

Chapter 5: Upgradation of Street Lighting of Roads in Delhi

5.1 Introduction

The project for “Modernisation of Delhi Street Lighting System” was conceived by GNCTD in June 2006 for completion within 2 years. Accordingly, standards for integrated street lighting project for Delhi were released in October 2006 by GNCTD and were subsequently revised in November 2006, after considering suggestions/ observations of vendors and implementing agencies. The standards were to be followed by all the agencies. The lighting standards were designed to meet the following objectives:

- To adopt the latest technology in street lighting based on international standards adapted to Delhi’s conditions.
- Use of energy efficient electrical equipments.
- Use of automatic switching on and off and monitoring of street lights, thus saving energy consumption and enabling quick maintenance of equipments.
- Improving the urban landscape of Delhi
- Prepare for Commonwealth Games, 2010.

The standards prescribed the technical specifications like the type and wattage of lamps and luminaries, the height of electric poles, maximum spacing between the poles and desired illumination levels for various types of roads (Dual/single carriageway, service road, slip road etc.) but were brand neutral.



Modernised Street Lighting in Delhi

The standard also gave guidance on the contractual obligations to be fulfilled by various agencies in implementing the lighting systems and maintenance of these systems.

The work was implemented by PWD, MCD and NDMC. The details of length of road and tendered cost for the works under the three agencies are tabulated below:

Table 5.1 – Summary of Street Lighting Works

(₹ in crore)

Sl. No.	Agency	Road Length (km)	Total Tendered Cost
1	PWD	444.39	154.95
2	MCD	258.56	96.53
3	NDMC	86.00	34.40

Audit acknowledges the improvement in illumination levels of Delhi roads, brought in by the implementation of a well prepared lighting standards document, which has contributed to an overall consistency in implementation and marked improvement in urban landscape and city infrastructure.

5.2 Use of imported luminaries

5.2.1 Decision on use of imported luminaries

The initial proposal for street lighting in PWD was sent for government approval in November 2006 but was not sanctioned on account of change in scope of work. A revised estimate involving use of indigenously manufactured luminaries was sent in May 2007 and was accorded approval in June 2007, but the approval was withdrawn in the same month.

Meanwhile, the Chief Minister (CM) desired (July 2007) that while PWD was implementing a comprehensive plan for street lighting, such lighting may be demonstrated on at least one or two roads in time for Diwali 2007. PWD invited spot quotations to install street lighting on a sample stretch of roads. The sequence of events is as detailed below:

Table 5.2 – Chronology of Events for Street lighting on Sample Road

Period	Event
July 2007	▪ Spot quotation from three firms using indigenous luminaries for a sample stretch of roads was invited.
August 2007	▪ Second call for spot quotation was invited from the same three firms on the same conditions. The bidders now quoted for imported and indigenous luminaries. While Philips quoted only for indigenous luminaries, Trilux quoted for imported luminaries and Keselec-Schreder quoted for both indigenous and imported luminaries.
September 2007	▪ Third call for spot quotation from same three firms invited in two separate sections, one each for imported

	and indigenous luminaries. The work was however not executed.
	<ul style="list-style-type: none"> Sample luminaries of some of the leading manufacturers were displayed before the CM in September 2007.
October 2007	<ul style="list-style-type: none"> Indigenous and imported luminaries installed on a sample stretch were inspected by the CM, and also by the PWD minister.

Based on the inspection and approval of CM, PWD decided to use imported luminaries on 'A' category roads, a mix of imported and indigenous luminaries on 'B' category roads, and only indigenous luminaries on 'C' category roads.

It may be noted that this 'A', 'B' and 'C' categorisation of roads was not specified in the lighting standard. Thereafter, PWD revised the preliminary estimate by incorporating use of imported along with indigenous luminaries.

The GNCTD in its reply stated that there was no alternative left with PWD but to purchase imported luminaries in order to meet the Standards of Integrated Street Lighting Committee (SISLC), besides having adequate competition among global leaders in luminaries.

The reply is not acceptable as the objective of the department to meet the world class lighting standards as required by SISLC could have been met through indigenous luminaries which was evident from the department's third party test reports of both indigenous and imported luminaries which did not differ in any aspect.

Further, the decision of PWD on use of imported luminaries on 'A' category roads was also adopted by MCD and NDMC. NDMC specified all of its roads as 'A' category, and called tenders for imported luminaries only.

