CHAPTER–5

CLEANER TRANSPORT-MITIGATION AND PROMOTION STRATEGIES

5. Cleaner Transport-Mitigation and Promotion Strategies

The preventive and enforcement strategies of GNCTD towards cleaner transportation were discussed in the previous Chapter. Government also implements strategies which promote transportation modes with lesser emission and mitigate the vehicular emission through its affirmative actions.

Given the traffic congestion and pollution levels of Delhi, a sustainable environment friendly transportation infrastructure system centered on Electric Vehicles (EVs) is essential. Electric Vehicles, which release zero tailpipe emission are seen as a viable alternative to vehicles running on Petrol/CNG/Diesel/LPG. Adoption of EVs therefore becomes an important strategy for improvement of ambient air quality in mega cities.

Reduction in emission of pollutants can be achieved by minimizing the flow of traffic transiting through Delhi. Obstruction in free flow of traffic results in traffic congestion which leads to idling of vehicles and release of higher concentrations of tail-pipe emission. Facilitating free flow of traffic by removing obstructions reduces vehicular emission. These steps may include restrictions on entry of diesel propelled buses and/or heavy goods vehicles in Delhi, regulating parking of vehicles on roads, quick removal of broken-down buses from roads, etc.

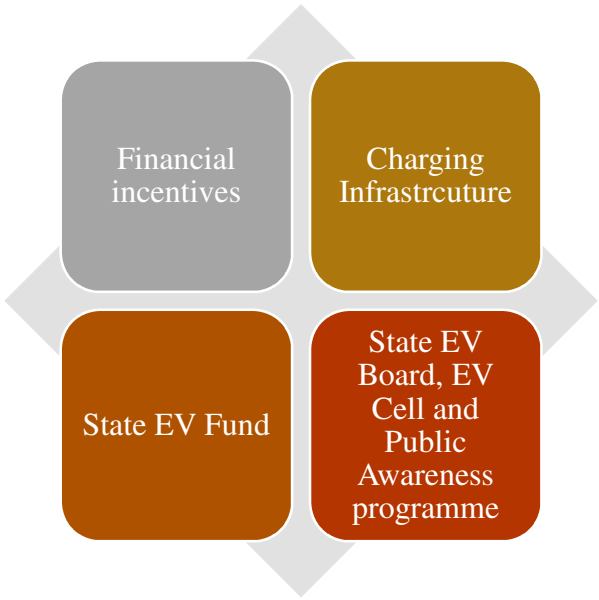
Creating awareness among the people regarding adverse effects of vehicular emission on air quality also helps in effective implementation of strategies for mitigation of vehicular emission in Delhi and also to encourage lesser usage of personal vehicles and promote environment friendly modes of transport.

Audit examined the adequacy and effectiveness of these promotion strategies taken by Government. Related observations are discussed in subsequent paragraphs.

5.1. Electric Vehicles

To encourage adoption of EVs DoT notified (August 2020) the 'Delhi Electric Vehicle Policy 2020' (EV Policy). The EV Policy targeted adoption of Battery Electric Vehicles (BEVs) so that these contribute to 25 *per cent* of all new vehicles registrations by the year 2024. DoT was nominated as Nodal Department for implementation of Delhi State EV Policy.

The policy was to be implemented through various verticals as depicted below:



- Financial incentives included purchase incentive, interest subvention on loans, waiver of road tax and registration fees.
- Charging infrastructure included establishment of wide network of charging stations and swappable battery stations.
- Creation of an umbrella, non-lapsable 'State EV fund' through levy of additional taxes, cess, fee, etc., on inefficient or polluting vehicles.
- Establishment of State electric vehicle board, electric vehicle cell and development of intensive public outreach programme focused on creating awareness about benefits of EVs.

DoT notified (October 2020) purchase incentives and exemption from levy of registration fee and road tax for battery operated vehicles in Delhi under the Delhi Electric Vehicle Policy, 2020.

DoT also started an Electric Vehicle Portal namely *https://ev.delhi.gov.in*, wherein the list of approved EV models, dealers and charging stations in Delhi were uploaded. There were 346 models, 133 dealers and 72 charging station for electric vehicles in NCT of Delhi. Audit, however, observed (September 2021) that details regarding 'dealers and approved model' were last updated in March 2021 and charging stations were last updated in October 2020.

This indicates that either no charging stations were setup for almost a year of notifying the EV Policy, or if setup, their details were not updated on the portal. Either way, it reflects lack of seriousness in implementation of EV policy.

