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Results of recent traffic count of vehicles entering Delhi and implications on delay implementation of RFID and collection of ECC

March 23, 2018

Environment Pollution (Prevention and Control) Authority for NCR (EPCA)

This report regarding the extremely serious problems in collection of Environment Compensation Charge (ECC), levied through the orders of the Hon'ble Supreme Court to reduce commercial vehicle entry into Delhi to reduce air pollution. On 22.8.2016, the Hon'ble Supreme Court had directed that the South Delhi Municipal Corporation (SDMC) would install a Radio Frequency Identification (RFID) system at entry point to Delhi to make the system effective and credible and to reduce the chances of corruption and leakages. RFID would make the collection of ECC cashless. This has not happened as yet.

Since November 2015, ECC is collected through the concessionaire appointed by SDMC on cash basis. The same concessionaire collects and makes payment to SDMC of the toll tax collected on commercial vehicles entering into Delhi. The concessionaire has a fixed payment contract for toll – the amount he pays SDMC is fixed for the period of contract, irrespective of the number of actual vehicles entering or actual collection of funds. However, in the case of ECC, which is a form of congestion charge, the disbursement is made based on actual collection of cash. The objective is that this charge is to dissuade commercial vehicles from entering Delhi and so, it cannot be collected as a fixed fee.

EPCA is bringing this special report to the Hon'ble Supreme Court as it has found evidence that this collection is greatly flawed and that the directions of the Hon'ble Supreme Court are in effect being flouted and all efforts to mitigate pollution derailed.

1. Background

October 9, 2015 the Hon'ble Supreme Court had directed that ECC be imposed on all commercial light duty vehicles and trucks entering into Delhi. Furthermore, it had reiterated its previous order of 6.12.2001 that any vehicle that is not Delhi-bound should be disallowed entry into the city. It also directed that any vehicle that is registered before 2006 should be

disallowed entry into Delhi. During the course of subsequent hearings, the Hon'ble Court had fixed differential rates for vehicles that were empty/laden with goods and also permitted exemptions for vehicles carrying "essential[1]" goods.

On August 10, 2016, EPCA filed a report on installation of RFID for effective and credible ECC collection (Annexure 1). This report pointed out that the current system is based on collection in cash and it involved human discretion to check all vehicles, which is open to misuse. This was also because the volumes of cash collection were large –collection of ECC was roughly Rs 9 crore/week. Furthermore, it was difficult to estimate the quantum of leakage in the system, as there was no physical count of the number of vehicles that are entering Delhi. The CCTV cameras installed by Delhi government at key entry points were not designed to count the exact number of vehicles that enter Delhi.

Based on this, EPCA had recommended that it was imperative that RFID system should be installed and made operational at the earliest.

This would ensure that the system of collection of ECC would move away from cash to cashless. Each vehicle seeking to enter Delhi would have to pay online or make deposits at issuing points; vehicles would be pre-registered and this would allow for pre-2006 registered vehicles to be debarred entry. It would also ensure that vehicles entry is tracked for destination. The exempt vehicles would be pre-registered or seek reimbursement from government after they have entered the city.

On August 22, 2016, the Hon'ble Supreme Court directed SDMC to set up the RFID based collection system. "*We expect the South Delhi Municipal Corporation to start the process of execution of the proposed project in the right earnest and submit a status report about the progress made within six weeks from today*."

[1] As per Delhi Gazette Notifications, F.No.10(13)/Env/2015/1049-1072 and F.No.10(13)/Env/2015/6407-6429 the essential items that are exempted from paying ECC are **raw vegetables, fruits, grains, milk, eggs, ice that is to be used as food items, tankers carrying petroleum products, salts, CNG vehicles and poultry items.**

The Hon'ble Court directed that "*the estimated cost on the installation of RFID, may, in principle, be incurred from out the ECC collection*". The total project cost was estimated at Rs 120 crore to be incurred over five years.

2. Status of implementation of RFID

The RFID Project was initially conceived under the Build-Operate-Transfer (BOT) mode, which required the successful bidder to undertake the design and construction of the RFID Project in its entirety and operate it for a period of 5 years. Under this mode of implementation, the responsibility of procuring funding for the RFID Project (equity and debt) during the construction phase rested with the RFID Concessionaire and, for the discharge of its obligations, the RFID Concessionaire was entitled to a monthly fee from SDMC during the operation's phase.

The RFID Project tender (in BOT mode) was floated by SDMC on December 15th2016. Given that the project was the first of its kind in the country, there were a substantial number of pre-bid queries, which were addressed by SDMC through a pre-bid conference as well as written replies over a period of 2 months. The bid date was February 13th 2017and only 2 bids were received. In March 2017, SDMC informed the EPCA that the RFID Project bid had been annulled due to low level of participation. Further, SDMC was of the view that the tender terms be re-worked so as to attract wider participation from bidders.

SDMC decided that the RFID Project to be bid out under the Engineering-Procurement-Construction (EPC) mode, which required the successful bidder to undertake the design and construction of the RFID Project in its entirety and operate it for a period of 5 years. Under this mode of implementation, the RFID Contractor would get paid for the construction of the RFID Project on a milestone basis, during the construction phase itself. Further, for discharging its obligations during the operations period, the RFID Contractor would be entitled to a monthly fee from SDMC for the entire duration of the operation's period.