A total of ₹ 41.37 crore was spent as on July 2011 on procurement of imported luminaries, with ₹ 24.52 crore by PWD, ₹ 6.51 crore by MCD and ₹ 10.34 crore by NDMC.

The imported luminaries were procured at a cost much higher than the price at which indigenous luminaries were procured, leading to avoidable extra expenditure of ₹ 28.12 crore (July 2011) across the three agencies (PWD, NDMC, MCD) as tabulated below:

Table 5.3 – Avoidable Expenditure on Imported Luminaries

(₹ in crore)			
Agency Name	Number of imported luminaries (provisional)	Average cost of procurement	Additional expenditure incurred*
PWD	9,063	27,235	16.89
MCD	2,337	27,824	4.50
NDMC	4,166	24,758	6.73
Total	15,637		28.12

* Against average procurement cost of indigenous luminary (400 W and 250W) of ₹ 8600 in MCD

The GNCTD stated that the expenditure on imported luminaries worked out to 45 per cent and 15 per cent of the total cost of the luminaries and total cost of the project respectively. The fact however remains that the opportunity for economy was lost.

Differentiation between indigenous and imported luminaries is starkly exemplified in the case of a luminary of Keselec-Schreder make (Ambar-3), procured by PWD as an indigenous luminary at ₹ 15,160 but by MCD as an imported luminary at over twice the cost at ₹ 32,000.



Ambar-3, Imported (MCD), Price: ₹ 32,000

Ambar-3, Indigenous (PWD), Price: ₹ 15,160

5.2.2 Enrolment of imported luminaries

The technical specifications for both imported and indigenous luminaries were identical, and technical test reports of the imported and indigenous luminaries supplied by the various firms were equally compliant with specifications for luminaries given in the lighting standards.

PWD selected and enrolled as approved, the models demonstrated by the bidders, except SpaceAge which was later declared qualified. No techno-economic evaluation of the options offered by the bidders in support of such selection was available in the records. Consequently, models of various companies of different repute and of different price ranges were selected at the same level.

In the case of selection of luminaries of General Electric (GE) and Al-Babtain brands offered by SpaceAge, no evidence of any on-site demonstration was found on record. Further, at the time of award of work to SpaceAge, the Works Advisory Board (September 2008) had desired that luminaries of GE make should be used by SpaceAge. PWD was unable to enforce the same, and could not prevent SpaceAge from installing luminaries of Al-Babtain make in place of GE. Further no information is available in the M-3 Division.

In reply to the audit observations on use of imported luminaries leading to avoidable expenditure of ₹ 10.02 crore discussed in para 5.3.1, PWD stated that these were specified for use on selected roads on account of the imported luminaries having the following advantages over the indigenous ones: The

GNCTD in its latest reply (December 2011) stated that Board of Assessors (BoA) had approved both imported and indigenous fittings to be used in different categories of city roads. The reply is not tenable as there was no evidence on record.

- 10 to 15 *per cent* more efficiency as measured by the higher light output ratio
- Better aesthetic appearance and finish
- Lower maintenance cost

The department's reasoning regarding superiority of imported luminaries on account of higher light output ratio is not acceptable. If light output ratio was considered such a critical performance parameter, it should have been included in the lighting standard issued by GNCTD, and also specified by PWD as a requirement for imported luminaries, which was not done. Further, product brochures of none of the luminaries used in PWD (indigenous or imported) speak about the light output ratio, let alone state its value. Of the luminary test reports supplied by the department, Audit observed that the light output ratio of imported luminaries varied from 78.4 to 88.9, while for indigenous luminaries, it varied from 75.3 to 89.5. This is at variance with the department's assertion that imported luminaries were having efficiency greater than the indigenous luminaries by 10 to 15 *per cent*.

No documentary evidence has been provided regarding lower maintenance costs for imported luminaries. In any case, all luminaries are under a six year comprehensive maintenance contract, and none of the bidders were asked to quote separately for maintenance of indigenous and imported luminaries, as should have been the case if the maintenance costs were known to be substantially different.