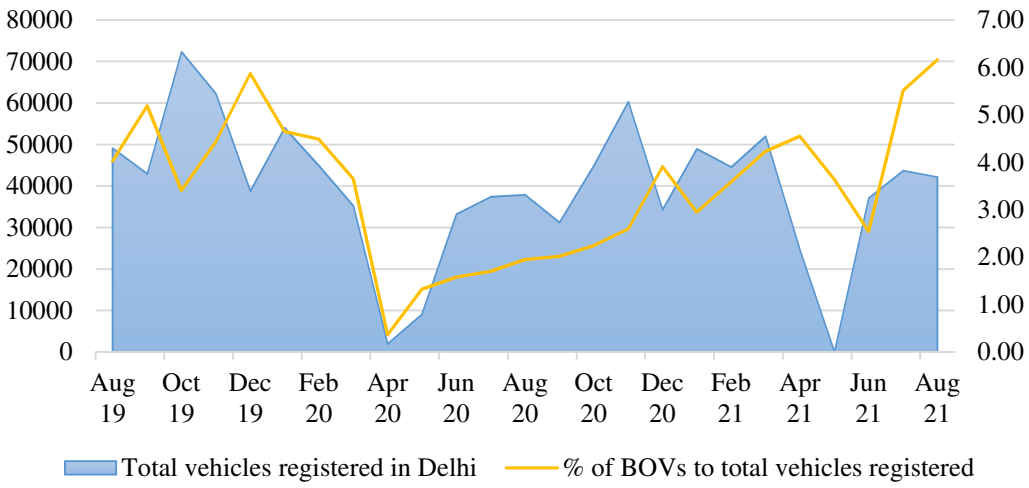
Audit observed the following other issues regarding implementation of the EV Policy.

5.1.1. Insignificant increase in registration of EVs

Audit examined the data related to registration of EVs during the period of August 2019-August 2021, i.e., one year prior to and one year after introduction of EV policy as shown in **Chart 5.1**.

The share of EVs in new vehicle registrations was miniscule at 5.87 *per cent* in December 2019, i.e., before the notification of EV Policy, which marginally breached that level only in August 2021. In absolute numbers, maximum registration (2763) of EVs was recorded in November 2019, which is yet to be surpassed after one year of announcement of EV Policy. As on September 2021, only 1.17 lakh EVs were registered in Delhi. Thus, so far EV policy is not having any major impact on increase in ratio of EVs to total number of vehicles.

Chart 5.1: Percentage of EVs in new registrations



Source: VAHAN Dashboard

DoT stated (September 2021) that Delhi EV policy aims to promote EVs to achieve the targets by 2024 and share of electric vehicles has increased in total contribution of vehicles in Delhi. Audit does not agree with response as the share of EVs in new registrations has not increased.

5.1.2. Charging Infrastructure

The EV Policy stipulated providing accessible public charging facilities within 3 Km travel from anywhere in Delhi as a key objective of the EV policy.

The location and zone wise details of charging stations in Delhi is shown in **Figure 5.1** and **Chart 5.2** respectively.

