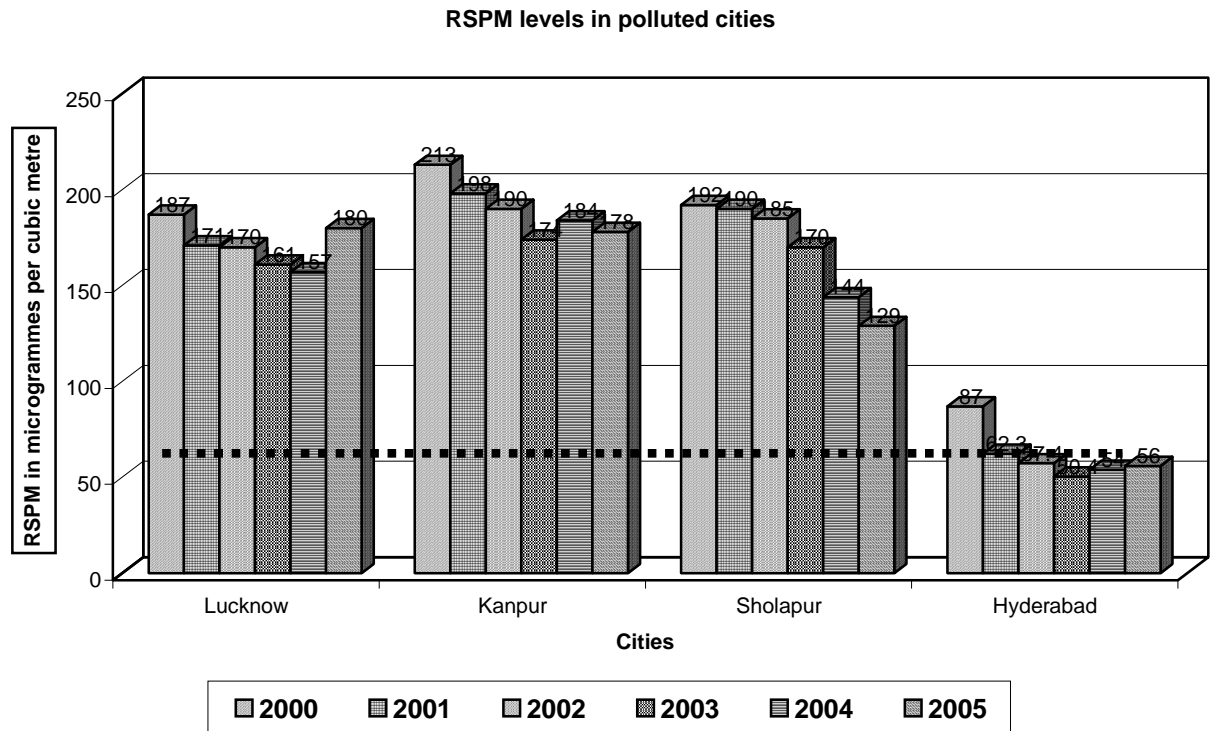
a. Trend in Bangalore, Chennai, Ahmedabad and Pune

RSPM levels in polluted cities



Source: Computed from the data provided by the Central Pollution Control Board

b. Lucknow, Kanpur, Sholapur and Hyderabad



Source: Computed from the data provided by the Central Pollution Control Board

3. The future strategy to combat air pollution in critically polluted cities

More than a year long monitoring of the cities shows that all the cities are at different stages of progress. To facilitate an intercity dialogue and to get a larger view of the common concerns, challenges and also the solutions EPCA called a joint meeting of all the city representatives in Delhi. This meeting, on September 9, 2006 reviewed the action plans of all the 8 cities.

EPCA has identified four key areas that have the potential to engineer a fundamental transition. Moreover, cities can play an effective and an independent role in these areas. These include the following:

1. Gaseous fuel programmes, both CNG and LPG to leapfrog from current polluting diesel to cleaner fuel, particularly in grossly polluting segments like public buses and autorickshaws.
2. Public transport and transport demand management to reduce the demand for growth of private motorisation and reduce emissions.
3. Vehicle inspection programme for the on-road vehicles to combat pollution from large fleets of existing vehicles.
4. Management of transit traffic and phasing out of old vehicles to reduce the burden of pollutants in the city.

In this report the matter related to management of transit traffic and phasing out of old vehicles has not been included, as this will require more discussions with the respective state governments.

4. The summary of city-wise progress and specific recommendations made by EPCA

4.1. Progress made in the gaseous fuel programmes, both CNG and LPG:

EPCA is of the view that fuel substitution programme can help to address excessive pollution from the conventional fuels especially diesel. Delhi has already demonstrated this. A large-scale gaseous fuel programme deployed within a short time frame can make an immediate impact on air quality. Out of the eight cities only Ahmedabad, Kanpur and Lucknow have access to natural gas and are therefore implementing CNG programmes. The rest of the cities including Bangalore, Chennai, and Pune that do not have access to natural gas yet are implementing LPG programmes. Only Hyderabad is being able to combine a small CNG programme with a larger LPG programme for three-wheelers. The CNG programmes have a wider scope of including a broad range of vehicle categories both light duty and heavy-duty vehicles (three-wheelers, cars, buses, and other commercial vehicles). But the LPG programmes are almost entirely confined to three-wheelers and a small numbers of cars. Heavy-duty application of LPG is not yet possible.

Review shows that different cities are at different stages of implementation and therefore require different types of interventions. EPCA has outlined city-specific recommendations to expedite timely implementation of the programmes. However, the gaseous fuel programmes will have to surmount the initial barriers of supply and refuelling infrastructure, creation of market through mandatory conversion and pricing to acquire an economy of scale, safety and emissions inspection of these vehicles. There is considerable knowledge and experience in Delhi that can be transferred to these cities. Moreover, with respect to the supply and infrastructure the Union government and Gas Authority of India Limited (GAIL) have a role to play. Therefore, all review meetings are designed to build a strong interface between the central and state agencies.

4.1.1. Milestone 1: Supply of gas, building infrastructure for dispensing gas

a. Ahmedabad: Ahmedabad has progressed appreciably. Sizeable numbers of CNG vehicles have come on road. According to the data submitted by the Gujarat Pollution Control Board the total bus fleet at present is 750 buses including 350 existing diesel buses. Ahmedabad Municipal Transport Service (AMTS) has put into operation a total of 400 CNG buses. Additionally, there are 26,500 autorickshaws running on CNG. About 39 refueling stations exist to fuel this fleet. EPCA appreciates the efforts made by the Gujarat task force in this regard, but notes that the CNG bus programme is still lagging behind.

- EPCA has directed AMTS to come up with bigger bus plans. Ahmedabad needs to plan for much bigger bus programme as CNG is available in the city. A time bound plan for augmenting CNG bus fleet needs to be prepared and submitted to EPCA by December 9, 2006.

b. Hyderabad: EPCA has expressed concern regarding the very slow progress in bringing CNG to Hyderabad. Bhagyanagar Gas Limited (BGL) is implementing the project. One station is under operation with CNG supply from Vijaywada through cascades. There are 53 vehicles that have been converted to CNG. The average CNG sale is 490 kg per day. Two more stations have been planned for this year. The proposal to transport natural gas through the existing LPG pipeline has not materialised. GAIL is said to have informed that it is not possible to use this pipeline for transporting natural gas from Vijaywada. A meeting that was held subsequently with GAIL officials to discuss the issue of gas delivery to Hyderabad brought out that gas is being transported through cascades. This is not a very efficient way to support a large-scale and an ongoing programme. GAIL has informed that gas supply will be tied up with domestic producer. Project augmentation shall be taken up after gas availability from domestic producers from KG basin and pipeline availability. EPCA is discussing the possible schedule with the relevant central and state agencies.

- In order to expedite the supply of CNG in the city EPCA has directed that GAIL should submit the milestones with deadline for the augmentation of the programme and supplying CNG and

adhere to the dates as agreed upon. This has to be submitted by GAIL through Ministry of Petroleum and Natural Gas (MoPNG) by November 15, 2006.

c. Kanpur: Progress is not satisfactory in Kanpur. Under phase I, one mother station has been commissioned with a capacity of 16,000 kg/day of CNG. Three online stations were to be set up by end of September 2006, which has been delayed. These are expected to be commissioned by the end of October 2006. Around 200 CNG buses have been ordered for Lucknow and Kanpur. EPCA emphasised that the city needs to augment the CNG fleet in order to have an impact on air quality. The city needs more buses. The target of purchasing 200 CNG buses cannot be left for uncertain time period.

EPCA has directed the following to Kanpur:

- CNG autorickshaws: 2,000 CNG autorickshaws must run on CNG by the end of December 2006.
 - CNG buses: 100 buses to run on CNG by the end of December 2006.
 - CNG stations: Three online stations are to be set up by end of October 2006.
- The Task Force will report on the completion of these targets.

d. Lucknow: EPCA has brought to the attention of the state government the need to expedite the progress in creating infrastructure to dispense gas. One mother station and one daughter booster station have been commissioned. Three more daughter booster stations were to be commissioned by mid October 2006. Of these, the Sitapur Road station has been commissioned. The other two stations have been delayed. These should be commissioned by mid November 2006. Around 490 CNG tempo taxi and 388 CNG autorickshaws are running in the city.