5.3 High Cost of procurement of luminaries

Audit found that the procurement process did not ensure procurement at competitive rates, as explained below:

5.3.1 High cost procurement of imported luminaries

Audit scrutiny of the actual price of the imported luminaries that had been installed by the successful bidders, as ascertained from the invoices, revealed a wide gap between the imported price, including cartage, supply, installation, testing and commissioning (SITC), cost of bulb, contractor profit of 10 *per cent* for PWD and 15 *per cent* for MCD and NDMC and cost of maintenance during Defect Liability Period (DLP) and the price paid by the department for

the same fittings, is given in the table below:

Table 5.4 – Gap between import price and price actually paid for imported luminaries and extra profit thereof

(Amount in ₹)

Name of executing agency	Make & Brand	Cost including mark up (fair price)	Contracted procurement price	Higher price paid per luminary	Extra profit (₹ in crore)
PWD, Zone M1	Trilux: Lumega 900	26,222	28,242	2,020	0.79
PWD, Zone M2	Schreder: Maya-Maxi / Sapphire 3	16,325	26,371	10,046	3.53
PWD, Zone M3	Al-Babtain-smart /05	9,318	25,704	16,386	2.68
MCD	Schreder: Ambar 3	11,082	31,328*	20,246	1.01
MCD	Philips: Modena	22,660	26,421*	3,761	0.62
NDMC	Philips: Modena	22,386	24,819*	2,433	1.39
Total profit on account of price premium (₹ in crore)					10.02

* Weighted Average Cost of procurement

The cost of procurement by all agencies was substantially higher than the imported price including cartage, SITC, cost of bulb, contractor profit of 10 per cent for PWD and 15 per cent for MCD and NDMC and cost of maintenance during Defect Liability Period (DLP) being higher by 8 per cent to 183 per cent. The selection of imported luminary make and fixture of their base price at high levels, particularly in case of SpaceAge and Keselec Schreder (176 to 183 per cent), was in violation of financial propriety. A price premium was being paid simply on account of the luminaries being imported. Consequently, contractors managed to earn extra profit of ₹ 10.02 crore.

The GNCTD stated that the justification statement which was prepared at the time of award, was now superimposed with the rates worked out in the report by CAG for item No.12(a) and 13(a) i.e., for imported fittings in all the three tenders with overhead and profit duly modified from 10 per cent to 15 per cent. Even by considering the rates assumed/adopted by Audit as justified rates, the total quoted amount in each case is within permissible limits for award of work. The effect of this item is only 5 per cent to 10 per cent of the total tendered amount and therefore the difference in rates worked out by CAG has got negligible effect on the tendered amount.

The reply is not acceptable because the justified statement was not prepared at the time of award of contract in October 2008 and hence did not depict the market rate at the time of acceptance of the tender.

5.3.2 High cost of procurement of indigenous luminaries in PWD

Audit noticed that both PWD and MCD had used a combination of indigenous and imported luminaries for their street lighting projects. The analysed rate for providing and fitting of indigenous luminary by PWD was ₹ 15,522 per unit (Philips Velocity 400W) based on a single quotation, whereas these (Model MC3 by Keselec-Schreder and Model Velocity by Philips) were supplied in MCD by two leading manufacturers at ₹ 9100 per unit.

Thus, the execution of items of the same make at higher rate by PWD resulted in an extra expenditure of ₹ 5.59 crore as of December 2010.

5.4 Restrictive and non-competitive conditions in tendering

5.4.1 Conditions in Expression of Interest (EOI)

The lighting standards prescribed pre-qualification criteria for the prospective bidders. Both PWD and MCD prescribed more restrictive eligibility criteria for financial and technical capability, while NDMC used the list of vendors declared eligible by PWD.

- Audit found that PWD kept the required annual turnover at ₹ 40 crore in place of ₹ 20 crore indicated in the lighting standards, thereby restricting participation. The limit also exceeded 30 *per cent* of estimated cost criteria of Central Vigilance Commission (CVC). MCD made the pre-qualification criteria for both the phases stricter by fixing the condition of average annual turnover at 30 *per cent* of estimated cost during the last seven years instead of three years.
- The lighting standards stipulated that “*the main contractor shall procure items from respective manufacturers.*” However, both PWD and MCD in their EOI specifically stated that the bidder should be a manufacturer of luminaries of international repute. This severely restricted the competition.