Figure 5.1: Charging stations across Delhi

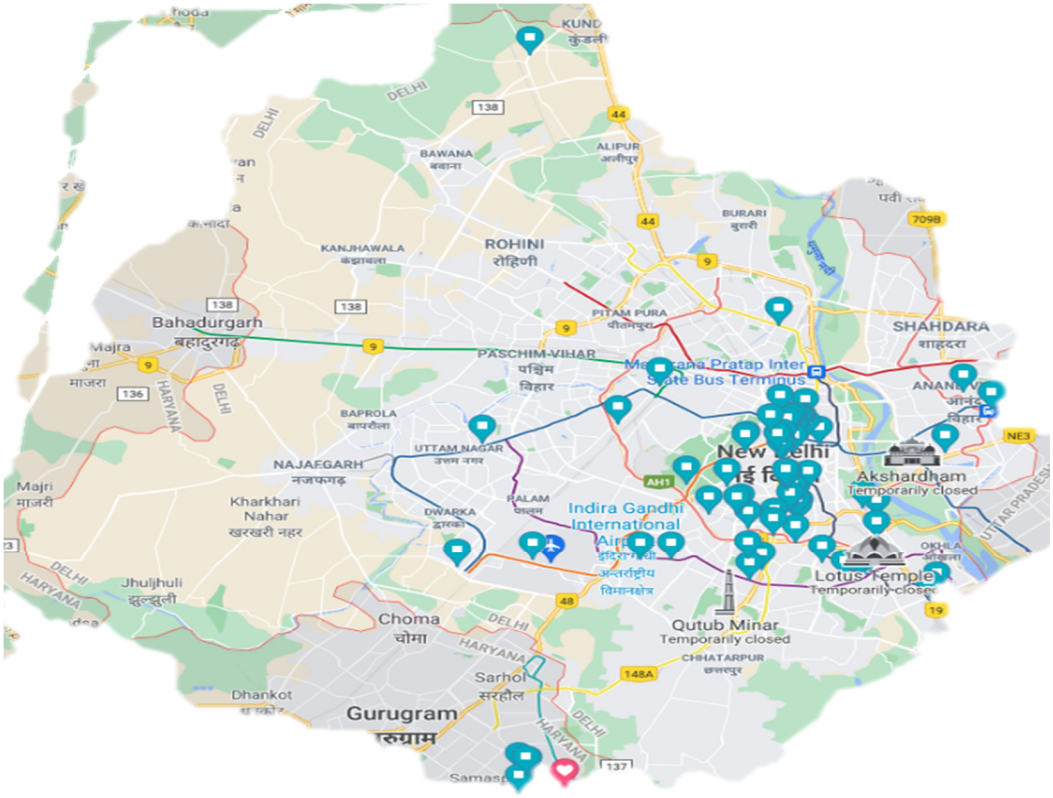
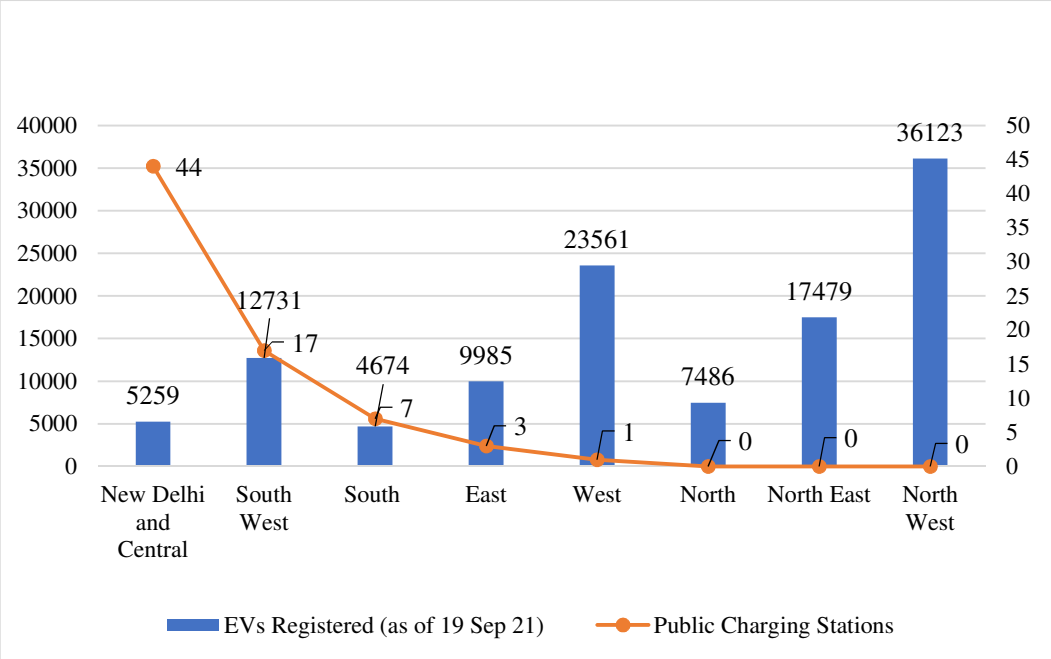


Chart 5.2: Zone-wise Public charging stations and electric vehicles registered in Delhi



Source: VAHAN Dashboard

Audit observed that out of total 72 public charging stations, 61 *per cent* stations i.e. 44 stations were located in New Delhi and Central zone alone, whereas 24 *per cent* were in South West zone, 10 *per cent* in South zone, four *per cent* in East zone and one *per cent* in West zone. Besides, rest of the zones viz. North Zone, North West Zone and North East Zone did not have any Public Charging Station even though these accounted for 52 *per cent* of the EVs registered in Delhi.

Thus, there was limited charging infrastructure available in Delhi and these were not evenly distributed.

DoT while admitting the fact stated (September 2021) that Delhi Transco Limited has proposed 100 more charging stations across Delhi.

DoT needs to ensure providing of sufficient number of fast charging stations for electric vehicles in Delhi at public accessible places.

5.1.3. Constitution of EV Board, EV Cell and EV Fund

EV Policy envisaged constitution of an EV Board for its effective implementation, a dedicated EV Cell for day-to-day implementation and a State EV Fund for funding the incentives offered in the policy.

Audit observed that the EV Board and EV Cell were not constituted. Besides this, an amount of ₹ 50.00 crore was allocated in Budget Estimates for State Electric Vehicle Fund in 2020-21, however, in the Revised Estimates for 2020-21, the allocation was substantially reduced to ₹ 3.74 crore. Audit observed that the reduced allocation was also not utilized during 2020-21. Thus, none of the three i.e., EV Board, EV Cell and EV Fund were established.

DoT replied (October 2021) that it was under process of setting up of EV Board and EV Cell in DoT and Recruitment Rules for EV cell were being finalised. DoT also stated that the EV portal shall be updated at frequent intervals, to ensure that the latest status of approved models, and charging stations is available on portal for public use.