EPCA has directed the following to Lucknow:

- CNG supply: Compliance report on making 16,000 kg/day CNG available by October 15, 2006 to EPCA by November 15, 2006.
 - CNG autorickshaws: 5,000 autorickshaws to be converted to CNG by end of December 2006. Just setting a target for numbers will not help. The state government will also have to devise a mechanism to help people to switchover to CNG by providing subsidy on the CNG kits and soft loans among other measures. The state government will have to prioritise the conversion either on the basis of age or first cum first served basis.
 - CNG buses: 100 buses to run on CNG by the end of December 2006.
 - CNG refueling stations should be completed as scheduled.
- The Task Force will report on the completion of these targets.

e. Pune: After detailed discussions with the gas supplying agency a deadline of March 2007 has been set for bringing natural gas to Pune. It is imperative that this deadline is not shifted as it would result in the violation of the directive of the Hon'ble Court dated May 9, 2002 to the Union government to expedite implementation of the gaseous fuel programmes in the key polluted cities. EPCA will closely monitor progress to ensure that GAIL expedites the implementation of the Dahej - Uran pipeline and bring gas to Pune within the deadline.

- EPCA noticed that there has been considerable delay in completing the gas pipeline project and GAIL has not been able to adhere to the time schedule it had given to the Authority. The original deadline was March 2007. EPCA has directed GAIL to expedite the delivery of gas as agreed earlier. The Oil Industry Coordinator and GAIL shall submit the time bound program with a bar chart showing the tasks and the completion schedules for the infrastructure required for the CNG project and the date by which GAIL will start supplying CNG in Pune and Pimpri Chinchwad municipal areas within three months.

4.1.2. Milestone 2: Pricing of CNG fuel in cities implementing CNG programme

CNG pricing is critical to the success of the natural gas vehicle programmes. With deregulations underway the share of gas priced under the administered pricing mechanism is shrinking, steadily

giving way to the market driven and imported gas. As a result of this different price structures are emerging in different markets. In some cases it is leading to unreasonable increase in CNG prices as in cities Ahmedabad. Even taxation policies are not rationalised in some cities like Kanpur and Lucknow, to ensure that CNG is not unduly taxed.

There is an urgent need for CNG pricing and reforms that will keep the prices of the CNG effectively lower and competitive vis a vis diesel prices. But EPCA notes with concern that there is no concerted effort at the level of the Union government to appoint a regulator to ensure that CNG prices remain competitive vis a vis diesel on a nation wide scale. These issues had come to the forefront when EPCA noticed significantly high rates of CNG in Ahmedabad compared to other cities. EPCA had to intervene to urge the state government to examine the prices charged by the local distributor of gas of M/s Adani and take necessary steps to lower the prices.

EPCA would like to make a special mention and express deep appreciation for the exemplary efforts made by the Task Force in Ahmedabad to reduce the CNG fuel prices. Following their constructive intervention M/s Adani, the city gas distributor in Ahmedabad, has reduced the price of CNG in the city by Rs 1.42 per kg. It is important to note that CNG prices must remain competitive vis a vis diesel for the viability of the CNG programme which is being implemented for environmental gains.

EPCA also expresses deep concern regarding the high prices of even administered price mechanism (APM) gas in Uttar Pradesh, which is Rs. 27 per kg. This is because the state government is charging very high sales tax on CNG. This is unacceptable. CNG should be given a waiver in sales tax and it is the duty of state governments to promote CNG as a fuel by making it competitive and economically viable vis-à-vis other transportation fuels. CNG prices are lowest in Delhi where the Delhi government has taken the initiative to waive off the sales tax. But other state governments are charging high sales tax on CNG.

- **In view of the above** EPCA recommends that urgent steps are taken to examine the prevailing taxes on CNG in the cities where CNG programmes are being implemented to chart necessary action. EPCA has directed that the concerned state governments of the respective cities where CNG is available --- Ahmedabad, Lucknow, Kanpur and Hyderabad submit the detailed breakup of the retail price of CNG in terms of gas procurement cost, cost added due to transportation, various levies and taxes (central and state), compression cost etc. by November 30, 2006.

Table: CNG price in different cities

S. No.	Cities	Price of CNG (Rs per kg)
1.	Ahmedabad	25.46 (CNG price had increased to Rs. 26.88. Following EPCA's intervention and state government's initiative Adanis have reduced the CNG price by Rs. 1.42 per kg from August 30, 2006)
2.	Lucknow	27
3.	Kanpur	27
4.	Hyderabad	30 (CNG is being brought from Vijaywada)
5.	Delhi	19.20

Source: Submissions of different cities to EPCA

4.1.3. Milestone 3: Other cities where new CNG programmes can be planned

a. Bangalore, Chennai and Sholapur

EPCA would like to point out that three cities – Bangalore, Chennai and Sholapur, did not consider implementing CNG programme in their original action plans as they did not have access to natural gas. However, in view of the new developments reported by GAIL and the prospect of expansion of

the natural gas grid (NGG) and supply in the country, these cities can consider implementation of CNG programmes. In view of this it is important that GAIL expedites the key segments of the natural gas grid to link these cities.

EPCA therefore recommends the following:

- GAIL, which is responsible for laying the pipeline to carry natural gas upto the city gates, should submit the milestones with deadline for supplying CNG in these cities and to adhere to the dates as agreed upon for these cities. This has to be submitted by GAIL through MoPNG by November 15, 2006.
- The latest plan and status of the NGG, which GAIL has earlier submitted to EPCA to be submitted again highlighting the availability and status of CNG in the cities to be covered by NGG along with the deadline. This has to be submitted by GAIL through MoPNG by November 15, 2006.

4.2 Progress in cities implementing LPG programme

Cities that do not have access to natural gas are implementing LPG programmes. These programmes are largely limited to three-wheelers. Heavy-duty LPG vehicles like buses are not yet available in India. The progress of this programme across the cities is uneven. Only Bangalore has made appreciable progress, but the programme is lagging behind in Chennai and Pune. Refuelling infrastructure is one of the key barriers in these cities.

4.2.1. Status of supply, infrastructure and vehicle numbers

a. Bangalore: LPG programme has expanded successfully in Bangalore. The city has 27 auto LPG dispensing stations (ALDS). Around 50,000 autorickshaws out of 70,000 strong fleet are running on LPG and are on the bi-fuel mode. Conversion of autorickshaws to LPG has picked up. LPG is economically viable as the price of LPG is 2/3rd of that of petrol price and is priced at Rs. 24 per kg. The LPG kit is priced at Rs 12,000. Private cars in the city are also being voluntarily converted to LPG.

- EPCA has directed that the schedule of implementation must be adhered to. As submitted by the state government the conversion of rest of the fleet (21,182 autorickshaws) should be completed by October 2006. The Karnataka Pollution Control Board will submit compliance report to EPCA by November 15, 2006.

b. Chennai: There are 23 ALDS set up in the city against the target of 28. But the size of the LPG vehicle fleet is still very small. The state government has issued only 5,000 permits for LPG autorickshaws so far. EPCA was surprised to note the high price of the LPG kit in Chennai which is reported to have impeded speedy conversion. It is surprising that the price of LPG kit in Chennai is considerably higher than the prevailing prices in Bangalore.

Following recommendations have been made:

- CNG stations: To expedite the setting up of other 5 stations.
- LPG conversion kits: The Tamil Nadu Pollution Control Board (TNPCB) has been asked to examine the reasons for this difference and act on it. Examine why the price of LPG conversion kits are so high in Chennai compared to other cities such as Bangalore where LPG programme is successfully implemented. The TNPCB will inform EPCA by November 15, 2006.
- LPG autorickshaws: To ramp up the conversion of LPG autorickshaws. TNPCB will submit a time bound plan for converting autorickshaws. The plan may be submitted to EPCA by November 15, 2006.
- Diesel six-seaters: The state government needs to explain why these vehicles are still allowed in the city when EPCA has directed that only LPG autorickshaws to be registered in the city.

The state government has to explore the option of LPG autorickshaws in six-seater segment and inform EPCA on action taken by November 30, 2006.

c. Hyderabad: There are a total of 16 LPG stations. The city has a large number of autorickshaws – 68,840 – which it needs to convert to LPG. So far 29,346 autorickshaws have been converted to LPG and remaining 39,494 autorickshaws will have to be converted.