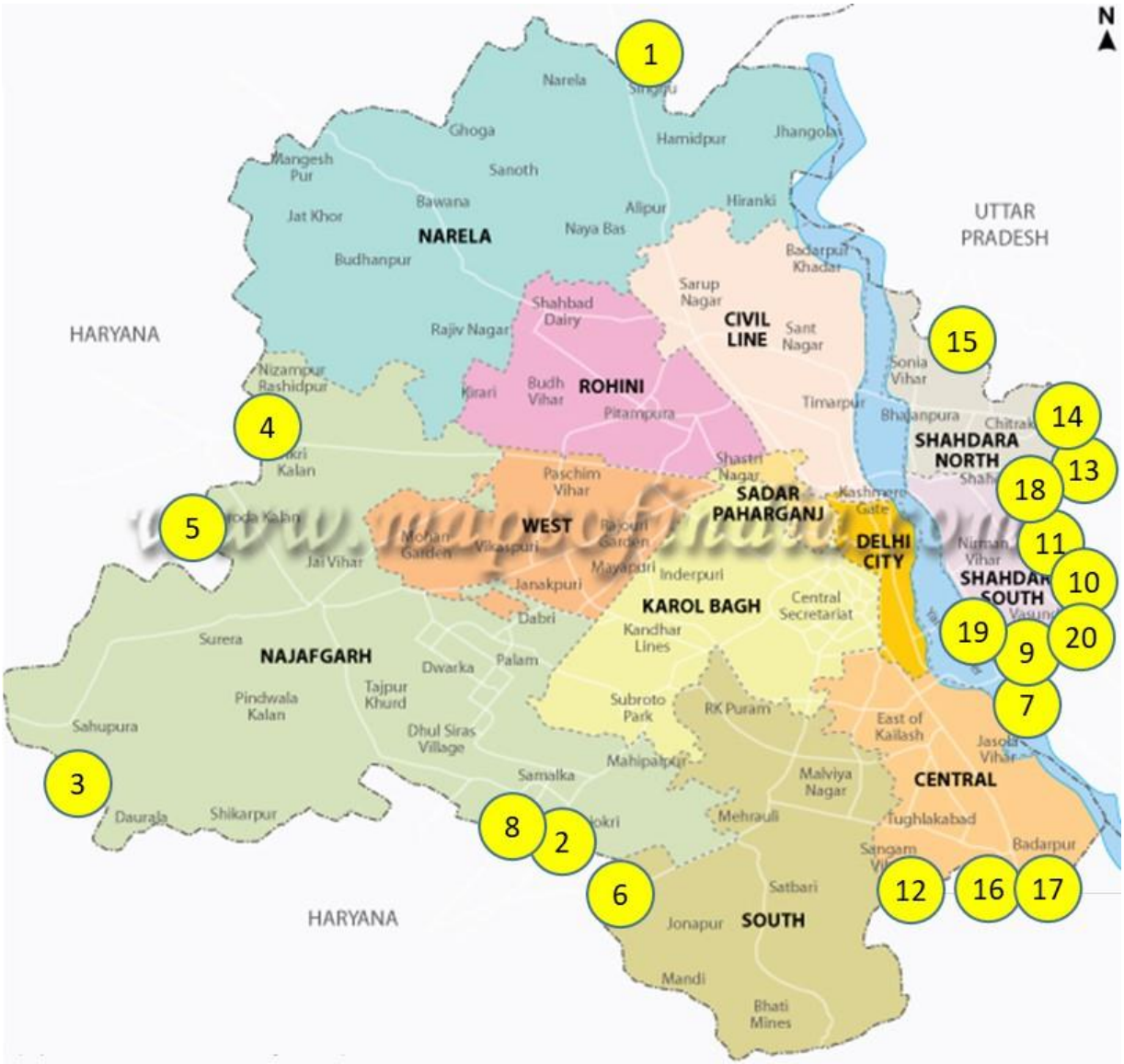
The RFID Project tender (in EPC mode) was floated by SDMC on November 8th2017. The bid due date was postponed twice by SDMC and on January 31st bids were received. EPCA understands the process is underway and the contract will be awarded soon.

3. Need for traffic study and methodology

In 2017, EPCA directed SDMC to commission a traffic study to ascertain the numbers of commercial vehicles that are entering Delhi. This study was necessary as there was no reliable estimate of the actual numbers of vehicles and therefore, it was not possible to estimate the integrity of ECC collection.

In July 2017, SDMC floated a tender for the traffic survey, which involved a 15-day long traffic count on real time basis through video-based systems at 20 major entry points of Delhi, as well as 1-day origin and destination study – to ascertain if the vehicles that were not destined for Delhi were entering the city. These points are spread across the borders of Delhi, and account for about 85 per cent of the total heavy, commercial vehicles entering into and out of the city.