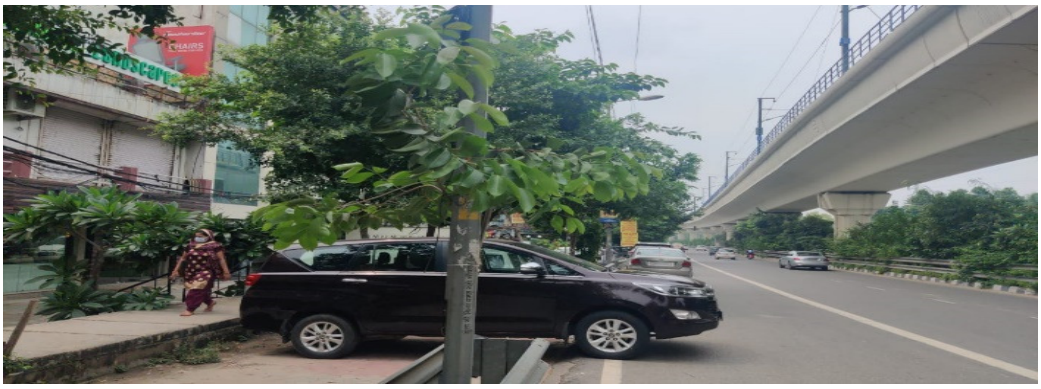
5.2. Non-Motorised Transport

The Master Plan for Delhi - 2021 stipulates provision for non-motorised transport including provision of segregated cycle/NMT tracks and cycle sharing /rental system. Road owning agencies and concerned local bodies are responsible for implementation of these provisions. The Delhi Maintenance and Management of Parking Places Rules, 2019 stipulates preparation of the parking area management plans as per MPD 2021. It *inter-alia* stipulates utilization of on-street spaces for pedestrians/cyclists as top priority for general convenience of users.

Audit observed that non-motorised vehicle (NMV) lane was available only in New Delhi Municipal Council (NDMC) area and on Mehrauli Gurgaon road. However, cycle tracks at Mehrouli Gurgaon road were encroached and full of obstacles as shown in **Picture 5.1**.

Considering the fact that NDMC covers only 42.7 km^2 out of 1483 km^2 area of NCT of Delhi (i.e. less than 3 *per cent*), the provisions for non-motorised transport by the road-owning agencies were grossly inadequate.

Picture 5.1: Showing encroachment on NMT at Mehrouli Gurgaon Road



Near Sultanpur (MG Road)

Near Chattarpur (MG Road)

Near Ghitorni (MG Road)

Further, Audit noted that DoT allocated budget for 'Encouragement of Pedestrian and Non-Motorised Vehicles' every year during 2014-2021. However, it never utilised the same.

Thus, there was lack of concerted efforts by Government to promote and facilitate not-motorised transport in Delhi.

The reply of Government was awaited (December 2021).

5.3. Congestion management

Obstruction in free flow of traffic results in traffic congestion which leads to higher emission of pollutants in air. In this regard Audit observed the following:

5.3.1. Lack of compliance to Graded Response Action Plan (GRAP) to restrict plying of specified vehicles

Pursuant to Supreme Court's order (December 2016) regarding air quality in National Capital Region, the Ministry of Environment, Forests and Climate Change notified (January 2017) a Graded Response Action Plan (GRAP)[54] for implementation by EPCA in NCT of Delhi and NCR towns.

GRAP stipulated various steps to be implemented during events of high pollution levels persisting for extended periods. Regarding the vehicles, GRAP stipulated implementation of Odd-Even Scheme[55] with minimal exemptions and restricting entry of trucks[56] into Delhi, whenever $PM_{2.5}$ or PM_{10} concentration values persisted above 300 mg/m^3 or 500 mg/m^3 respectively for 48 hours or more.

Audit observed that during January 2017 to March 2020, there were 95 occasions where these restrictions were to be put in place. It was, however, observed that DoT issued notifications implementing Odd-Even Scheme and restricting entry of trucks on five and eight occasions respectively during the said period.

Further, two-wheelers were exempted from the ambit and scope of Odd Even scheme on all five occasions. Audit observed that DoT/GNCTD did not obtain any expert opinion to assess the impact of providing exemptions to 75.56 lakh[57] two wheelers (66 *per cent* of total registered vehicles) during odd even scheme before allowing such exemptions.

Thus, on majority of the occasions of high episodic pollution which warranted DoT to take mitigation measures as per GRAP, required action was not taken by GNCTD, defeating the objectives of GRAP.

DoT stated (October 2021) that audit observations have been noted for compliance, however, for implementing of odd even scheme, inadequacy of public transport was a constraint.

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54 To be implemented under different Air Quality Index (AQI) categories namely, Moderate, Poor, Very Poor, Severe and Severe+ or Emergency.

55 A prohibitory measure wherein plying of non-transport four wheeled vehicles (motors cars, etc.) having registration number ending with odd digits (1,3,5,7,9) were prohibited on even dates of the month and plying of the non-transport four wheeled vehicles having registration number ending with even digits (0,2,4,6,8) were prohibited on odd dates of the month.