EPCA recommends:

- LPG stations: The Andhra Pradesh Pollution Control Board (APPCB) and the Task Force must ensure that all the LPG stations are set up as scheduled.
- LPG autorickshaws: To expedite full conversion to LPG mode. There are 68,840 autorickshaws in Hyderabad. Out of these 29,346 have been converted. Remaining 39,494 vehicles will have to be converted. The APPCB will submit a time bound plan for the conversion of the remaining autorickshaws to EPCA by November 15, 2006.

d. Pune: In the absence of CNG, Pune has opted for a LPG conversion programme for its autorickshaw fleet. Around 5,000 autorickshaws have been converted to LPG mode. EPCA has noted many barriers in the implementation process. There is a major shortage of auto LPG in the city. This is leading to long queues and many people are switching over to domestic cylinders. The LPG autorickshaw owners are the worst affected due to the shortage of LPG. EPCA expressed deep concern with regard to the state of affairs and very slow progress. EPCA noticed that the authorities are lagging behind in implementation of the programme. There are only 8 LPG dispensing stations in Pune of which only 6 are in operation. The autorickshaw unions have also brought to the notice of Authority that the non-availability of adequate LPG dispensing station is the main hurdle for conversion of autorickshaws to LPG. EPCA has asked PMC and PCMC to identify possible LPG dispensing stations in their areas, which they have already done. But there is no progress to increase the number of LPG dispensing stations which is causing delay in conversion of autorickshaws to LPG.

- EPCA recommends that oil companies submit a compliance report to ensure the sufficient availability of LPG at Pune and Pimpri-Chinchawad by proper distribution of gas filling stations in both places by November 30, 2006.

4.3. Safety of CNG and LPG vehicles

Considerable emphasis was laid down by EPCA on the capacity creation for safety inspection of the CNG and LPG vehicles. Such programmes are necessary for proper quality control of the programmes and minimise safety risks. EPCA emphasised that in order to develop a good quality CNG and LPG programme, institutional arrangements for safety inspection are urgently required in these cities. For instance, in Ahmedabad two bus fire incidents have been reported. Ahmedabad, Lucknow and Kanpur implementing CNG programmes and Bangalore, Hyderabad and Chennai with LPG programmes need specially designed safety inspection programmes. EPCA also raised and emphasised the need of proper aftersales services and authorised workshops, which are very important to ensure adequate maintenance of the CNG buses and other gaseous fuel vehicles.

EPCA informed the city officials regarding the efforts made by the Authority to establish proper safety checks in Delhi after the fire incidents in CNG buses. The Authority also informed that recently two EPCA reports have been filed in the Hon'ble Court on the recommendations of an expert study conducted by Prof. H. B. Mathur regarding the investigations of CNG fire incidents in Delhi and CNG converted buses.

EPCA directs:

- Prof. H. B. Mathur who has conducted extensive studies on CNG safety issue in Delhi will also assess the CNG and LPG safety requirements in Ahmedabad and Bangalore and recommend corrective measures.
- A safety checklist and guideline will be prepared by Prof. Mathur and circulated amongst different cities.

- The cities should organise training programmes of its personnel who are involved in the safety checks.

4.4 Public transport and transport demand management:

EPCA notes with concern that all these cities are witnessing rapid increase in vehicle numbers which is making it increasingly difficult to meet the challenge of pollution control. The rising numbers of personal cars and two-wheelers are adding to pollution and congestion, swamping the small efforts at pollution control. Big change is possible only if the cities are able to control the numbers and usage of personal vehicles on roads. The only way these cities can engineer change is to build public transport and use it to curb the rising numbers of cars and two-wheelers. EPCA is encouraging cities to revamp their conventional bus systems, and build multi-modal mass rapid transit systems.

Already some of the cities have begun to build a bus programme linked with the CNG programme. Ahmedabad, Lucknow and Kanpur have taken the lead in this matter. Bangalore and Hyderabad already have plans for metro. But more concerted efforts are needed to plan and build rapid transit systems. To guide planning and implementation of the public transport projects (with varying combination of public transportation modes – buses, metro, other rail based systems etc) EPCA has set a minimum target for meeting travel demand through public transportation. Ahmedabad, Lucknow, Kanpur, Pune, should target to meet at least 40 per cent of the commuting demand through public transportation. Cities where the public transport usage is relatively better like Bangalore, Chennai, Hyderabad, they should aim to meet atleast 60 per cent of the travel demand through public transportation system.

Some cities including Bangalore and Ahmedabad have shown interest in developing rail based metro system and also bus based rapid transit (BRT) system. EPCA has urged all cities to submit their plans for implementing public transport system and emphasised the importance of including BRT system that can be deployed within a much shorter time frame and at a significantly lower cost compared to rail based metro systems. These can carry a large number of commuters swiftly, fast and at a much lower cost. Public transport plans should also be linked with pedestrianisation.

EPCA further notes that strategies to control usage of personal transport are relatively new areas of discussions and planning. These form the part of the next step of reforms in these cities. EPCA has identified two key strategies that these cities will now develop for implementation. These include parking policy and a taxation policy to encourage public transportation. Delhi has already begun to work with these strategies. Other cities can also begin to implement these strategies without losing much time. Cities have been asked to submit details with regard to the varying taxes on public transport buses and personal cars and two wheelers to assess the current level of distortions.

4.4.1 Status of public transport system in cities

a. Ahmedabad

As mentioned earlier, Ahmedabad has begun to augment its conventional bus system and has already increased the fleet from 400 to 750 and this programme is linked with the CNG programme. The city has set an immediate target of 1100 buses to be implemented by the end of 2006.

In addition, it is encouraging to note that Ahmedabad has already planned to implement a BRT system. The project cost is Rs. 493 crore. The project is under appraisal at Jawaharlal Nehru Urban Renewal Mission (JNURM). In the first phase, a 12 km long corridor from RTO – Pirana has been planned and for this Rs. 87 crore has been sanctioned. Tender process has been initiated by Ahmedabad Municipal Corporation (AMC). It was informed that AMC has issued tender notice for BRT system for the Narol – Naroda corridor (18.5 km). EPCA is of the view that the process of implementation should now be hastened.

EPCA has made the following recommendations to Ahmedabad:

- The city needs to augment its bus fleet to meet 40 per cent of commuters needs as identified in the Centre for Environmental Planning and Technology (CEPT) study. To

prepare a plan on how the bus fleet that CEPT has identified for meeting commuters needs would be made operational. Operationalisation of the plan should be such that it reduces the usage of private vehicles. The plan is to be submitted to EPCA by December 9, 2006.

- The city needs to submit to EPCA a time bound BRT implementation schedule with milestones by November 15, 2006.
- A parking policy and pedestrianisation plan to be developed and submitted to EPCA by December 9, 2006.
- It was emphasised that it is important to examine how public transport is disadvantaged vis a vis the personal vehicles to identify the ways to correct the distortions and promote public transport. To submit details of various taxes imposed on private vehicles and city buses including passenger tax by November 15, 2006.

b. Bangalore

At present, Bangalore Metropolitan Transport Corporation (BMTTC) has a total fleet of 4,181 buses and it has finalised a tender for adding 400 fully built buses within the next few months. The city has a metro plan. It was informed that the Union cabinet has cleared the Bangalore Metro Rail Project on May 11, 2006 and is planned for implementation.

EPCA recommends:

- The city bus fleet currently meets nearly 30 per cent of the commuter needs, which needs to be targeted to at least 50 per cent. The state government to prepare a time bound plan explaining how this target will be met -- as per the current system of bus transport or by devising a BRT system by December 9, 2006. Transport requirements of Greater Bangalore should also be planned.
- Metro: To inform EPCA on the progress and to submit a time bound implementation programme with milestones by November 15, 2006.
- A parking policy and pedestrianisation plan to be developed and submitted to EPCA by December 9, 2006.
- It was emphasised that it is important to examine how public transport is disadvantaged vis a vis the personal vehicles to identify the ways to correct the distortions and promote public transport. To submit details of various taxes imposed on private vehicles and city buses including passenger tax by November 15, 2006.

c. Chennai

Under JNURM, there is a proposal for allotment of Rs. 1300 crore to the transport corporation which includes introduction of 1000 new vehicles every year (500 for replacement and 500 for augmentation) in the next 5 year period. The state government is in the process of awarding a 5-month study to DMRC for examining the feasibility of the system for Chennai.

EPCA recommends:

- The state government will develop a plan for phasing in of new buses and examine the bus specifications for bus purchase.
- A bus fleet augmentation plan targeting 40 per cent of commuter needs to be prepared by the state government for the city and submitted to EPCA by December 9, 2006.
- A parking policy and pedestrianisation plan to be developed and submitted to EPCA by December 9, 2006.
- It was emphasised that it is important to examine how public transport is disadvantaged vis a vis the personal vehicles to identify the ways to correct the distortions and promote public transport. To submit details of various taxes imposed on private vehicles and city buses including passenger tax by November 15, 2006.
- EPCA commended the imposition of green tax on old vehicles. To assess the impact of this tax measure, EPCA has asked for the details regarding the amount collected so far and number of vehicles charged by November 15, 2006.

d. Hyderabad

At present, 2,836 Andhra Pradesh State Road Transport Corporation (APSRTC) buses are being operated in twin cities as city services. According to estimates, there are 70 lakh commuters that travel in the twin cities. Of these 42 per cent travel by public transport and the remaining by personal transport. In order to increase the number of commuters travelling by public transport from 42 per cent to 50 per cent, there is a need to increase the number of buses by another 850 by 2009. In addition Setwin is adding another 100 mini buses for operation in the twin cities. In addition to the bus system, the city is planning for the metro system. Three major corridors viz. Miyapur – Chiatnayapuri (2.5 km), Tarnaka – Punjagutta – Hitech city (20 km) and Secunderabad – Falaknuma (13 km) are identified for development of mass rapid transit system (MRTS) in phase 1 on build, operate and transfer (BOT) basis. Seven consortiums of India and foreign companies responded against global invitation of expression of interest (EOI), 6 companies have qualified.