The locations were as below:



S. No.	Name of Entry Point	S. No.	Name of Entry Point
1	Kundli	11	Badarpur Faridabad
2	Rajokari	12	Prahladpur
3	Dhansa Border	13	Shahdara (Main)
4	Tikri	14	Shahdara (Flyover)
5	Jharoda	15	Mandoli Main
6	Aya Nagar	16	Gazipur (Main)
7	Kalindi Kunj	17	Gazipur (Flyover)
8	Kapashera	18	Mohan Nagar
9	DND Toll Bridge	19	Noida Major
10	Badarpur Faridabad (Main)	20	New Kondli

Table 1: 20 Locations for Traffic Survey

SDMC awarded the contract for the study to M/s VAAAN Infra Pvt Ltd. The traffic survey was done in 2 phases (Pre-Diwali: 3rd to October 17th and Post-Diwali: October25thto November8th). The final report, with data sheets and video recordings was submitted to SDMC in January.

EPCA requested the Centre for Science and Environment (CSE) to commission a third-party to conduct an independent verification and reconciliation of the raw data and video footage submitted by M/s VAAAN Infra Pvt Ltd. The data from this study would establish the enforcement in collection of ECC. Therefore, a third-party audit of the data submitted by M/S VAAAN was necessary.

4. Analysis of data and its findings

The data collected through the traffic count was analysed for the following questions:

1. What is the total count of commercial vehicles that are entering Delhi on a daily basis?
2. How many vehicles that enter Delhi, pay ECC and how many claim exemption?
3. How many vehicles, that enter Delhi, are not destined for Delhi are thus in breach of the directions of the Hon'ble Supreme Court?

4. What is the difference in the VAAAN data and that independently checked by EPCA?
5. What is the quantum of ECC that should have been collected based on the VAAAN traffic count and the third-party verified traffic count and what is actually being collected?

4.1 Count of vehicles entering Delhi

It is important to know the numbers of vehicles entering Delhi, as this would allow for estimation of the pollution potential as well. It is known that trucks and other commercial vehicles contribute the highest pollution load in the city. It is for this reason, all efforts have been made to reduce the numbers that enter the city including;

a. Hon'ble Supreme Court directions of 6.12.2001 banning entry of non-destined commercial traffic from entry into Delhi. This direction was reiterated in the order of 16.12.2015.
b. Hon'ble Supreme Court directions of 11.2.2005, 11.3.2005 and 1.8.2005 to build the Western and Eastern Peripheral Expressway so that there are alternative routes to avoid entry into the city.
c. Hon'ble Supreme Court directions of 16.12.2015 that vehicles, which registered in the year 2005 or earlier shall not qualify for entry, even if they are Delhi bound and pay ECC also.

The traffic study data for 7 days was averaged to calculate the daily entry into the city.

Based on this the number of commercial vehicles – light duty and heavy-duty trucks that enter Delhi from these 20 points are 30,292 – roughly 9 lakh vehicles per month. If it is assumed that these 20 entry points constitute 85 per cent of the traffic, then the total number of daily commercial vehicle entry into Delhi is 35,638.

Table 2: Vehicles Entering Delhi classified by Laden/Empty/Exempt

S. No.	Location	Daily Vehicles			
		Full ECC Paying - Laden (1)	Half ECC Paying - Empty (2)	Exempt (3)	Total
1	Ayanagar	221	62	132	415
2	Badarpur (Main)	425	582	408	1,415

3	Badarpur (Sarai)	610	352	512	1,474
4	Dhansa	185	265	136	586
5	Jharoda	148	203	200	551
6	Kapashera	62	427	152	641
7	Kundli	1,859	425	2,006	4,290
8	Mandoli	188	387	280	855
9	Prahladpur	677	266	669	1,612
10	Tikri	747	587	901	2,235
11	DND	178	582	737	1,497
12	Ghazipur (Main)	-5	1,172	1,640	2,807
13	Ghazipur (Old)	136	591	819	1,546
14	Kalindi Kunj	-75	1,901	825	2,651
15	Mohan Nagar	24	4	1	29
16	New Kondli	72	88	55	215
17	Noida Major	170	270	421	861
18	Rajokari	1481	1,216	1,820	4,517
19	Shahdara (Flyover)	-37	841	599	1,403
20	Shahdara (Main)	34	316	342	692
	TOTAL (Nos)	**7,100**	**10,537**	**12,655**	**30,292**
	TOTAL (%)	**23.43%**	**34.78%**	**41.77%**	**100%**
	TOTAL (Nos) – *Extrapolated for all 124 locations (@ 85%)*				**35,638**

Table 3: Vehicles Entering Delhi classified by Vehicle Type

Particulars	**2 Axle Trucks**	**2 Axle LCVs**	**3 Axle Trucks**	**Multi Axle Vehicles**	**Total**
Total (%)	20%	53%	19%	8%	100%
Total (No)	6,058	16,055	5,756	2,423	30,292

4.2 Number of vehicles paying ECC

The ECC is charged on all vehicles entering Delhi, except those that have been granted exemption. The Hon'ble Supreme Court has also directed that vehicles that are empty will pay half the ECC that is due in their category. As per the directions of the Hon'ble Supreme Court, vehicles that are not Delhi-bound, should not be given entry into the city. However, currently, it is found that the vehicles are allowed entry, but charged ECC as per the applicable rate.