56 except those carrying essential commodities.

57 registered in Delhi as on 31 March 2019.

5.3.2. Development of ISBTs at entry points.

The CAG Report for the year ended 31 March 2018 had highlighted that Supreme Court's directions (1998) to GNCTD for setting up of two ISBTs at south-west and north entry points of Delhi to prevent entry of diesel propelled inter-state buses beyond periphery of Delhi, were not complied with.

GNCTD did not establish the two new ISBTs at Dwarka and Narela despite lapse of more than 23 years of Supreme Court's directions.

In the absence of ISBTs at entry points, diesel operated inter-state buses were forced to traverse the city to reach the existing ISBTs (Sarai Kale Khan and Kashmiri Gate).

DoT stated (November 2021) that the proposals for development of two new ISBTs were being worked out and it has been decided that Dwarka ISBT would be developed by PWD.

5.3.3. Steps to prevent Delhi becoming a trans-shipment zone for other states

A High-Power Committee (HPC) on Air and Water pollution was set up as per direction of Lieutenant Governor on 13 May 2014 under the chairmanship of Chief Secretary, GNCTD to look in to the pollution level created by vehicles plying in Delhi. Audit noted that HPC had decided (May-July 2014) the following actions to mitigate air pollution in Delhi.

5.3.3.1. Development of Transport Nagars at entry points

HPC directed the DoT to take action for coordinating with National Capital Region Planning Board (NCRBP) for development of Transport Nagars at entry points and framing of a freight management policy to prevent entry of goods vehicles beyond Delhi's periphery.

However, DoT did not take any action stating that development of Transport Nagars pertained to NCRPB, whereas the freight management policy was under the domain of Ministry of Road Transport and Highways (MoRTH), Ministry of Railways and State Transport Department.

The Comprehensive Action Plan (CAP) prepared by EPCA for NCR also required DoT to submit plans to improve rail-based freight traffic to reduce dependence on trucks by February 2018, wherein DoT was required to coordinate with NCRPB and Ministry of Railways.

However, DoT had not taken any initiative to coordinate with other concerned agencies for setting up of Transport Nagars and freight management policy to reduce dependence on trucks.

The reply of Government was awaited (December 2021).

5.3.3.2. Shifting of Inland Container Depots (ICDs) to outside Delhi

An Inland Container Depot (ICD) is a container storage facility situated in the hinterlands, away from any major port. ICDs at Tuglaqabad / Patparganj contribute in major way for traffic which is not destined to Delhi. High-Power Committee recommended that DoT/DoE should take action for shifting of ICDs at Tuglaqabad and Patparganj to outside Delhi to avoid movement of trucks from ICDs to other states.

Audit observed that in this regard, DoT issued letters to ICD Tuglaqabad, DoE and Ministry of Finance, GoI in June/July 2014 after which no further action has been taken for last seven years. Similarly, DoE once sought (January 2015) views/inputs of Delhi Traffic Police on the matter, however, no follow up was done in this regard. Thus, DoE as well as DoT distanced themselves from taking proactive action in the matter.

DoE confirmed (September 2021) the facts and stated that no response was received from Delhi Traffic Police and thereafter shifting of ICD for decongestion of Mehrauli Badarpur road was taken up by PWD, GNCTD.

Thus, lackluster approach of the Departments kept important issues relating to decongestion on backburner and the directions of the High-Power Committee to mitigate the vehicular air pollution in Delhi remained not implemented.

DoE and DoT assured (October 2021) that necessary action will be taken by coordinating with Departments concerned.

5.4. Parking management

As of March 2021, more than 1.30 crore vehicles were registered in Delhi. While such high number of vehicles increase the vehicular traffic on roads, they also reduce the effective carriageway width and traffic flow speed because of unauthorized/excess parking on roadside/ kerb. To mitigate the vehicular emission arising out of congestion caused due to haphazardly parked vehicles, a comprehensive parking policy is imperative.

The NGT had also directed[58] the Government to ensure that stagnation of vehicles and traffic congestion is avoided, particularly by prohibiting parking on main roads or metaled roads.

The Parking policy facilitates optimal utilization of available space. As per Point 2.5.1 of the CAP (April 2017), GNCTD, Local Bodies and Delhi Traffic Police were made responsible for preparation and finalization of parking policy and enforcement measures for implementation in Delhi. The CAP further described that policy would include enforcement strategies, parking pricing policy and parking

[58] On 4 December 2014 and 19 January 2015, in the matter of Vardhaman Kaushik Vs Union of India and Others.

management strategies and three months' timeline was provided for its implementation (i.e., by July 2017).

However, Audit observed that these provisions of CAP were not complied with. Audit observations are detailed in subsequent paragraphs.