EPCA recommends:

- A bus fleet augmentation plan including BRT targeting 50 per cent of commuter needs to be prepared by the state government for the city and submitted to EPCA by December 9, 2006.
- Metro: To inform on the progress made by November 15, 2006.
- Parking policy along with details of intelligent parking system to be submitted to EPCA by November 15, 2006.
- It was emphasised that it is important to examine how public transport is disadvantaged vis a vis the personal vehicles to identify the ways to correct the distortions and promote public transport. To submit details of various taxes imposed on private vehicles and city buses including passenger tax by November 15, 2006.

e. Kanpur

In first phase, 100 CNG buses and in second phase 150 CNG buses are to be purchased for public transport system of the city. There has been very slow progress.

EPCA recommends:

- To prepare city bus fleet augmentation plans to meet 40 per cent of the commuters need and submit to EPCA by December 9, 2006
- 100 buses to run on CNG in the city by end of December 2006
- A parking policy and pedestrianisation plan to be developed and submitted to EPCA by December 9, 2006.
- It was emphasised that it is important to examine how public transport is disadvantaged vis a vis the personal vehicles to identify the ways to correct the distortions and promote public transport. To submit details of various taxes imposed on private vehicles and city buses including passenger tax by November 15, 2006.

f. Lucknow

In first phase, 100 CNG buses and in second phase 150 CNG buses are to be purchased for public transport system of the city. Progress has been very slow.

EPCA recommends:

- To prepare city bus fleet augmentation plans to meet 40 per cent of the commuters need and submit to EPCA by December 9, 2006.
- 100 buses to run on CNG in the city by end of December 2006
- A parking policy and pedestrianisation plan to be developed and submitted to EPCA by December 9, 2006.
- It was emphasised that it is important to examine how public transport is disadvantaged vis a vis the personal vehicles to identify the ways to correct the distortions and promote public transport. To submit details of various taxes imposed on private vehicles and city buses including passenger tax by November 15, 2006.

g. Pune

After the intervention of EPCA Pune has begun to plan augmentation of its bus fleet. But progress is very tardy. Pune has also planned to implement a BRT system. But the progress is very slow. With regard to BRT buses, PMC is interacting and negotiating with VOLVO wherein they have agreed to supply 10 buses by the end of October 2006. Infrastructure development for pilot corridor of 12 km has been already initiated and bus shelters for BRT have been called.

EPCA recommends:

- To submit the transport policy once it is finalised. To inform about the status by November 15, 2006.
- The city to prepare a bus fleet augmentation plan to meet 40 per cent of the commuters needs in the first phase and submitted to EPCA by December 9, 2006
- To submit status of the implementation of the BRT buses and corridors by November 15, 2006.
- To submit time schedule with key milestones of implementation of BRT for monitoring by November 15, 2006
- A parking policy and pedestrianisation plan to be developed and submitted to EPCA by December 9, 2006.
- It was emphasised that it is important to examine how public transport is disadvantaged vis a vis the personal vehicles to identify the ways to correct the distortions and promote public transport. To submit details of various taxes imposed on private vehicles and city buses including passenger tax by November 15, 2006.

h. Sholapur

The Sholapur Municipal transportation Corporation (SMTC) has a total bus fleet of 127 buses. Of these, 25 were declared scrapped lying in the depot for disposal and 62 require major and heavy repairs (in some cases, the cost of repairs is as much as purchasing a new bus). The net result is 38-40 buses operating in the city at irregular intervals. Out of these, again 4 to 5 buses are needed as support in case of unforeseen breakdown. Actually only 35 to 38 buses are on road at any point of time. At present, the bus staff ratio is 1:16 as against the norm of 1:6.

EPCA recommends:

- EPCA took special note of the unviable conditions of the SMTC in running buses and decided that it will monitor the Corporation's revival plans for the next three months. The Sholapur official present in the meeting mentioned about the Urban Infrastructure Development Scheme for Small and Medium Towns (UIDSSMT) Guidelines 2005 under the Ministry of Urban Development (MoUD). EPCA has asked the official to write a letter to MoUD under the UIDSSMT with the bus plan and forward a copy of the same to the Authority to pursue.
- EPCA emphasised that it is important to examine how public transport is disadvantaged vis a vis the personal vehicles to identify the ways to correct the distortions and promote public transport. To submit details of various taxes imposed on private vehicles and city buses including passenger tax by November 15, 2006.

4.5 Vehicle inspection programme:

EPCA is of the view that the effect of the technology and fuel quality improvement in new vehicles may get undermined due to poor maintenance or inherent technology defects in vehicles that are already on the road. This requires a strong emissions inspection programme. All cities are now working towards improving the current pollution under control (PUC) system. Ahmedabad, Bangalore, Chennai, have upgraded all the PUC stations to enforce the new PUC norms. Hyderabad, Lucknow, Kanpur, Pune and Sholapur have not completed the process of upgradation of all PUC centers yet. While this process should be completed in all cities, simultaneous steps should be taken to minimise corruption and improve enforcement.

Key Recommendations

- A collective decision was taken that all cities will conduct periodic audits of all the PUC centers and report on defaulters and penalty. The cities will also plan a pilot programme to introduce lambda measurement in cars that are fitted with three-way catalytic converters.
- The cities will examine and plan for networking of PUC centers for the transmission of the emissions test data from the PUC centres to a central server to be located at the transport department. This will help to improve surveillance and track emissions inspection status of the vehicles more effectively and check corruption. This system will be integrated with the vehicle registration data to enable tracking of the inspection status of the vehicles. Hyderabad has already initiated a pilot project. They may take the lead role and come up with a model plan for implementation.

4.6. EPCA seeks the following directions

It is encouraging to note that the intervention and sustained monitoring has made appreciable impact on the air quality of these cities. This bolsters confidence in the fact that disciplined action can help these cities to achieve clean air. EPCA has reviewed the progress in each city and made appropriate directions to expedite the process. It has identified four key areas that have the potential to engineer a fundamental transition. These include gaseous fuels programme (CNG and LPG), public transport and transport demand management, vehicle inspection and management of transit traffic and phasing out of old vehicles. In this report the matter related to management of transit traffic and phasing out of old vehicles has not been included as this will require more discussions with the respective state governments. Specific milestones have been identified for each of these sectors with detailed action points and schedule. Towards this effort EPCA would like to seek the following directions from the Hon'ble Supreme Court:

1. EPCA has set tight deadlines for implementation in each city, which it will monitor tightly and continue to bring reports on progress to the Hon'ble Court. The state governments of the concerned cities may be directed to implement the action plans according to the schedule and deadlines that have been agreed upon. Time bound implementation of the action plan is crucial to address the pollution challenge in these cities.
2. In view of the fact that the Hon'ble Court has already taken cognisance of the very high level of pollution in Pune city in its Court orders of April 5, 2002 and May 9, 2002, and in response Pune administration has developed an action plan, the Hon'ble Court may give a specific directive to bring Pune within the current monitoring scope of the Hon'ble Court. This will help to improve surveillance and time-bound implementation. The preliminary assessment by EPCA has found encouraging and supportive response from the Pune administration and public.

Annexure:

Detailed status and recommendations

1. Ahmedabad

S. No.	Issues	Status	EPCA directions
1.	CNG programme		
	Supply and infrastructure of CNG		
	CNG supply	Both Adani and HPCL are providing CNG	
		Adani has completed the work of 55 km long steel ring pipeline except one railway crossing. Steel ring is backbone of CNG distribution in the city and its completion has enabled commissioning more online stations thus increasing CNG dispensing capacity	
		HPCL has been asked to explore getting access to pipelines for supply. It has informed about negotiating with Adani for third party access of their work in Ahmedabad	
	CNG stations	29 CNG stations have been commissioned by Adani. Of these 15 are online, 11 daughter booster and 3 daughter stations	
		All 10 CNG stations (1 mother station and 9 daughter booster stations) have been commissioned and are operational by HPCL	
		4 dedicated stations for AMTS buses are functional	
		Possession of land given to Adani for CNG station for ST buses at Chandola and construction work is in progress	
		GSRTC has resolved to give the land to Adani at Naroda while Gitamandir station to be considered on finalisation of its development project	
	Future action	Adani has proposed to set up 45 stations by March 2007	
		HPCL has approached for approval for six more stations	
	CNG vehicles	400 AMTS CNG buses	Ahmedabad needs to plan for much bigger bus programme as CNG is available in the city. A
		Total bus fleet – 750 including 350 existing diesel buses	