The parameter of being a luminary manufacturer of “international repute” did not specify how the clause would be assessed and was very selectively applied. While initially, SpaceAge Switchgear India Limited was found as ineligible, and later found eligible during reassessment done when the firm represented to the CM, its compliance with requirement of being a manufacturer of luminaries of international repute was never assessed. The vendor installed luminaries from a Saudi Arabian firm, Al Babtain, with whom the vendor had no declared standing relationship, putting to question the eligibility of the vendor as a manufacturer of luminaries of international repute.

The restrictive clause led to rejection of two firms, Street Scape, Australia and Utkal Galvanizers Ltd on the grounds that they did not have luminaries’ manufacturers as lead partners.

PWD, in its reply, stated that the competent authority, Chief Engineer, had taken the decision that luminary manufacturers should be made the lead partner for execution of work for the following reasons:

- proper maintenance of the luminaries during the 6 year maintenance period.
- genuineness of the supplies
- their perception that only a few reputed luminary manufacturers are equipped for providing design work for illumination.

In case of MCD, the Government stated that the main objective of framing pre qualification criteria was to obtain best quality of work, timely supply of material, healthy competition and reasonableness of rates. The EOI also allowed not only individual company but also joint ventures. The main goal of addition of criterion of luminaries manufacturer of international repute was based on –(i) its support required at the stage of survey, design, O&M, (ii) uninterrupted availability of spares (iii) bleak possibility of contractor backing out in the middle as he had his reputation on stake.

The reply is not acceptable as both PWD and MCD did not comply with the comprehensive guidelines framed by the Government itself. The benefits of increased competition could have been brought in by complying with the GNCTD prepared lighting standards requirement of the main contractor procuring the luminaries from the manufacturers. Such benefits would have been far in excess of the perceived benefits stated by PWD.

5.5 Division of work in PWD

The street lighting work in PWD was divided into three parts (August 2007) on the grounds of administrative convenience and early completion, but with the apparent intention of giving one work each to each of the three shortlisted (initially) firms. Further, Notice Inviting Tender (NIT) stipulated that only one work alone would be given to one contractor. In this situation, the pre-qualified vendors were not given equal opportunity in the financial bidding in all the three divisions of PWD resulting in lesser competition among the pre-qualified vendors as only one among the four pre-qualified bidders ran the risk of not winning any bid.

5.5.1 Irregularities in assessing qualification of a firm in PWD

Spaceage Switch Gears Ltd. submitted (July 2007) EOI as a manufacturer of luminaries of international repute, and of poles in India. The bid by the firm was neither as a Joint Venture (JV) nor as a consortium, but was in the name of Spaceage Switch Gears Ltd.

The Board of assessors (BoA) disqualified (November 2007) the firm on the following grounds:

- Non supply of imported as well as indigenous fittings

- Non clarification of works done by their foreign concern
- The firm could not obtain the required qualifying marks of 75 out of 100, scoring only 48 marks out of 85.

On being disqualified by the BoA, the firm appealed (November 2007) to the CM for inclusion as a tenderer for the work. The vendor's plea to the CM was forwarded to the E-in-C. Subsequently, a re-assessment of the eligibility of the firm was done by the BoA, who, this time, found the firm to be qualified.

Audit found that the following aspects of the re-evaluation, leading to an increase in the score from 48 to 67 (out of 85), as unreasonable:

- The score for experience in similar class of work increased from 10 to 15 (out of 15), though the relevant work was done by another firm, related by having a common majority shareholder, but which was in fact, a separate legal entity, and not a part of the bidding entity as a JV or consortium member.
- The firm did not submit any new financial statements in support of the required average annual turnover, yet its score increased from 10 to 19 (out of 19).
- The firm did not submit any new documents relating to personnel, establishment, and plant and equipment, yet its score in this regard increased from 10 to 12.
- The score on presentation before the BoA was also increased from 13 to 16.

Subsequently, the financial bid of Spaceage was the lowest for M3 zone but the Works Advisory Board (WAB) constituted for acceptance of tender did not approve the award of work in March 2008 and called for retendering, on the grounds that the firm had already been rejected by the BoA, and the reassessment and subsequent inclusion was improper. Incidentally, two of the members forming the BOAs were also members of the WAB, but both the boards took the diametrically opposite decisions unanimously regarding the firm's eligibility.

The firm approached (May 2008) the Hon'ble Delhi High Court which quashed the decision of WAB of rejection of tender (July 2008). In view of urgency of work, the Government decided (September 2008) to award the work to the firm.