5.4.1. Inaction in implementation of Parking Rules

Though the parking rules were to be finalized by July 2017, Government notified the 'Delhi Management and Parking Places Rules (Parking Rules)' in September 2019.

Audit observed that after notification of Parking Rules, no further action was taken to implement these Rules, as detailed below.

5.4.2. Meetings of Apex Monitoring Committee not conducted

The Delhi Maintenance and Management of Parking Places Rules-2019 stipulated that there shall be an Apex Committee headed by the Minister (Transport) GNCTD as chairperson and 15 members of various Departments/Agencies. This Committee was to review proper implementation of the policy and the Committee was to meet once in every three months.

Audit, however, observed that no meeting of Apex Monitoring Committee, was held as on June 2021.

DoT stated (November 2021) that meetings were held with stakeholders at Commissioner (Transport) level for parking management. However, no documents in support of the reply was provided to audit.

5.4.3. Base Parking fees and Parking Plans not finalised

Apex Monitoring Committee was also required to fix base parking fees on basis of recommendations of Base Parking Fee Committee.

Audit observed that though the Base Parking Fee Committee submitted its recommendations in October 2019, however, these were not acted upon by the Apex Monitoring Committee.

Parking plans were also required to be prepared within four months from the date of issuance of the notification. However, no parking plans were on record.

The reply of Government was awaited (December 2021).

5.4.4. Grant/Renewal of transport permit not linked with proof of parking space

Rule 9 of Parking Rules, 2019 stipulated that permits of transport vehicles shall be granted or renewed only upon submission of proof of parking space for a period of at least one year from an authorized contractor of civic agencies w.e.f. three months after issuing a notification in this regard. However, this was not implemented.

The reply of Government was awaited (December 2021).

5.4.5. Utilisation of parking charges

In compliance of notification[59] issued (July 2006) by Urban Development Department, GNCTD, DoT collects one-time parking fees at the time of registration of new vehicles and annual charges from commercial vehicles at the time of issuance of fitness certificates and remits it to Municipal Corporations of Delhi.

DoT, after retaining five *per cent* of the collected amount, remitted the amount to three Municipal Corporations viz. South Delhi Municipal Corporation (SDMC), East Delhi Municipal Corporation (EDMC) and North Delhi Municipal Corporation (North DMC). Such amount was to be utilized exclusively for construction of modern parking system in Delhi by Municipal corporation.

DoT collected ₹ 673.60 crore during 2014-15 to 2020-21, out of which ₹ 639.92 crore were remitted to three Municipal Corporations of Delhi and remaining ₹ 33.68 crore was retained by DoT.

Audit observed that DoT did not have any details of utilisation of funds collected by it from general public for the purpose of creation of parking facilities in Delhi despite regular remittances of the same to three Municipal Corporations. There was no correspondence on record between DoT and three Municipal Corporations with regard to utilisation of funds reflecting lack of coordination among DoT and Municipal Corporations of Delhi, in the absence of which, the actual utilisation of funds for creation of parking facilities in Delhi could not be ascertained.

The EDMC informed (September 2021) that it collected ₹122.55 crore from DoT during 2014-21 for construction of modern parking system and it had allotted only ₹27.58[60] crore for construction of multilevel car parking and commercial complex with modern parking facility in January 2015. It further stated that no other construction work is in pipeline.

Thus, GNCT of Delhi inspite of collecting parking fees at the time of registration of new vehicles and annual charges from commercial vehicles at the time of fitness, neither had details of parking facilities created by Municipal Corporations nor could it provide any document to show follow-up made with Municipal Corporations. Besides, EDMC has spent only 23 *per cent* of total funds received by it on creation of parking facilities. The SDMC and North DMC did not provide similar details on utilization of funds.

Although parking rules were notified by GNCTD, no follow-up action to fix base parking fees, prepare parking plans and linkage of transport permits with proof of parking space was taken by GNCTD. This rendered the notification of Parking Rules ineffective and pose risk of on street parking leading to congestion.

The reply of Government was awaited (December 2021).

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[59] Delhi Street Charges (Vehicle Fund) Regulations 2006 for levy of parking charges at the rates decided by Municipal Corporations.

[60] Besides ₹4 lakh for development of walking street in Krishna Nagar market area.

5.5. Removal of stalled Buses on roads

Congestion on Delhi roads is also caused by broken-down buses on roads which is further aggravated due to time taken for their removal from the roads.

5.5.1. DTC buses

DTC informed that a mechanism for removal of broken-down DTC buses from roads was in place and circulated to all concerned in September 2017. Depot Managers have been made responsible for ensuring that response recovery time for broken down buses is quick and must not exceed 30 minutes in any case.

Audit analysed the data of broken-down buses on roads vis-a-vis response time taken to remove the same from spots in respect of buses at 26[61] out of 35 DTC Depots for the period 2014-2021. It was observed that there was a total of 3.57 lakh instances of break-down of buses on roads, i.e., 139 instances of break-down of buses on daily average basis. In 70 *per cent* (2.51 lakh) of these 3.57 lakh instances, it took more than 30 minutes to remove the buses.