		GSRTC has introduced 200 CNG buses	time bound plan for augmenting CNG bus fleet needs to be prepared and submitted to EPCA by December 9, 2006
		26,500 CNG autorickshaws (new 13,500 and rest converted) on road	
	Future action	GSRTC has decided to purchase additional 300 CNG buses in the current year. Out of which 45 will be plying on Ahmedabad – Gandhinagar route	
		Additional 210 regular CNG buses by AMTS by December 2006	
		AMTS has decided to introduce new buses on CNG mode only	
	CNG pricing	M/s Adani has reduced the price of CNG in the city by Rs 1.42 per kg	Effort made in Ahmedabad has been applauded
	Difference in the price of APM and non-APM gas		EPCA was informed about the high prices of APM gas in Uttar Pradesh due to the high sales tax on CNG The state government to submit the detailed breakup of the retail price of CNG at Ahmedabad in terms of gas procurement cost, cost added due to transportation, various levies and taxes (central and state), compression cost etc. by November 30, 2006
	Safety of CNG vehicles		Prof. H. B. Mathur who has conducted extensive studies on CNG safety issue in Delhi will also assess the CNG and LPG safety requirements in Ahmedabad and Bangalore and recommend corrective measures A safety checklist and guideline will be prepared by Prof. Mathur and circulated amongst different cities The cities should organise training programmes of its personnel who are involved in the safety checks
2.	Public transport		
	Status of public transport projects		
	Buses		
	Number of buses	The total bus fleet at present is 750 The city has focused on developing public transport by	

		<p>procuring buses on lease and this model is successful in generating revenue (from 4 per cent to 14 per cent)</p> <p>According to the CEPT study 2,336 buses would be needed to meet 40 per cent commuter needs</p>	<p>The city needs to augment its bus fleet to meet 40 per cent of commuters needs as identified in the CEPT study. To prepare a plan on how the bus fleet that CEPT has identified for meeting commuters needs would be made operational. Operationalisation of the plan should be such that it reduces the usage of private vehicles. The plan is to be submitted to EPCA by December 9, 2006</p>
	BRT plan	<p>BRT system phase I – tender and work order was to be issued by May 31, 2006</p> <p>BRT system project with total project cost of Rs. 493 crore is under appraisal at JNURM. First phase for corridor RTO – Pirana (12 km) and cost of Rs. 87 crore is sanctioned. Tender process has been initiated by AMC</p> <p>EPCA noted with concern that the BRT plan is delayed</p>	<p>The city needs to submit to EPCA a time bound BRT implementation schedule with milestones by November 15, 2006</p>
	Bus sector reform		
	Metro		
	Plan for integration		
	Parking policy and pedestrianisation		<p>A parking policy and pedestrianisation plan to be developed and submitted to EPCA by December 9, 2006</p>
	Fiscal policy to support public transport		<p>It was emphasised that it is important to examine how public transport is disadvantaged vis a vis the personal vehicles to identify the ways to correct the distortions and promote public transport</p> <p>To submit details of various taxes imposed on private vehicles and city buses including passenger tax by November 15, 2006</p>
3.	Vehicle inspection programme		

	Status of implementation of new PUC norms	<p>Upgradation planned for PUC system</p> <p>State government issued directions for setting up of PUC centers in the state vide notification dated March 4, 2005 in view of revised emission norms for in-use vehicles stipulated by the GOI</p> <p>122 newly registered as per revised norms by GOI have been set up. Of these, 100 are petrol (4 gas analyser), 4 petrol (2 gas analyser) and 18 diesel centers</p>	<p>A collective decision was taken that all cities will conduct periodic audits of all the PUC centers and report on defaulters and penalty. The cities will also plan a pilot programme to introduce lambda measurement in cars that are fitted with three-way catalytic converters</p> <p>The cities will examine and plan for networking of PUC centers for the transmission of the emissions test data from the PUC centers to a central server to be located at the transport department. This will help to improve surveillance and track emissions inspection status of the vehicles more effectively and check corruption. This system will be integrated with the vehicle registration data to enable tracking of the inspection status of the vehicles. Hyderabad has already initiated a pilot project. They may take the lead role and come up with a model plan for implementation</p>
	Report on defaulters	As on June 30, 2006, 294 cases have been filed for not obtaining PUC. The number of cases filed in 2005 was 751	
	Audits	<p>23 PUC centers were inspected out of which 5 were found working properly and 2 were closed</p> <p>ARAI has been approached to conduct training programme for field officials regarding technical and statutory aspects of revised PUC procedure</p>	
	Network of PUC centers		
	Integration of vehicle registration data		
	Lambda measurement		

2. Bangalore

S. No.	Issues	Status	EPCA directions
1.	LPG programme		
	Supply and infrastructure of LPG		
	LPG stations	There are 27 auto LPG dispensing stations	
		In July 2006, there was 8608 kl sales of auto LPG	
	LPG vehicles	47,463 converted autorickshaws on bi-fuel mode	
		21182 autorickshaws remaining to be retrofitted with authorised LPG kit	Schedule of implementation must be adhered to. As submitted by the state government the conversion of rest of the fleet (21,182 autorickshaws) should be
		As submitted by the state	

		government the conversion of rest of the fleet (21,182 autorickshaws) to be completed by October 2006	completed by October 2006. KPCB will submit compliance report to EPCA by November 15, 2006
		As of July 31, 2007, 18,763 autorickshaws cabs have been newly registered with LPG kit	
	Safety of LPG vehicles		<p>Prof. H. B. Mathur who has conducted extensive studies on CNG safety issue in Delhi will also assess the CNG and LPG safety requirements in Ahmedabad and Bangalore and recommend corrective measures</p> <p>A safety checklist and guideline will be prepared by Prof. Mathur and circulated amongst different cities</p> <p>The cities should organise training programmes of its personnel who are involved in the safety checks</p>
2.	CNG programme	<p>The city did not consider implementing the CNG programme in their action plan as they did not have access to natural gas. In view of new developments reported by GAIL and the prospect of expansion of the NGG and supply in the country, the city will consider implementation of CNG programme</p> <p>GAIL informed that gas supply is expected by 2009 from Kochi LNG terminal. Transportation of R-LNG through proposed Kochi-Kanjirkood-Mangalore/Bangalore pipeline.</p> <p>GAIL will expedite the key segments of the NGG to link the city</p>	<p>GAIL, which is responsible for laying the pipeline to carry natural gas upto the city gates should submit the milestones with deadline for supplying CNG in the city and to adhere to the dates as agreed upon for these cities. This has to be submitted by GAIL through MoPNG by November 15, 2006</p> <p>The latest plan and status of NGG, which GAIL has earlier submitted to EPCA to be submitted again highlighting the availability and status of CNG in the cities to be covered by NGG along with the deadline. This has to be submitted by GAIL through MoPNG by November 15, 2006</p>
3.	Public transport		
	Public transport plan		
	Status of public transport projects		
	Buses		
	Number of buses		The city bus fleet currently meets nearly 30 per cent of the commuter needs, which needs to be targeted to at least 50 per cent. The state government to prepare a time bound plan explaining how this target will be met -- as per the current system

			of bus transport or by devising a BRT system by December 9, 2006. The transport requirements of Greater Bangalore should also be planned
	BRT plan		
	Bus sector reform		
	Metro	The Bangalore Metro Rail Project has been cleared by the Union cabinet on 11.5.2006 and is planned for implementation	To inform EPCA on the progress and to submit a time bound implementation programme with milestones by November 15, 2006
	Plan for integration		
	Parking policy and pedestrianisation	The issue of formulating a parking policy for the city was discussed in the 15 th Task Force meeting held on September 6, 2006. It has been decided that the Police department will prepare and submit report to the Home department for further action	A parking policy and pedestrianisation plan to be developed and submitted to EPCA by December 9, 2006
	Fiscal policy to support public transport		It was emphasised that it is important to examine how public transport is disadvantaged vis a vis the personal vehicles to identify the ways to correct the distortions and promote public transport To submit details of various taxes imposed on private vehicles and city buses including passenger tax by November 15, 2006
3.	Vehicle inspection programme		
	Status of implementation of new PUC norms	All 225 emission testing centres in the city are computerised and upgraded to new emission norms, which is effective from October 1, 2004 Of these, 100 centers in petrol bunk 125 centers elsewhere 121 two gas analysers upgraded 102 four gas analysers installed 65 smoke meter upgraded	A collective decision was taken that all cities will conduct periodic audits of all the PUC centers and report on defaulters and penalty. The cities will also plan a pilot programme to introduce lambda measurement in cars that are fitted with three-way catalytic converters The cities will examine and plan for networking of PUC centers for the transmission of the emissions test data from the PUC centres to a central server to be located at

Report on defaulters	<p>Special drive to identify vehicles with emit visible smoke and necessary punitive action taken in such cases</p> <p>The transport department in initiating action against the vehicles which have a PUC certificate but emit visible excess smoke under section 56 (4) of MV Act 1988 to cancel the fitness certificate</p> <p>During April 1, 2005 to March 31, 2006, 12,528 vehicles were found emitting excess smoke and action has been initiated by cancelling fitness certificate of 1326 vehicles and fine of Rs. 1,37,14,826 is collected</p> <p>Further for the period between April 1, 2006 to July 31, 2006, 3,337 vehicles were found emitting excess smoke and action has been initiated by cancelling fitness certificate of 39 vehicles and fine of Rs. 47,76,375 is collected</p>	<p>the transport department. This will help to improve surveillance and track emissions inspection status of the vehicles more effectively and check corruption. This system will be integrated with the vehicle registration data to enable tracking of the inspection status of the vehicles. Hyderabad has already initiated a pilot project. They may take the lead role and come up with a model plan for implementation</p>
Audits		
Network of PUC centers		
Integration of vehicle registration data		
Lambda measurement		