Consequently, the ineligible firm got the work despite being rejected by the WAB. The department's case was greatly weakened by the irregular increase of marks by the BoA in December 2007, qualifying the firm.

The firm, SpaceAge, went on to supply low cost imported luminaries of Saudi make, costing ₹ 5,040, and charging ₹ 25,704 for the same and in the process earning a profit of ₹ 2.68 crore.

The GNCTD in its reply stated that the unprecedented worldwide recession and economic depression in the international market which started in September 2008, October 2008 and persisted quite long as the reason for the huge price variation of the fittings. However, no documents in support were furnished. The reply is not tenable because, the PWD accepted and awarded the contract to M/s SpaceAge only in October 2008 at the negotiated cost of ₹ 55.16 crore, which was 4 *per cent* above the estimated cost. The rates could have been reduced before accepting the tender as per clause 16 of NIT. The justified cost was not prepared at the time of contract in October 2008 and hence did not depict the market rate at the time of acceptance of the tender.

5.6 Deficiencies in tendering and award of work

All the agencies followed different approaches for calling of tenders. PWD called tenders based on percentage rate, MCD adopted item rate tender, while NDMC called for design based tenders.

5.6.1 Deficiency in tendering in PWD

5.6.1.1 Incorrect use of percentage rate tender by PWD

The estimates for the street lighting work prepared by PWD was based on market rate, but PWD resorted to percentage rate tendering instead of item rate, in contravention to the provisions of the (CPWD) manual.

The costs of the following items were over-estimated by PWD with direct implication on the final cost of procurement:

- **Imported luminaries:** The estimated rate for imported luminaries was kept at ₹ 27,000 per unit against the average cost including cost of bulb, cartage, one year maintenance and contractor profit of imported luminaries actually used being ₹ 17,288, while the minimum cost was just ₹ 9,318.
- **Indigenous luminaries:** The estimated cost taken by the department for indigenous luminaries was ₹ 15,522, but the same fittings were supplied in MCD at rates of ₹ 8000 to ₹ 9200 per unit.
- **Pole (12 m):** The base rate of ₹ 26,750 taken for estimation of cost of 12 metre pole was inclusive of all charges for fabrication, supply and erection etc. but the same was again loaded, thereby inflating the cost of a pole to ₹ 31,502.

5.6.2 Deficiency in award of work in MCD

5.6.2.1 Avoidable expenditure of ₹ 2.54 crore due to non-compliance with design specifications

It was noticed in audit that the lighting standards were not complied with on many dual carriageway roads, where 10 metre poles had been used in place of the prescribed 12 metre poles. (**Annexure 5.1 and Annexure 5.2**).

This led to an estimated avoidable extra expenditure of approximately ₹ 2.54 crore due to use of larger number of poles and luminaries. It was also seen that in Phase-I of execution, the offered price of a 10 metre pole (₹ 28974) was more than the price of a 12 metre pole (₹ 28358) apparently due to post bid tampering. Installation of a 10 metre pole was more lucrative to the contractor than the 12 metre pole.

The GNCTD, in its reply stated that the designing was done by the agency concerned based on site conditions, and that approval of the competent authority, E-in-C, was taken for installing 10 m poles on 80 feet (24 m) wide road.

The reply is not acceptable because such approval, taken without a techno-commercial evaluation of the impact, and in violation of the already issued lighting standard was incorrect.

5.6.2.2 Extra cost of ₹ 0.48 crore due to specifying decorative luminaries using lamps of a particular brand in MCD

The lighting standards provided for use of 150 watt HPIT (Metal Halide) lamps for pedestrian crossing, slip roads and bus bays. However, MCD specified decorative luminaries using 140-watt lamp of a particular brand, Cosmopolis, in the agreement. As per records, a total of 670 such Cosmopolis lamp fittings at a cost of ₹ 15,000 per unit were used, whereas comparable 150-watt High Pressure Sodium Vapour (HPSV) fittings were available at ₹ 7800. In these fittings, the HPSV lamps could have been replaced with 150-watt metal halide lamps for providing white colour light, as done by PWD. Thus, specifying decorative luminaries with Cosmopolis lamps in place of standard luminaries with metal halide lamps resulted in extra cost of ₹ 0.48 crore.