Further analysis of data revealed that out these 2.51 lakh cases, the response time ranged between 31 minutes and two hours in 54 *per cent* cases, more than two hours up to four hours in 29 *per cent* cases and more than four hours in 17 *per cent* cases.

This reflects that the response recovery mechanism was not efficient to ensure quick removal of broken-down buses from roads. Broken-down buses on roads not only leads to denial of transport facilities to public but also causes congestion on roads.

DTC informed (March 2021) that for any delay in response time beyond four hours, fine equivalent to 50 *per cent* of average ticketed earning per bus per day during the month is imposed each time on the maintenance contractor.

The reply indicates that there was no penal provision for not removing broken down buses from roads for less than four hours.

5.5.2. Cluster Buses

Prior to May 2017, the broken-down buses were attended to by the respective concessionaires as per their obligation in terms of cluster wise concession agreements. During April 2015 to March 2017, the response time was beyond 30 minutes in 71 *per cent* (415 out of 581) instances of break-down of buses.

After June 2017, DIMTS developed a system of Unified Emergency Response Mechanism for attending broken-down Cluster buses on roads with Traffic alert by

[61] Data in respect of nine Depots was not in proper form and as such could not be analysed -(i) Wazirpur (NR) (ii) Kanjhawala (ER) (iii) SND(SR) (iv) SNPD(SR), (v) SBPLD(NR), (vi) Rohini1(NR), (vii) Rohini-II(NR), (viii) Narela (NR) and (ix) Nandnagri.

Traffic Control Room of Delhi Police, wherein recovery vans were to be deployed on 10 locations for prompt recovery.

Analysis of data, furnished by DoT, however, revealed that the response time did not improve during April 2017 to 17 December 2020[62] as the response time was beyond 30 minutes in 79 *per cent* (774 out of 981) instances of break-down of buses.

Further analysis of data revealed that of these 1189 cases of broken down buses (415 during 2014-17 and 774 during 2017-21), the response recovery time ranged between 31 minutes to two hours in 97 *per cent* cases, two to four hours in two *per cent* cases and more than four hours in one *per cent* cases.

Hence, the response time to remove the stalled buses from road remained high. This causes congestion and idling of vehicles for longer duration, causing higher emission.

DoT stated (November 2021) that to improve response recovery time, it had recently directed for removal of stalled buses by the nearest bus depot. Further, to facilitate timely removal of stalled buses, a Data Centre has been opened where buses are tracked in real time.

5.6. Restriction on number of registration of Vehicles under the same name

The NGT had directed (December 2017) the GNCTD to put a cap on the number of vehicles of all kinds that could ply in NCT of Delhi. Accordingly, the GNCTD was to formulate a policy of putting higher registration fee and road tax on purchase of second vehicle by the same person, body, company, society or trust.

However, the Government was yet to act upon the NGT's directions as relevant details such as person, body, company, society or trust having second vehicle in the same name, were not maintained.

DoT stated (September 2021) that no action could be taken with regard to restriction on registration of vehicles as capping/limiting registration of vehicles under MVA, 1988 was beyond the power of DoT, GNCTD.

The reply may be seen from the perspective that DoT failed to even refer the issue to Ministry of Environment, Forest and Climate Change (MoEFCC) or Ministry of Road Transport & Highways (MoRTH), GoI or to show any study or assessment done to exhibit compliance to directives of NGT for imposing limit on vehicles on road for mitigating vehicular emission in Delhi.

[62] Information was provided up to this date.

5.7. Public Awareness

5.7.1. Inadequate campaigns

The HPC directed (June-July 2014) DoT to conduct public awareness campaigns for mitigation of air/vehicular pollution. The Ministry of Environment, Forests and Climate Change, GoI had also recommended (February 2015) that DoT and DoE take up public awareness campaigns to inform the public that pollution checks and proper operation and maintenance of vehicles reduces fuel consumption, improves life of vehicles and ambient air quality. DPCC also directed (February 2016) DoT to launch extensive awareness drives against polluting vehicles.

Audit, however, observed that DoT released advertisements/ public notices in print media only 11 days during 2015-16 to 2019-20.

Thus, public awareness campaign regarding adverse effects of vehicular pollution and its mitigation was inadequate.

DoT agreed (November 2021) to the audit contention that consistent public awareness campaigns are the need of the hour to achieve the intended benefits.

5.7.2. Car-free days

Every year on or around 22 September, cities across the globe celebrate World Car-free Day to encourage motorists to give up their cars for a day and to use either public transport or non-motorized transport like cycle. The event highlights numerous benefits of going car-free including reduced air pollution and the promotion of walking and cycling in a safer environment.