The applicable ECC Rates across various vehicles categories is as follows:

Table 4: Applicable ECC Rates

Particulars	**Applicable ECC Rates (INR)**			
	2 Axle Trucks	**2 Axle LCVs**	**3 Axle Trucks**	**Multi Axle Vehicles**
Entry into Delhi – Empty	700	700	1300	1300
Entry into Delhi – Laden	1400	1400	2600	2600

The analysis of the vehicles entering Delhi and payment of ECC is as follows:

a. **Vehicles paying full ECC are a mere 23 per cent;**
b. **Vehicles that pay half ECC – in other words, are empty while entering Delhi are 35 per cent**
c. **Vehicles that are carrying exempt goods are another 42 per cent.**

Table 4: Applicable ECC Rates All Vehicle counts are daily counts

Particulars	**2 Axle Trucks**	**2 Axle LCVs**	**3 Axle Trucks**	**Multi Axle Vehicles**	**Total**
Full ECC Paying	846	2,988	2,289	977	7,100
% Full ECC Paying	*14%*	*19%*	*39%*	*41%*	*23%*
Half ECC Paying *(Empty)*	2,303	5,921	1,626	687	10,537

Particulars	2 Axle Trucks	2 Axle LCVs	3 Axle Trucks	Multi Axle Vehicles	Total
% Half ECC Paying	*38%*	*37%*	*28%*	*29%*	*35%*
Exempt Vehicles	2,835	7,117	1,961	742	12,655
% Exempt Vehicles	*47%*	*44%*	*33%*	*31%*	*42%*
Total Vehicles (Daily)	**5,984**	**16,026**	**5,876**	**2,406**	**30,292**
% Category	*20%*	*53%*	*19%*	*8%*	**--**

It is not clear why such large numbers of vehicles – 10,000 of the roughly 30,000 that are counted entering Delhi daily -- would be empty. Delhi is not a manufacturing hub or a major transit point for goods. It is clear that this aspect shows up the weakness in the system, which is open to human malfeasance and makes it imperative, that it must be re-hauled.

It also shows that the ECC – the full and deterrent amount – is being charged on a miniscule number of vehicles. Therefore, it is difficult to say, if the purpose of ECC, which is to reduce the number of vehicles that will enter Delhi because of high costs, is being served at all.

EPCA in its August 2016 report had warned that without technological up-gradation to make the system cashless and without removing the provisions that allow for manual checks at the borders, the system will be severely and fatally compromised. This is evident from this data.

4.3 Vehicles that are not Delhi-bound

The 15-day traffic study, included 24 hour OD – origin-destination—survey, which meant that 'all' vehicles were stopped and questionnaire was filled about their destination and the purpose of visit. The analysis of the information collected by VAAAN reveals the following:

a. The SDMC contractor is charging ECC on non-Delhi destined vehicles and also giving exemption to vehicles that have goods that are exempt or charging half rates on empty vehicles.

b. Out of the total 30,292 commercial vehicles entering Delhi, daily, 5630 are those that are not-Delhi bound. **This means**

that 19 per cent vehicles **were entering Delhi in violation of the directions of the Hon'ble Supreme Court.**

4.4. Difference between VAAAN data and third-party audited data

At EPCA request, CSE commissioned a third-party audit of the data submitted by VAAAN. It supplied the camera recordings of the vehicles entering Delhi, as recorded by VAAAN and as given to it by SDMC to the third party[2]. The third-party audit required re-count of the vehicles from recordings for one day when the OD survey was carried out in these locations.

EPCA identified locations for re-count as follows:

1. Tikri
2. Kundli
3. Prahladpur
4. Badarpur-Faridabad (Main)
5. Badarpur-Faridabad
6. Rajokari
7. DND
8. Kalindi Kunj

The third-party audit found significant discrepancies in the analysis provided by VAAAN. In most cases, there was under-reporting and also there was mis-classification of the vehicles, which has an impact on the calculation of ECC.

Table 5:Analysis of Vehicle Recount

	Location	VAAAN	Re-count	Difference	%
1	Tikri (14.10.2017)	2,243	3,456	1,213	54
2	Badarpur-Faridabad(16.10.2017)	1,435	1,985	550	38
3	Badarpur-Faridabad (main) (16.10.2017)	1,195	2,277	1,082	91
4	Prahladpur (14.10.2017)	1,599	2,015	416	26
5	Kundli	5,145	6,728	1,583	31

[2] Name of third-party, which is a professional company engaged in such work is kept confidential, but is available with CSE as is all the data and reports. Contract to do the study is with CSE.

	(12.10.2017)				
6	Rajorkri (7.11.2017)	4,377	6,584	2,207	51
7	DND (31.10.2017)	1,616	2,537	921	61
8	Kalindi Kunj (5.11.2017)	2,511	3,326	815	33
	Total for 8 locations	**20,121**	**28,908**	**8,787**	**44**
	Extrapolated for all 20 locations (as detailed in Table 6)			**14,519**	
	Total vehicles entering daily: If extrapolation added to total vehicle count for 20 vehicles			**44,811**	
	Total vehicles entering daily at 124 points			**52,719**	

Table 6: Vehicle Classification-wise mis-reporting

Particulars	**2 Axle Trucks**	**2 Axle LCVs**	**3 Axle Trucks**	**Multi Axle Vehicles**	**Total**
VAAAN Counts	5,984	16,026	5,876	2,406	30,292
CSE Re-Counts	5,327	30,772	5,993	2,719	44,811
Under-reporting	-657	14746	117	313	14,519
%	***-11%***	***92%***	***2%***	***13%***	***48%***

As can be seen from the above data, there is reason to argue that the total count of vehicles is much larger than what is being estimated by the VAAAN study.