In reply the GNCTD stated that the decorative luminaries were to be provided by the firm from the preferred make mentioned in tender document and that it is clearly mentioned in the item that the fitting suitable for Cosmopolis lamp without mentioning any brand was to be provided. Further, the Cosmopolis is latest Technology for white light having benefit over conventional HPIT (Metal Halide) lamp.

In Audit's opinion the reply is not convincing as MCD cannot justify the extra expenditure on Cosmopolis lamps when the desired illumination could have

been achieved by using standard luminaries with metal halide lamps as provided in lighting standards. Also the final revised version (November, 2006) of the lighting standards approved by GNCTD had removed reference to Cosmopolis lamps thereby making them brand neutral. The phrase 'new generation light sources like Cosmopolis lamps' was replaced with 'new generation light sources'.

5.6.2.3 Apparent post-tender alteration in price bids in MCD

As per the CPWD manual, the officer opening the tenders should encircle all corrections, cuttings, conditions and over-writings, number them and attest them in red ink on each page of the price bid itself.

These conditions were violated in the tendering for both phases of the work in MCD. The winning bid of Sweka Powertech for Phase-I and Phase-II had large number of over writings/ corrections/ alterations. In neither of the bids did the contractor fill up the column for 'Amount' in the schedule of quantity, and the total for the bid was struck and recorded only in one case (Phase-II).

The matter is under investigation by Central Bureau of Investigation (CBI). Photocopies of the records were obtained from CBI for the purpose of audit.

A scrutiny of price bid for Phase-I revealed that the certificate recorded by the accountant either did not tally with the number of corrections made in the page or the certificate itself had cuttings/overwriting. The final effect of overwriting and corrections in rates was to enhance the quoted price and not vice versa. Further, the corrections had not been assigned separate numbers as required.

Another correction noted was in the discount offered by the firm in the form of a note which read-"payment will be released within 10 days after submission of the RA bill, then we are ready to give discount of Nil *per cent* on the total amount". In this case also, there was apparent correction, by changing 1 *per cent* to Nil *per cent* by prefixing 'Ni' to 1 *per cent*.

The possibility of these alterations at post tender stage cannot be ruled out. The total result of enhancement of quoted amount by such alterations was ₹ 3.63 crore.

A similar pattern of alteration of bids was seen in Phase-II also. Scrutiny of price bid of M/S Sweka Power Tech Engineers Pvt. Ltd. (L-I) revealed that there were cuttings/over writings/corrections in the quoted rates of several items. The corrections made in the quoted rates against the above said items were not encircled, numbered and attested individually.

The Department in its reply intimated that the divisional accountant wrote all rates in his own handwriting on bids tendered with red ink wherever he found any cutting or overwriting; all cuttings were duly encircled and signed by the divisional accountant. Further representatives of all the bidders were present at the time of opening of bids. The stand of MCD is not acceptable as the

cuttings / over writings in price bids were not numbered serially as required under provisions. Even the certificates recorded at the end of the page were tampered/corrected (Phase-I). The column meant for filling amount was not filled in both the phases. This gave rise to the suspicion that rates were tampered with after opening the bids.

It is apparent that the corrections in two items have been made after opening of tenders. The net effect of corrections/overwriting was evident from the enhancement of tendered amount by ₹ 3.34 crore, while still keeping it below the next higher bidder (L-2) by ₹ 4.69 crore.

The details of the alterations are shown in **Annexure 5.3 and 5.4**.

The GNCTD stated that the matter was under investigation with CBI and the action against the defaulting officials would be initiated as per the outcome of the final investigation of CBI.

5.6.3 Deficiency in tendering/award of work in NDMC

5.6.3.1 Calling of design based tender by NDMC and consequent loss

NDMC opted for a “design based approach”, wherein each bidder was asked to submit road wise design and compute the quantity for each item required to meet the target illumination level and to quote the rates for items required. The GNCTD’s lighting standards of 2006 did not provide for calling tenders on design basis.

While the design based tender does not ensure procurement of items at the lowest cost, it also actually placed Philips at an advantageous position compared to other bidders, as despite quoting higher (item wise) for each of the key items, Philips managed to be lowest (L-1) bidder due to proposing use of lower quantities of various items.