3. Chennai

S. No.	Issues	Status	EPCA directions
1.	LPG programme		
	Supply and infrastructure of CNG		
	LPG stations	23 ALDS functioning in the city	
		For 2 stations, NOC from CCOE Nagpur is awaited	To expedite the setting up of these 5 LPG stations
		For 3 stations locating alternate sites as per the CCOE Nagpur new guidelines February 2006	
	LPG vehicles	The state government has issued 5,000 permits for LPG autorickshaws so far	
		EPCA was informed about the high price of LPG kit in Chennai as compared to Bangalore	TNPCB to examine why the price of LPG conversion kits are so high in Chennai compared to

			other cities such as Bangalore where LPG programme is successfully implemented with. TNPCB will inform EPCA by November 15, 2006
		For the conversion of 40,000 autorickshaws to LPG mode in a phased manner, a proposal with a subsidy of Rs. 2,000 per autorickshaw has been submitted to the government and the order of the government is awaited EPCA has directed to ramp up the conversion of autorickshaws	TNPCB will submit a time bound plan for converting autorickshaws. The plan may be submitted to EPCA by November 15, 2006
		EPCA was informed of the diesel six-seaters that ply in the city. The state government needs to explain why diesel six-seaters are still allowed in the city when EPCA has directed that only LPG autorickshaws to be registered in the city	The state government has to explore the option of LPG autorickshaws in six-seater segment and inform EPCA on action taken by November 30, 2006
	Safety of LPG vehicles		Prof. H. B. Mathur who has conducted extensive studies on CNG safety issue in Delhi will also assess the CNG and LPG safety requirements in Ahmedabad and Bangalore and recommend corrective measures A safety checklist and guideline will be prepared by Prof. Mathur and circulated amongst different cities The cities should organise training programmes of its personnel who are involved in the safety checks
2.	CNG programme		
	CNG supply	The city did not consider implementing the CNG programme in their action plan as they did not have access to natural gas. In view of new developments reported by GAIL and the prospect of expansion of the NGG and supply in the country, the city will consider implementation of CNG programme GAIL is in the process of identifying OMC having maximum number of spacious retail outlets in Tamil Nadu as Joint Venture (JV) partner. For preparation of DFR, market	GAIL, which is responsible for laying the pipeline to carry natural gas upto the city gates should submit the milestones with deadline for supplying CNG in the city and to adhere to the dates as agreed upon for these cities. This has to be submitted by GAIL through MoPNG by November 15, 2006 The latest plan and status of NGG, which GAIL has earlier submitted to EPCA to be submitted again highlighting the availability and status of CNG in the cities to be covered by NGG along with the deadline. This has

		survey and demand estimate are being taken up by GAIL. Gas pipeline is not available and project schedule shall be linked with availability of pipeline infrastructure and gas tie up. GAIL will expedite the key segments of the NGG to link the city	to be submitted by GAIL through MoPNG by November 15, 2006
3.	Public transport		
	Public transport plan		
	Status of public transport projects		
	Buses		
	Number of buses	EPCA observed that Chennai's bus transport system needs to be strengthened. The Authority has asked for a bus plan	The state government will develop a plan for phasing in of new buses and examine the bus specifications for bus purchase A bus fleet augmentation plan targeting 40 per cent of commuter needs to be prepared by the state government for the city and submitted to EPCA by December 9, 2006
	BRT plan		
	Bus sector reform		
	Metro	Government of Tamil Nadu is in the process of awarding a 5 month study to DMRC for examining the feasibility of the system for the city	To inform about the status by November 15, 2006
	Plan for integration		
	Parking policy and pedestrianisation		A parking policy and pedestrianisation plan to be developed and submitted to EPCA by December 9, 2006
	Fiscal policy to support public transport		It was emphasised that it is important to examine how public transport is disadvantaged vis a vis the personal vehicles to identify the ways to correct the distortions and promote public transport To submit details of various taxes imposed on private vehicles and city buses including passenger tax by November 15, 2006
3.	Vehicle inspection programme		
	Status of implementation of new PUC norms	Upgradation of computerised PUC centers. Implemented	A collective decision was taken that all cities will conduct periodic audits of all the PUC centers and report on defaulters and penalty.

	Report on defaulters	Setting up of another 6 stations by MTC is under progress. To inform EPCA	The cities will also plan a pilot programme to introduce lambda measurement in cars that are fitted with three-way catalytic converters The cities will examine and plan for networking of PUC centers for the transmission of the emissions test data from the PUC centers to a central server to be located at the transport department. This will help to improve surveillance and track emissions inspection status of the vehicles more effectively and check corruption. This system will be integrated with the vehicle registration data to enable tracking of the inspection status of the vehicles. Hyderabad has already initiated a pilot project. They may take the lead role and come up with a model plan for implementation
	Audits		
	Network of PUC centers		
	Integration of vehicle registration data		
	Lambda measurement		

4. Hyderabad

S. No.	Issues	Status	EPCA directions
1.	CNG programme		
	Supply and infrastructure of CNG		
	CNG supply	The minimum allocation in the state is only 0.1 mmscmd as against the minimum demand of 0.5 mmscmd for introduction of CNG to the vehicles in the Corporation areas	
		It was informed that gas is being transported through cascades	
		M/s. BGL has informed that the cost of transportation of CNG by road is very high. It would be imperative to have CNG pipeline grid in order to procure CNG in twin cities at competitive and affordable rates	
		GAIL has informed that gas supply will be tied up with domestic producer. Project augmentation shall be taken up after gas availability from domestic producers from KG basin and pipeline availability EPCA is discussing the possible schedule with the relevant	In order to expedite the supply of CNG in the city EPCA has directed GAIL to submit the milestones with deadline for the augmentation of the programme and supplying CNG and adhere to the dates as agreed upon. This has to be submitted by GAIL through MoPNG by November 15, 2006

		central and state agencies	
	No. of CNG stations	1 CNG retail outlet (daughter booster station) is functioning at Nagole, Ranga Reddy district	
	CNG vehicles	45 autorickshaws and 12 cars have already been retrofitted with approved CNG kits	
	Future action on CNG stations	3 more CNG stations are proposed to be commissioned in 2006	
	CNG pricing Difference in the price of APM and non-APM gas		EPCA was informed about the high prices of APM gas in Uttar Pradesh due to the high sales tax on CNG The state government to submit the detailed breakup of the retail price of CNG at Hyderabad in terms of gas procurement cost, cost added due to transportation, various levies and taxes (central and state), compression cost etc. by November 30, 2006.
2.	LPG programme	There are a total of 16 stations. So far 29,346 autorickshaws have been converted to LPG and remaining 39,494 autorickshaws will have to be converted	APPCB and the Task Force must ensure that LPG stations are set up as scheduled To expedite the full conversion of autorickshaws to LPG mode. APPCB will submit a time bound plan for the conversion of the remaining autorickshaws to EPCA by November 15, 2006
	Safety of CNG/LPG vehicles		Prof. H. B. Mathur who has conducted extensive studies on CNG safety issue in Delhi will also assess the CNG and LPG safety requirements in Ahmedabad and Bangalore and recommend corrective measures A safety checklist and guideline will be prepared by Prof. Mathur and circulated amongst different cities The cities should organise training programmes of its personnel who are involved in the safety checks
2.	Public transport		
	Public transport plan		
	Status of public transport projects		
	Buses		
	Number of buses	At present, 2836 APSRTC buses are being operated in twin cities as city services	A bus fleet augmentation plan including BRT targeting 50 per cent of commuter needs to be prepared by the state government

		In order to increase the number of commuters travelling by public transport from 42 per cent to 50 per cent, there is a need to increase the number of buses by another 850 by 2009 In addition, Setwin is adding another 100 mini buses for operation in the twin cities	for the city and submitted to EPCA by December 9, 2006
		MMTS services were introduced in 2003 on one route and in 2004 on another route. Passenger transport by MMTS is only 1 per cent	
	BRT plan		
	Bus sector reform		
	Metro	Three major corridors viz., Miyapur -Chaitanyapuri, Tarnaka – Punjagutta – Hi tech city and Secunderabad – Falaknuma are identified for development of MRTS in phase I on BOT basis 7 consortiums of India and foreign companies responded against global invitation of expression of interest (EOI)	To inform on the progress by November 15, 2006
	Plan for integration		
	Parking policy and pedestrianisation	The city has a parking policy, which is monitored by the High Court. Intelligent parking at 115 parking lots has been introduced	Parking policy along with details of intelligent parking system to be submitted to EPCA by November 15, 2006
	Fiscal policy to support public transport		It was emphasised that it is important to examine how public transport is disadvantaged vis a vis the personal vehicles to identify the ways to correct the distortions and promote public transport To submit details of various taxes imposed on private vehicles and city buses including passenger tax by November 15, 2006
3.	Vehicle inspection programme		
	Status of implementation of new PUC norms	As of August 2006, 46 PUC centers have been upgraded Out of 142 PUC centres, it was decided to upgrade 20 per cent of 2 gas analysers to 4 gas analysers. However, 32 per cent conversion has been achieved	A collective decision was taken that all cities will conduct periodic audits of all the PUC centers and report on defaulters and penalty. The cities will also plan a pilot programme to introduce lambda measurement in cars that are fitted with three-way catalytic