On similar lines, GNCTD organised a car-free day on 22 October 2015 on the stretch of roads between the historic Red Fort and India Gate, followed by another car-free day on 22 November 2015 in Dwarka. Thereafter, GNCTD decided (December 2015) to organize a car free day in Delhi on 22nd of every month.

The Centre for Science and Environment (CSE) monitored the complete stretch dedicated to the first car-free campaign and found a drop of 60 *per cent* in PM 2.5 levels compared to that observed on the previous day that was neither a holiday nor a car-free day.

It was, however, observed that car-free days were organised only up to March 2016, and discontinued thereafter. The campaign was discontinued without any impact assessment, despite the fact that preliminary analysis of AQI data indicated positive impact of the campaign.

DoT stated (November 2021) that at present there were no plans to organize car free days.

5.7.3. Countdown timers at traffic signals

The countdown timers installed at Traffic Signals assist drivers in taking an informed decision, as to whether the vehicle ignition can be switched off, which ultimately helps in reducing emission when engine is idling at traffic signals.

As per the information provided by Delhi Police, there were total 1029 traffic signals and 1018 countdown timers installed at these traffic signals across Delhi, as of March 2020. Audit test checked (September-October 2020) 115 (11 *per cent* of total) traffic signals and countdown timers at signals covering various T-points/crossings across Delhi by conducting physical inspection. It was observed that timers were not installed on seven signals and were installed but not working at 39 signals. Thus, 40 *per cent* countdown timers were not functional. Audit also noted that no specific advisory exists for switching off vehicle engines at traffic signals considering idle waiting time.

Improper functioning of traffic signals, countdown timers and absence of advisory on signals lead to lack of information about wait time for drivers, resulting in indecision to switch off/on engines to conserve fuel and prevent avoidable idling of vehicles. The reply of Delhi Traffic Police was awaited (December 2021).

DoT agreed (November 2021) to the audit point and stressed the need for an intelligent traffic system and also informed that it is in the process of collaboration with Google (R&D) for this purpose.

5.8. Conclusion

Adoption of Electric Vehicles would go a long way in reducing the emission from vehicles. Lack of adequate charging facilities may have contributed to low share of EVs among the new registrations. There was a lack of regular and concerted efforts by Government to promote non-motorised transport through segregated lanes alongside roads.

Various steps can be taken to reduce vehicular traffic on Delhi roads, especially those running on diesel fuel and/or not destined for Delhi. GRAP mandated implementation of Odd-Even scheme and restricting entry to trucks during episodes of high pollution levels. However, requisite action was not taken by GNCTD on most of such occasions. Even when Odd-Even scheme was

implemented, exemption to two-wheelers was given, which defeated the objective of scheme.

Two new ISBTs at Dwarka and Narela, aimed at avoiding the necessity of traversing Delhi for inter-state buses, were yet to be established (July 2021) even after more than 23 years of Supreme Court's directions in this regard.

GNCTD's High-Power Committee deliberated upon steps to prevent Delhi becoming a trans-shipment zone for other states. However, these deliberations were not followed up by actual efforts thereafter.

Vehicular emission can further be reduced by ensuring smooth flow of traffic which will reduce the running time and idling time of vehicles. In Delhi, flow of vehicular traffic was found to be impeded by unauthorized parking of vehicles on road, delay in removal of broken-down buses, etc.

NGT had also suggested a cap on plying of vehicles in Delhi, on which no assessment was done by GNCTD. Thus, only some half-hearted efforts such as Odd-Even scheme were made by GNCTD to reduce vehicular load on Delhi roads.

Public awareness campaign regarding adverse effects of vehicular pollution and its mitigation was inadequate. Well-meaning initiatives such as car-free days were discontinued without any justification, despite significant positive impact observed.

Proper functioning of traffic signals, countdown timers and advisory on signals facilitate drivers in taking an informed decision and set a way forward in mitigation of vehicular emission in Delhi. However, timers were not installed or were not functioning at several traffic signals.

5.9. Recommendations

Recommendation #16: Government needs to take continuous and sincere initiatives to encourage adoption of electric vehicles, especially setting up more and quicker public charging stations and regular updating of the EV Portal.

Recommendation #17: ISBTs at Dwarka and Narela may be established on priority so as to avoid the necessity for inter-state buses to traverse Delhi. Shifting of Inland Container Depots to outside Delhi needs to be expedited.

Recommendation #18: Car-free days, Vehicle free Green zones, increase in parking fee, pedestrian & bicycle lanes require more frequent imposition and implementation with accessible and pollution-free public transport. Clean energy plan should be promoted for suitable adoption by the public.

New Delhi
Dated: 18 August 2022

(SAMAR KANT THAKUR)
Principal Accountant General (Audit), Delhi

Countersigned

New Delhi
Dated: 26 August 2022

(GIRISH CHANDRA MURMU)
Comptroller and Auditor General of India