This has an impact on pollution load.

The EPCA report submitted to the Hon'ble Supreme Court in October 2015, which provided the basis for the directions of the Hon'ble Court had estimated that a total of 52,146 vehicles were entering Delhi daily.

Even then there was a difference in the numbers, which were estimated by SDMC, which stood at 30,373 vehicles daily.

In that sense, there is no perceptible difference in either the official (SDMC) or EPCA's calculation, then and now.

Even today, according to VAAAN, a total number of 30,292 vehicles enter Delhi daily from 20 entry points. This if extrapolated to 124 points comes to 36,000 vehicles. Therefore, there is no real change in the number of commercial vehicles entering Delhi from 2015 to 2017.

In other words, it could be argued that the ECC has not provided the right deterrence and that the cost is not prohibitive enough, or that there are enough loopholes or that there is no option for vehicles but to go via Delhi.

4.5 Difference in ECC collection: actual and what is estimated by VAAAN and by third party audit of VAAAN data

The ECC collection done in cash at all entry points is a factor of the number of vehicles including how many are empty (half rate) and how many are transporting goods that are in the exempt category.

According to data supplied by SDMC, the total ECC collected and deposited ranges between Rs 8.40 crore weekly to Rs 13.82 crore.

There is a difference between the average rate of ECC collection, under the M/s DEP, who was the previous SDMC toll contractor and the current toll contractor, M/s MEP.

Average ECC by M/s DEP (Feb-Dec 2016): Rs 8.84 crores/week
Average ECC by M/s DEP (Jan to Oct 2017): Rs 11.31 crore/week
Average ECC deposited by M/s DEP: Rs 9.95 crore/week

Average ECC deposited by M/s MEP (October-January): Rs 8.34 crore/week

Based on the count of vehicles – camera recording of 15 days; count of 7 days, VAAAN has estimated the potential ECC collection from the 20 locations.

Table 7: VAAAN estimates of Potential ECC Collection

	Particulars	Vehicle Type (Nos)				Potential ECC Collection (Rs/Cr)	
		2-Axle Truck	2-Axle (LCV)	3-Axle Truck	MAV	Daily	Weekly
1	ECC (full)	846	2,988	2,289	977	1.38	9.7
2	ECC (half)	2,303	5,921	1,626	687	0.88	6.14
3	Exempt	2,835	7,117	1,961	742	0.00	0.00
	Total	**5,984**	**16,026**	**5,876**	**2,406**	**2.26**	**15.84**

This data is from 20 locations estimated to account for 85% of vehicles (assuming the same proportion of full/half and exempt vehicles), then the collection would be Rs 18.66 crore/week, as against Rs 8.34 crore/week. The difference would be Rs10.32crore/week, which works out to be Rs536.64 crore/year.

But even if this extrapolation to 124 points is not considered, the difference is massive.

The average collection by SDMC toll collection is Rs 8.34crore/week as against the Rs 15.84crore potential collection estimated by VAAAN

As per the third-party audit, there are an additional 8,787 vehicles that are entering Delhi. The audit gives information about the classification of the vehicles. If the proportion of full ECC/half ECC and exempt is extrapolated on this number, then the potential ECC collection goes up Rs 21.41 crore, as against the Rs 8.34 crore.

Accordingly, there is a difference of Rs 13.07 crore/week, which works out to be Rs 679.64 crore.

Table 8: Estimates of potential ECC Collection based on audits

S. No.	Particulars	ECC (INR Crores)	
		Weekly	Annual
1	Current average ECC collection	8.34	433.68
2	Potential ECC based on VAAAN data for 20 points	15.84	823.68
3	Potential ECC based on third party audit for 8 points and extrapolated to 20 points	21.41	1,113.32
4	Potential ECC based on third party audit and extrapolated for all 124 points (assuming that 20 points contribute 85% of incoming traffic)	25.18	1,309.36

5. Summary of report findings

It is clear that the system is not functional. In fact, the current system, which is based on cash collection and allows for human discretion to be used in determining exemptions and concessions, is extremely flawed, if not outright corrupt.