	Report on defaulters	Out of 17.60 lakh vehicles registered in the city, more than 30 per cent vehicles were inspected and 9.35 lakh vehicles are covered by PUC certificates The traffic police has booked 7545 cases from January 2006 till October 17, 2006 for non-compliance of PUC. Notices have been issued to the defaulters for rectification	converters The cities will examine and plan for networking of PUC centers for the transmission of the emissions test data from the PUC centres to a central server to be located at the transport department. This will help to improve surveillance and track emissions inspection status of the vehicles more effectively and check corruption. This system will be integrated with the vehicle registration data to enable tracking of the inspection status of the vehicles. Hyderabad has already initiated a pilot project. They may take the lead role and come up with a model plan for implementation
	Audits		
	Network of PUC centers	On pilot basis, 7 centres have been networked with the assistance of SIAM and M/s. AVL India Ltd. Proposals for networking the remaining PUCs have been received and are under evaluation with Andhra Pradesh Technologies Services Limited	
	Integration of vehicle registration data		
	Lambda measurement		

5. Kanpur

S. No.	Issues	Status	EPCA directions
1.	CNG programme		
	Supply and infrastructure of CNG		
	CNG supply	Central UP Gas Limited is supplying CNG in the city	
	CNG stations	1 mother station has been commissioned at Fazalganj with a capacity of 16,000 kg/day of CNG 3 online stations were to be set up by end of September 2006. Commissioning of these stations has been delayed. To be commissioned by end of October 2006	3 online stations to be set up by end of October 2006
	Future action	3 more daughter booster stations by March 31, 2007	
	CNG vehicles	Purchase order issued for 200 buses for both Lucknow and Kanpur	100 buses to run on CNG by the end of December 2006
		A total of 247 vehicles (240 autorickshaws and 7 cars) have been retrofitted and 799 new	2,000 autorickshaws must run on CNG by the end of December 2006

		CNG vehicles are registered and are operational in the city	
	CNG pricing Difference in the price of APM and non-APM gas		EPCA was informed about the high prices of APM gas in Uttar Pradesh due to the high sales tax on CNG The state government to submit the detailed breakup of the retail price of CNG at Kanpur in terms of gas procurement cost, cost added due to transportation, various levies and taxes (central and state), compression cost etc. by November 30, 2006
	Safety of CNG vehicles		Prof. H. B. Mathur who has conducted extensive studies on CNG safety issue in Delhi will also assess the CNG and LPG safety requirements in Ahmedabad and Bangalore and recommend corrective measures A safety checklist and guideline will be prepared by Prof. Mathur and circulated amongst different cities The cities should organise training programmes of its personnel who are involved in the safety checks
2.	Public transport		
	Public transport plan		
	Status of public transport projects		
	Buses		
	Number of buses	In first phase, 100 CNG buses and in second phase 150 CNG buses are to be purchased for public transport system of the city Progress has been very slow	To prepare city bus fleet augmentation plans to meet 40 per cent of the commuters need and submit to EPCA by December 9, 2006 100 buses to run on CNG in the city by end of December 2006
	BRT plan		
	Bus sector reform		
	Metro		
	Plan for integration		
	Parking policy and pedestrianisation		A parking policy and pedestrianisation plan to be developed and submitted to EPCA by December 9, 2006
	Fiscal policy to support public transport		It was emphasised that it is important to examine how public transport is disadvantaged vis a vis the personal vehicles to identify the ways to correct the

			distortions and promote public transport To submit details of various taxes imposed on private vehicles and city buses including passenger tax by November 15, 2006
3.	Vehicle inspection programme		<p>A collective decision was taken that all cities will conduct periodic audits of all the PUC centers and report on defaulters and penalty. The cities will also plan a pilot programme to introduce lambda measurement in cars that are fitted with three-way catalytic converters</p> <p>The cities will examine and plan for networking of PUC centers for the transmission of the emissions test data from the PUC centers to a central server to be located at the transport department. This will help to improve surveillance and track emissions inspection status of the vehicles more effectively and check corruption. This system will be integrated with the vehicle registration data to enable tracking of the inspection status of the vehicles. Hyderabad has already initiated a pilot project. They may take the lead role and come up with a model plan for implementation</p>
	Status of implementation of new PUC norms	Out of 26 PUC centers 6 have been upgraded Software upgradation not done	
	Report on defaulters	Monthly on road vehicle inspection camps are being organised. During April 1, 2005 to March 31, 2006, 3839 vehicles have been challaned	
	Audits		
	Network of PUC centers		
	Integration of vehicle registration data		
	Lambda measurement	Lambda test facility is not available	

6. Lucknow

S. No.	Issues	Status	EPCA directions
1.	CNG programme		
	Supply and infrastructure of CNG		
	CNG supply	Green Gas Limited is supplying CNG 16,000 kg/day CNG was to be made available by October 15, 2006	Compliance report to EPCA on making 16,000 kg/day CNG to available by October 15, 2006 by November 15, 2006
	CNG stations	1 mother station (at Amausi from April 2, 2006) and 1 daughter booster station (at Rajajipuram on July 11, 2006)	

		have been commissioned	
		2 more daughter booster stations at Sitapur Road and Gomti Nagar were to be commissioned in September 2006 Of these, the Sitapur Road station has been commissioned The commissioning of Gomti Nagar and Indranagar daughter booster stations has been delayed. These will be commissioned on October 15, 2006 and November 15, 2006 respectively	CNG refueling stations should be completed as scheduled
		Land of 600 sq m has been offered to Green Gas Limited at Gomti Nagar for setting up a mother station	
	Future action on CNG supply	91,000 kg/day CNG to be made available by February 28, 2007	
	CNG vehicles	Purchase order issued for 200 buses for both Lucknow and Kanpur	100 buses to run on CNG by the end of December 2006
		490 tempo taxi operating	
		388 autorickshaws operating	5,000 autorickshaws to be converted to CNG by end of December 2006. Just setting a target for numbers will not help. The state government will also have to devise a mechanism to help people to switchover to CNG by providing subsidy on the CNG kits and soft loans among other measures. The state government will have to prioritise the conversion either on the basis of age or first cum first served basis
	CNG pricing Difference in the price of APM and non-APM gas		EPCA was informed about the high prices of APM gas in Uttar Pradesh due to the high sales tax on CNG The state government to submit the detailed breakup of the retail price of CNG at Lucknow in terms of gas procurement cost, cost added due to transportation, various levies and taxes (central and state), compression cost etc. by November 30, 2006
	Safety of CNG vehicles		Prof. H. B. Mathur who has conducted extensive studies on CNG safety issue in Delhi will also assess the CNG and LPG safety requirements in Ahmedabad and Bangalore and recommend corrective measures

			<p>A safety checklist and guideline will be prepared by Prof. Mathur and circulated amongst different cities</p> <p>The cities should organise training programmes of its personnel who are involved in the safety checks</p>
2.	Public transport		
	Public transport plan		
	Status of public transport projects		
	Buses		
	Number of buses	<p>In first phase, 100 CNG buses and in second phase 150 CNG buses are to be purchased for public transport system of the city</p> <p>Progress has been very slow</p>	<p>100 buses to run on CNG in the city by end of December 2006</p> <p>To prepare city bus fleet augmentation plans to meet 40 per cent of the commuters need and submit to EPCA by December 9, 2006</p>
	BRT plan		
	Bus sector reform		
	Metro		
	Plan for integration		
	Parking policy and pedestrianisation		A parking policy and pedestrianisation plan to be developed and submitted to EPCA by December 9, 2006
	Fiscal policy to support public transport		<p>It was emphasised that it is important to examine how public transport is disadvantaged vis a vis the personal vehicles to identify the ways to correct the distortions and promote public transport</p> <p>To submit details of various taxes imposed on private vehicles and city buses including passenger tax by November 15, 2006</p>
3.	Vehicle inspection programme		
	Status of implementation of new PUC norms	Out of 41 PUC stations 16 have been upgraded. Software has been modified in order to ensure physical presence of vehicles for obtaining PUC but web camera is yet to be fitted	<p>A collective decision was taken that all cities will conduct periodic audits of all the PUC centers and report on defaulters and penalty. The cities will also plan a pilot programme to introduce lambda measurement in cars that are fitted with three-way catalytic converters</p> <p>The cities will examine and plan</p>
	Report on defaulters	A total of 154 vehicles have been checked and 57 defaulting vehicles were challaned from January 1, 2006 to August 31, 2006	

	Audits		for networking of PUC centers for the transmission of the emissions test data from the PUC centers to a central server to be located at the transport department. This will help to improve surveillance and track emissions inspection status of the vehicles more effectively and check corruption. This system will be integrated with the vehicle registration data to enable tracking of the inspection status of the vehicles. Hyderabad has already initiated a pilot project. They may take the lead role and come up with a model plan for implementation
	Network of PUC centers		
	Integration of vehicle registration data		
	Lambda measurement	Lambda test facility is not available	