Philips was the lowest with tendered amount of ₹ 34.40 crore against ₹ 37.32 crore quoted by Spaceage (second lowest) as detailed below:

Name of item	Ranking of M/s Philips	L1 Vendor for the item	Rate quoted by Philips	Rate quoted by L1	Item cost as percentage of total cost
11 m pole	L3	M/s Bajaj	39602	25877	29.16 per cent
10m pole	L3	M/s Spaceage	33619	28000	1.82 per cent
8m pole	L4	M/s Bajaj	26925	17791	5.57 per cent
400W HPSV	L2	M/s Keselec	25071	24900	17.61 per cent

		Schreder			cent
250W HPSV	L2	M/s Keselec Schreder	24445	24000	11.55 per cent
PVC insulated copper conductor	L4	M/s Bajaj	49	35	0.58 per cent
HDPE pipe 120mm	L3	M/s Bajaj	297	194	2.24 per cent
Laying DWC 110mm	L3	M/s Spaceage	1256	800	2.37 per cent
HDPE pipe 90mm	L3	M/s Spaceage	239	160	7.34 per cent
HDPE pipe 100mm	L3	M/s Spaceage	1269	600	10.20 per cent

A scrutiny of rates of 10 major items forming 88.44 per cent of gross tendered cost (of Philips) of ₹ 35.46 crore revealed that in none of these items Philips was the lowest bidder. The overall bid amount of Philips was lowest only due to their proposed design involving lower consumption of various items. For instance, the design proposed by Philips involved use of 3815 poles and 4166 luminaries against the estimated quantity of 6364 and 9329 respectively, while the quantities quoted by second lowest bidder were 6492 poles and 7126 luminaries.

Even the Technical Evaluation Committee (TEC) was unable to assess the different designs due to wide variation in number of poles and other infrastructure offered to be installed by the bidders. It finally recommended that the price bids may be opened after obtaining an undertaking from all the four bidding firms that they would not charge for any extra work/ infrastructure required to be provided in case the required levels of illumination as per NIT specification were not met with their design.

Audit observed that the second lowest bidder i.e. SpaceAge at the quoted quantity of Philips could have executed the work at ₹ 28.69 crore, which is less than the amount quoted by Philips by ₹ 6.77 crore.

In reply, NDMC stated that design based tenders rather than conventional mode were invited keeping in view the special needs of the NDMC area with its dense tree cover.

The “design” could have been either done in-house or could have been executed as a separate consultancy assignment, thereby providing a level playing field to obtain competitive rates for each item of work. This could have

saved a premium of ₹ 6.77 crore, which was otherwise earned by Philips on the basis of their design.

5.6.3.2 Irregular award of work in NDMC under deviation clause leading to loss

Chairman, NDMC gave approval for additional work of 18.445 km for 14 roads and service/ slip roads which were not part of the original agreement. The works were awarded on the same rates as the existing contract for street lighting with Philips (awarded in August 2009) under the deviation clause stating that the increase in quantity was under the deviation limit of 25 per cent. In this case, the additional work valuing ₹ 7.38 crore was for new roads not covered by the original agreement, and hence could not be construed as deviation in quantity alone. This did not have the approval of the Council, the competent authority. NDMC intimated that the Council in its meeting held subsequently on 23 February 2011, ratified the expenditure. Audit found that the agenda note put up for approval of the Council in this regard made no mention of the audit objection communicated to NDMC. Thus giving inadequate information led to the wrong decision on deviation by the Council.

Loss to NDMC on account of award of additional work under deviation clause

- The existing agreement with Philips was design based, where the work was awarded on account of the bid being of lowest total cost, and not necessarily the lowest in unit cost of the items. Thus, award of additional work to Philips at its quoted (higher) item rates led to an additional loss of ₹ 1.45 crore {₹ 7,37,89,874 X (design premium of ₹ 6,77,00,520/net contract amount of ₹ 34,40,46,038) = ₹ 1,45,20,187} when compared with the rates of second lowest bidder.
- The NDMC calculated the prorata cost while awarding the additional work to M/s Philips as ₹ 7.38 crore. By applying the design parameters proportionately for the additional work, the executed quantity as per the tentative data provided by NDMC, the cost was in excess by ₹ 1.30 crore, as detailed in Table 5.5:

Table: 5.5 Excess cost due to excess execution beyond proportionate quantity by M/s Philips for 14 roads excluding slip road