The obvious problems are as follows

a. Only some 23 per cent of the vehicles that are entering Delhi are charged full ECC.

b. Some 35 per cent of the vehicles are said to be 'empty' and so pay only half ECC. It is impossible to check this anomaly in the current system. But it is clearly not possible as Delhi is not a manufacturing destination.

c. Huge numbers of vehicles claim exemption as they are bringing in 'essential goods'. This also cannot be checked in the current system and provides a loophole and opportunity for corruption.

d. The Hon'ble Supreme Court directions on the ban of entry of vehicles that are not destined for Delhi and those that are registered in 2005 or before cannot be regulated in this system. It is clear that vehicles are entering openly flouting this direction. Also, it is not possible to

check if the toll concessionaire is checking the Government's Vahan database (and if the Vahan database has all information) on the age of the entering vehicles.

e. In 2015 SDMC had claimed that there were 30,373 commercial-heavy vehicles entering Delhi. In 2017, the SDMC contractor, VAAAN, commissioned to do the traffic study, reports that 30,292 vehicles enter from 20 points (which if extrapolated to 124 entry points comes to 35,638 vehicles entering Delhi daily. According to this, there is no perceptible difference to the numbers of commercial vehicles because of the imposition of ECC and this suggests the weakness in the system that deterrence is not effective.

f. There is also a huge shortfall in the amount of ECC that is being collected but not being deposited. ***Even taking the figures of VAAAN, which is an SDMC -contracted company, the weekly potential ECC should be Rs 15.84 crore per week and Rs 823.68 crore per year, at the minimum .***As against this, only Rs 8.34 crore is being deposited weekly and roughly Rs 433.68 crore annually. EPCA has every reason to accept that this gap in collection and deposits is much higher.

g. There is also clear reason to believe that the company contracted by SDMC, M/s VAAAN has not done its work diligently. It would be important to mention here that VAAAN has bid for the RFID contract. EPCA has put on record its views that this bidder should be disqualified because of the work done for traffic survey for the same project constitutes a conflict of interest. The matter is before the Hon'ble Supreme Court (Court No 11)

h. It must be mentioned here that the SDMC has made a gain, since the introduction of ECC in the toll contracts it has awarded.

   In 2015, when ECC was introduced, SDMC toll contract with SMYR was roughly for the sum of Rs 551 crore per annum.

   In 2016, when SDMC terminated this contract and then re-awarded the toll contract (including cost of collecting ECC) to M/s DEP the amount was Rs 638 crore per annum. The increase was understood to be because of the hike in rates of toll done by SDMC.

In 2017, when SDMC has re-tendered and re-awarded the contract, this time to M/s MEP, the amount is Rs 1206 crore per annum.

This time, there is no stated reason for this huge increase in the contract amount.

6. EPCA's recommendation for consideration of the Hon'ble Court

Given the above serious condition and aware of all the implications and ramifications of this enquiry and possible outcomes, EPCA is recommending the following course of action for the consideration of the Hon'ble Supreme Court.

Option 1: The collection of ECC should be temporarily withdrawn, till the RFID system is set up and made functional. This will remove all the 'incentives' that are provided by a cash-based system and will ensure the setting up of RFID. It will also stop the leakage in the system, which cannot be justified or condoned.

Or

Option 2: The ECC should be continued to be collected in cash, but the toll concessionaire, M/s MEP must deposit, at least the difference that is identified by the SDMC's own contractor, M/s VAAAN at the minimal. This would mean that it would pay an additional Rs 7.5 crore/week from the date of its contract (October 2017) and ongoing towards ECC.

In both options, there should be clear timelines for setting up RFID and the SDMC must be held accountable to the Hon'ble Supreme Court for any slippage in this deadline. No further delays must be accepted.

Under the current circumstances EPCA is apprehensive that the RFID contract will not fructify. Already, there has been considerable delay in tendering and the process is still stuck. It is also clear that without the technology improvement, there is no way to regulate the system and in this way, it will continue to have minimal pollution abatement benefits.

Installation of Radio Frequency Identification (RFID) for effective and credible ECC collection

Environment Pollution (Prevention & Control) Authority for Delhi and NCR

August 10, 2016

1. Background: Directions on installation of RFID for effective compliance

The Hon'ble Supreme Court in its order dated October 9, 2015 directed that Environment Compensation Charge (ECC) be imposed on all commercial light duty vehicles and trucks entering Delhi. For effective monitoring of this collection system, it directed "toll collectors will put in place Radio Frequency Identification (RFID) system at their own cost at nine main entry points in the city by November 30, 2015 and by January 31 2016 at all the remaining 118 entry points to the city, failing which the contractors will be treated as being in breach of their obligation. The RFID data will be supplied to the MCD and Transport Department of the Government of NCT Delhi."

The Hon'ble Supreme Court in its order dated January 6, 2016 stressed on the urgency of this matter. Discussing the issue, it noted, "Mr Salve submits on instructions that the Authorities are also toying with the idea of putting in place Radio Frequency Identification Device (RFID) for a more effective and credible toll collection. SG appearing for Union of India submits that there are some other equally effective options available. This is being examined for appropriate decision to make recovery of toll and ECC leakage free. We leave it open to the authority concerned to examine the feasibility of any better arrangement in place of the existing system, if the present system is not satisfactory or effective in any manner. We only hope that an appropriate decision on the subject will not be delayed any further and would expect the authorities to file a status report by the next date of hearing."