7. Pune

S. No.	Issues	Status	EPCA directions
1.	CNG supply	<p>There has been considerable delay in completing the gas pipeline project</p> <p>GAIL has not been able to adhere to the time schedule it had given to the Authority. The origin deadline was March 2007</p> <p>GAIL is directed to ensure the availability of CNG in Pune and Pimpri-Chinchawad by March 2007</p>	<p>GAIL to expedite the delivery of gas as agreed earlier. The Oil Industry Coordinator and GAIL shall submit a time bound programme with a bar chart showing the tasks and the completion schedules for the infrastructure required for the CNG project and the date by which GAIL will start supplying CNG in Pune and Pimpri Chinchwad municipal area within three months</p>
2.	LPG programme	<p>Pune has opted for a LPG programme for its autorickshaw fleet. Around 5,000 autorickshaws have been converted to LPG mode. Many barriers had been noted in the implementation process. There is a major shortage of auto LPG in the city, leading to long queues and many people are switching over to domestic cylinders. LPG autorickshaw owners are the worst affected due to LPG shortage</p> <p>EPCA expressed concern with regard to the state of affairs and very slow progress. The authorities are lagging behind in implementation of the programme. There are 8 LPG dispensing stations in the city of which only 6 are in operation</p>	<p>Oil companies to submit a compliance report to ensure the sufficient availability of LPG at Pune and Pimpri-Chinchawad by proper distribution of gas filling stations in both places by November 30, 2006</p>

		EPCA had asked PMC and PCMC to identify the possible LPG dispensing stations in their areas, which they have already done. But there is no progress to increase the number of LPG dispensing stations which is causing delay in conversion of autorickshaws to LPG	
	Safety of CNG/LPG vehicles		<p>Prof. H. B. Mathur who has conducted extensive studies on CNG safety issue in Delhi will also assess the CNG and LPG safety requirements in Ahmedabad and Bangalore and recommend corrective measures</p> <p>A safety checklist and guideline will be prepared by Prof. Mathur and circulated amongst different cities</p> <p>The cities should organise training programmes of its personnel who are involved in the safety checks</p>
2.	Public transport		
	Public transport plan	<p>Public transport policy (draft Traffic and Transport Policy) already under public consultation</p> <p>Comments/suggestions on the draft policy have been received and necessary changes have incorporated in the same. Schedules and milestones have been already incorporated in the report</p> <p>It was informed that the draft policy was circulated again for public consultation inviting comments/suggestions which is still awaited. Once that is received, it is planned to conduct a workshop of stakeholders for finalisation of the policy</p>	To submit the policy once it is finalised. To inform about the status by November 15, 2006
	Status of public transport projects		
	Buses		
	Number of buses	<p>Tenders for hiring of 150 buses have been opened and work order for the same is to be issued</p> <p>Purchase orders for 200 buses have been issued that is work</p>	The city to prepare a bus fleet augmentation plan to meet 40 per cent of the commuters needs and submitted to EPCA by December 9, 2006

		order for body purchase of 150 new buses have been already made and additional 50 buses negotiation with TATAs are going on	
	BRT plan	For BRT buses, PMT is interacting and negotiating with VOLVO wherein they have agreed to supply 10 buses by end of October 2006 Infrastructure development for pilot corridor of 12 km already initiated and bus shelter tenders for BRT has been called	To submit status by November 15, 2006 To submit time schedule with key milestones of implementation for monitoring by November 15, 2006
	Bus sector reform		
	Metro		
	Plan for integration		A parking policy and pedestrianisation plan to be developed and submitted to EPCA by December 9, 2006
	Parking policy and pedestrianisation		
	Passenger tax	The Commissioner Transport PMC was asked to inform EPCA on the decision taken regarding the directive given by it to reduce passenger tax on PMT buses. This matter was to be taken up at the earliest with the appropriate authorities EPCA was informed that the state government is to take a final decision on this issue	
	Fiscal policy to support public transport		It was emphasised that it is important to examine how public transport is disadvantaged vis a vis the personal vehicles to identify the ways to correct the distortions and promote public transport To submit details of various taxes imposed on private vehicles and city buses including passenger tax by November 15, 2006
3.	Vehicle inspection programme		
	Status of implementation of new PUC norms	137 centers have been upgraded	A collective decision was taken that all cities will conduct periodic audits of all the PUC centers and report on defaulters and penalty. The cities will also plan a pilot
	Report on defaulters		

	Audits	<p>The transport department has already audited 10 per cent of the total 167 PUC centers</p> <p>Authorisation of 12 centers has been suspended</p> <p>No cancellation in the authorisation so far</p> <p>Transport department has agreed to carry out the audit of all PUC centers every year</p>	<p>programme to introduce lambda measurement in cars that are fitted with three-way catalytic converters</p> <p>The cities will examine and plan for networking of PUC centers for the transmission of the emissions test data from the PUC centers to a central server to be located at the transport department. This will help to improve surveillance and track emissions inspection status of the vehicles more effectively and check corruption. This system will be integrated with the vehicle registration data to enable tracking of the inspection status of the vehicles. Hyderabad has already initiated a pilot project. They may take the lead role and come up with a model plan for implementation</p>
	Network of PUC centers		
	Integration of vehicle registration data		
	Lambda measurement		

8. Sholapur

S. No.	Issues	Status	EPCA directions
1.	CNG supply	<p>The city did not consider implementing the CNG programme in their action plan as they did not have access to natural gas. In view of new developments reported by GAIL and the prospect of expansion of the NGG and supply in the country, the city will consider implementation of CNG programme</p> <p>MNGL is to take up cities in Maharashtra except Mumbai and suburb towns. The pipeline is not available and will be taken up after implementation of the CNG project in Pune</p> <p>GAIL will expedite the key segments of the NGG to link the city</p>	<p>GAIL, which is responsible for laying the pipeline to carry natural gas upto the city gates should submit the milestones with deadline for supplying CNG in the city and to adhere to the dates as agreed upon for these cities. This has to be submitted by GAIL through MoPNG by November 15, 2006</p> <p>The latest plan and status of NGG, which GAIL has earlier submitted to EPCA to be submitted again highlighting the availability and status of CNG in the cities to be covered by NGG along with the deadline. This has to be submitted by GAIL through MoPNG by November 15, 2006</p>
2.	Public transport		
	Public transport plan	Sholapur Municipal Commissioner to submit a detailed report on the present and proposed city transport system	
	Status of public transport projects		

	Buses		
	Number of buses	<p>Total 127 buses</p> <p>25 were declared scrapped lying in the depot for disposal</p> <p>62 require major and heavy repairs. In some cases, the cost of repairs is as much as purchasing a new bus</p> <p>The net result is 38-40 buses operating in the city at irregular intervals</p> <p>Out of these, again 4 to 5 buses are needed as support in case of unforeseen breakdown</p> <p>Actually only 35 to 38 buses are on road at any point of time</p> <p>Bus staff ratio at present is 1:16 as against the norm of 1:6</p>	<p>EPCA took special note of the unviable conditions of the SMTC in running buses and decided that it will monitor the Corporation's revival plans for the next three months</p> <p>The Sholapur official present in the meeting mentioned about the UIDSSMT Guidelines 2005 under the Ministry of Urban Development</p> <p>EPCA directed that a letter is to be written to the Ministry of Urban Development under the UIDSSMT with the bus plan and a copy of the same be forwarded the Authority to pursue</p>
	BRT plan		
	Bus sector reform		
	Metro		
	Plan for integration		
	Parking policy and pedestrianisation		
	Fiscal policy to support public transport		<p>It was emphasised that it is important to examine how public transport is disadvantaged vis a vis the personal vehicles to identify the ways to correct the distortions and promote public transport</p> <p>To submit details of various taxes imposed on private vehicles and city buses including passenger tax by November 15, 2006</p>
3.	Vehicle inspection programme		
	Status of implementation of new PUC norms	<p>A pilot centre for centralised check of two-wheelers based on ARAI equipment and methodology was to be set up. EPCA has not been informed on the same</p> <p>To inform EPCA on the upgradation of the PUC centers</p>	<p>A collective decision was taken that all cities will conduct periodic audits of all the PUC centers and report on defaulters and penalty. The cities will also plan a pilot programme to introduce lambda measurement in cars that are fitted with three-way catalytic converters</p>
	Report on defaulters		The cities will examine and plan

	Audits	Out of 25 PUC centers, 24 PUC centers were checked and memo were issued to all 24 centers. None of the center has been suspended	for networking of PUC centers for the transmission of the emissions test data from the PUC centers to a central server to be located at the transport department. This will help to improve surveillance and track emissions inspection status of the vehicles more effectively and check corruption. This system will be integrated with the vehicle registration data to enable tracking of the inspection status of the vehicles. Hyderabad has already initiated a pilot project. They may take the lead role and come up with a model plan for implementation
	Network of PUC centers		
	Integration of vehicle registration data		
	Lambda measurement		