Item	Quantity quoted	Rate quoted	Pro rata qty. for 14 roads 15.946/ 86 km	Actual qty. for 14 roads	Excess of actual qty. over pro rata qty	Value of excess qty. executed over pro rata qty. in ₹
11 m Pole	2611	39602	484	543	59	23,36,518
10 m pole	192	33619	36	24	-12	-4,03,428
8m pole	734	26925	136	374	238	64,08,150
400 W HPSV	2491	25071	462	414	-48	-12,03,408
250 W HPSV	1675	24445	311	552	241	58,91,245
Total						1,30,29,077

- It was observed that NDMC while awarding additional work, only specified that the payment for additional work is to be governed by “the deviation clause of agreement or site whichever is lower”. As a result, M/s Philips had no incentive to optimise the design and conversely, maximising the use of poles and luminaries was to the advantage of M/s Philips on account of higher item rates. Accordingly, the contractor had submitted a claim of ₹ 12.06 crore (bill of 2.5 km of road length awarded in October 2010, with pro-rata cost estimate of ₹ 1 crore has not yet been submitted hence there is a difference between bill amount of ₹ 11.05 crore and claim of ₹ 12.06 crore) for additional work, thus entailing total loss of ₹ 6.13 crore (₹ 12.06 crore - ₹ 7.38 crore = ₹ 4.68 crore add loss of ₹ 1.45 crore = ₹ 6.13 crore).

NDMC, in its reply, stated that payment for additional work would be restricted on pro-rata basis or on the actual quantity executed, whichever was lower.

5.7 Delay in project initiation and completion

None of the agencies could complete the project within two years as planned.

5.7.1 Delays in PWD

PWD planned in June 2007 to complete the project by February 2009. The project was executed as 3 separate packages in three PWD zones, but the work was finally completed by September 2010 after a delay of about 19 months. There was delay at every stage, with delay in awarding of work itself of about 11 months. There were delays in execution too, as the work stipulated to be completed by January 2010 was also delayed by about eight months.

Further, PWD has not decided the penalty to be imposed on account of delay, as none of the three contractors had submitted their final bills (though they have been issued physical completion certificate in August/ September 2010).

5.7.2 Delays in MCD

The stipulated date of completion for Phase-I was 9 July 2009. However, a certificate was issued (January 2011) indicating provisional completion on

2 August 2010. MCD neither sanctioned EOT, nor recovered liquidated damages of ₹ 3.45 crore for a delay of 55 weeks.

GNCTD stated that the EOT would be decided after getting back the relevant records from the CBI.

After lapse of the stipulated date of completion of 7 July 2010 for Phase II, the contract value was enhanced from ₹ 60.74 crore to ₹ 73.36 crore by awarding additional work on 24 July 2010 with stipulated date of completion extended to December 2010. The total work was subsequently restricted to ₹ 61.99 crore for a total road length of 160.5 km on 05 August 2010, but the stipulated date of completion was not changed. Though the certificate for provisional completion of work was issued on 24 September 2010, no time extension was sanctioned. There was a delay in completion by 50 days, with a corresponding LD of ₹ 4.25 crore, which has not been levied by MCD.

GNCTD stated that EOT would be decided after taking a balanced view of the delays on the part of the contractor and recovery, if any, effected after approval of the competent authority.

5.7.3 Delays in NDMC

After approval of estimate (December 2007), NDMC delayed the tendering process. Tenders were invited in March 2009 after a delay of 14 months, and it took another five months to award the work. The contractor was given additional work for 18.45 km between December 2009 and October 2010, which would imply a proportionate increase in the time period up to November 2010. The execution of work was delayed by more than two months, and NDMC had neither issued completion certificate nor recorded the final measurement. Further, compensation for delay valuing ₹ 1.25 crore was also not levied. The Department in its reply stated that the installation work had been completed on 30 August 2010. The street lights are functioning satisfactorily since then. Minor rectification works and final measurements are in progress. Final bill had not been made out as yet. Any deduction or the recovery becoming due and recoverable will be adjusted in the final bill. Sufficient due payments to the contractor for the work done, was available for any eventual recovery.

This implies that the work was not completed as the measurement was under process. (Reply of 3 April 2011). As of July 2011, the payment was not made the effect of which will be visible in later years.