In its order of January 7, 2016, the Hon'ble Supreme Court listening to the matter of SMYR Consortium LLP versus Government of NCT, further discussed the issue of RFID. It noted the observations of the Amicus, senior counsel, Mr Harish N Salve that the changed situation in which the contractor is placed, on account of the orders passed by the Court, may have made the toll collection contract unworkable... "Even so, the Corporation (SDMC) may, argued Mr Salve, be justified in annulling the arrangement as the earlier contract, inter alia, provides for installation and operation of the RFID by the toll collecting contractor, which may not be the right thing to do keeping in view the fact that RFID system will remain available to the toll collecting contractor for any possible manipulation.

The ideal thing which according to Mr Salve could be done was to direct installation and operation of RFID system by an agency other than the contractor appointed to collect the toll."

The Hon'ble Supreme Court observed that the "exit proposal given by Mr Divan, could therefore, be the reasonable solution not only for the contractor to part company ***but also for the Corporation (SDMC) to take a call on appointing independent agencies for collection of toll and installation of the RFID system***."

In deciding the final terms of the termination of the contract with SMYR, the Hon'ble Supreme Court further observed that "the proposed installation of RFID to improve the existing system of collection, will according to Mr Harish Salve and Ms Pinky Anand take around nine months. An end of the current arrangements will help in taking steps for improving the system by using modern technology."

It was therefore, agreed that SDMC should ensure that RFID is implemented through an independent contractor, who does not have the contract for toll collection and that this should be done expeditiously – within 9 months.

2. Status of implementation of RFID

EPCA has been working to oversee the implementation of the above directions of the Hon'ble Supreme Court. Since January 7, 2016, the following action has been taken and the status of compliance is as follows:

1. SDMC has terminated the toll collection arrangements with SMYR and in compliance with the directions of the Hon'ble Supreme Court all compensations towards this have been paid.
2. SDMC has appointed DEP Tolls LLP for a period of 40 weeks, beginning February 1, 2016 till November 5, 2016. The fixed payment contract of Rs 488 crore is for collection of toll, which is paid to SDMC. This contract also includes cost of collection of ECC, which is collected and deposited each week with the Transport Department of the Government of NCT Delhi.
3. EPCA/SDMC have consulted key experts to arrive at the scope of the RFID system. It was agreed that the system must be rigorous and able to manage traffic at volumes. The system would also be compatible with the proposed nationwide NHAI system. It was also agreed that to start with the RFID system would be installed at 13 key locations, which account for roughly 80 per cent of the commercial traffic. In the remaining locations, barriers would be installed so that heavy commercial traffic, which pays ECC cannot pass through.

4. Based on this, a detailed scope has been prepared with technical specifications and conditions for pre-qualification of bidders to ensure that the system is executed for full compliance. This RFP document, entitled *request for proposal for design, construction, development, finance, operations and maintenance of an integrated RFID based toll management system at 13 entry points (covering 65 toll lanes) on DBFOT basis*, is ready for tendering.
5. RITES has been given the task to vet the RFP document by SDMC.
6. SDMC has written to the Commissioner Transport Department vide letter no 1011 Tax/ltQ/2016/388 dated 11.7.2016 requesting for key decisions on payment for RFID system.
7. In the meeting convened on 21.7.2016 under the chairmanship of Principle Secretary, Urban Development/DLB, minutes of which were forwarded to EPCA the following decisions were taken for further action:
    - **Appointment of SDMC as the executing agency:** It was informed by the representative of Transport Department, GNCT of Delhi, that the Transport department has no difficulty/objection to this request. It was decided that transport department may place a proposal for taking orders from the Minister (Urban Development/Transport) in this regard.
    - **Payment of the pre-tendering incidental cost for preparing RFID document of Rs. 93-95 lakh:** It was collectively felt after discussion that it would be better to pay the whole cost from the ECC amount, as RFID has been necessitated due to a court order to GNCT of Delhi. ECC collection is also bound to increase due to efficient enforcement and technology intervention.
    - **Payment for RFID:** The estimated expenditure as per the draft RFP document for RFID system implementation (design, construction, developments, finance, operations and maintenance of the system at 13 entry points of NCT Delhi on DBFOT (Design, Built, Finance, Operate and Transfer) basis amounts to Rs. 120 crore for over the period of next five years. Hence, SDMC has sought an in principle approval for the same. It was decided that the transport department shall prepare a cabinet note/proposal for the above expenditure through ECC.
    - **Liability in case the ECC amount is withdrawn:** It was decided that the permission from the Hon'ble Supreme Court for funding by ECC till liability of the contract is over, may be obtained beforehand. It was also suggested that an ESCROW fund of Rs. 30 crore out of the ECC may be created by the Transport department to facilitate quick payments.

- **Integration of ECC and Toll Tax through RFID:** There was consensus that such an integration shall increase the efficiency of collection, reduce the harassment/hardships for the public/transporters and has a good potential for increase in revenue and hence shall be desirable.

3. EPCA's observation and reasons for urgent directions from the Hon'ble Supreme Court

The RFID system is essential to enforce the directions of the Hon'ble Supreme Court. The current system is based on collection in cash and it involves human discretion to check all vehicles, which is open for misuse.

The volumes of cash collected are large – currently collection of ECC is roughly Rs 9 crore/week. It is also difficult to estimate the quantum of leakage in the system as there is no physical verification of the number of vehicles that are entering Delhi. The CCTV cameras installed by Delhi government at key entry points are not designed to count the exact numbers of vehicles that are entering Delhi. EPCA has found that enforcement of the system, which is critical as laxity in allowing vehicles to enter Delhi will mean that the objectives of the Hon'ble Court Order are negated, is difficult without the use of modern technology.

It is therefore, imperative that RFID system should be installed and made operational at the earliest. With the implementation of RFID the following will happen:

1. The system of collection of toll and ECC will move from ***cash to cashless***. Each vehicle seeking to enter Delhi will have to pay toll and ECC on an online portal (for which discussions are underway with SBI). In addition, they will also be able to pay at RFID issuing points, which will be located at strategic points.
2. The system will necessitate pre-registration of vehicles, which will allow for checking of the age of the vehicle that seeks entry. This will ensure compliance of the orders of the Hon'ble Supreme Court that only commercial vehicles registered after 2005 will be allowed entry into Delhi.
3. The system will ensure compliance with directions of Hon'ble court that only vehicles destined for Delhi would be allowed entry as it would capture information on destination and also track if the vehicle has used Delhi as a bypass.
4. The system will allow vehicles, like ambulances, petroleum and water tankers to be pre-registered and therefore exempt from payment of ECC. All other exempt vehicles will also seek pre-registration based on the

nature of goods that they carry or seek cash reimbursements from government post entry into Delhi.

5. Implementation of RFID will make the system easier to operate and reduce the delays and harassment faced by transporters. It will also improve collection efficiency.
6. The RFID system as detailed in the RFP document is designed to be compatible with the nationwide e-tolling system that will be implemented through the Indian Highways Management Company, set up through 25% equity participation of NHAI.
7. The system will be rolled out at 13 points, which bring 80% of commercial traffic to Delhi. It is clear that in the remaining points, the volume of commercial traffic is low, but to ensure that there is no diversion of traffic barriers will be installed to stop heavy traffic from entering. It is not envisaged that the RFID system will have to be installed at all remaining 105 points and that if at all there is a need, it may be at another 5-10 points of entry, which can be done in the future. The cost of the system will therefore, not increase further.

In EPCA's view, without this technological upgradation, the ECC collection cannot be enforced. It is therefore, critical that the agencies make it operational at the earliest.

EPCA is also of the view that the cost of RFID should be paid from the collection of ECC, as it cost of enforcement of the system. The SDMC toll collection system is based on a fixed cost contract. Under this contract, there is minimal cost of enforcement and monitoring as the concessionaire pays fixed costs to SDMC based on an estimation of the volume of traffic and revenue from it. However, ECC is designed as a congestion charge – it needs to be paid on each vehicle as it enters Delhi as a deterrent to entry. The objective of ECC is to reduce numbers of vehicles entering the city so as to reduce pollution. Therefore, this system requires stringent and daily monitoring and enforcement. Without RFID, this is not possible. Therefore, RFID is necessitated because of the imposition of ECC and it is a cost of monitoring and surveillance that should be accounted for.

The question of non-permanence of ECC has been raised with EPCA. This issue is important as the RFID concessionaire will have to operate the system for 5 years and therefore, needs assurance that ECC will continue. The fact is that ECC has to directed by the Hon'ble Supreme Court and it can only be removed through its orders. It is also a fact that ECC, when it has been implemented stringently, has shown that it has impact on the quality of air in Delhi. It is an important air pollution control measure. With the implementation of RFID, this will improve the situation further. However, in case of future exigencies, ECPA would support the proposal of the group that met under the chairmanship of the secretary,

Urban Development of the Government of Delhi that there should be ESCROW fund created by transport department to facilitate easy payment and to set aside costs in case of future exigencies.

4. Directions sought from the Hon'ble Supreme Court: Amendment/directions regarding payment of the cost of RFID from ECC

The Hon'ble Supreme Court, in its order dated October 9, 2015 had directed that the ECC amount so collected ought to be exclusively used for augmenting public transport and improving roads, particularly for most vulnerable users that is cyclist and pedestrians in Delhi.

From November 6, 2015 to August 4 2016 a total amount of Rs 330 crore has been collected as ECC and deposited with the Transport Department. Out of this, Rs 7,26,30,799 has been deducted by SDMC as per the decision of the Hon'ble Court in the matter of termination of the erstwhile toll contractor. In addition, Rs 1 crore per week has been set aside by SDMC against the new toll contract, which is awaiting decision from the Hon'ble Supreme Court.

The total pre-tendering cost of RFID is an estimated Rs 93 lakh. The total project cost of RFID, which will be paid to the concessionaire based on the uptime of the system, is estimated at Rs 120 crore over the next five years (Rs 24 crore/year). The current collection of ECC is roughly Rs 432 crore/year and therefore, the RFID cost would be roughly 5.5 per cent of the current collection.

This is a relatively small cost to pay for effective compliance, which will improve the quality of air that we breathe in the city.

EPCA is seeking amendment from the Hon'ble Supreme Court to its directions of October 9, 2015 to include that the cost of RFID can be paid from ECC as it would improve enforcement and effective compliance of its order.

Figure 1: Proposed System Flow for Implementation of Automatic ECC Collection Using RFID