

CHAPTER - 3

EXECUTION AND COSTING

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3.1 Project execution

3.1.1 Execution of works

Subsequent to acquisition of land and obtaining necessary approval for formation of layout from the required authorities, KHB forms layouts. The major works in formations of layout involves the following:

- Levelling of the land and marking the layout plan.
- Formation of culverts and drains.
- Formation of roads and providing lighting.
- Providing electrification.
- Providing drinking water supply.
- Tendering the construction of houses / apartments.

The schemes on hand with KHB during the period of audit were as detailed in **Table-10**. Review of 32 projects showed major deviations which are detailed in subsequent paragraphs.

Table-10: Schemes on hand with KHB

Sl. No.	Name of the Scheme	Extent of Land (Acre – Guntas)	No. of sites	No. of houses	Project cost (₹ in crore)	Tendered Amount (₹ in crore)
1	100 Housing Scheme	295 – 18	3,742	435	1,515.75	103.78
2	Suvarna Karnataka Housing Project	1,592 – 13	17,848	4,002	1,345.41	738.48
3	225 Housing Scheme	2,012 – 16	21,412	2,917	1,783.68	848.75
4	Other KHB Schemes	34 – 23	375	70	18.70	15.83

(Source: Information furnished by KHB)

3.1.2 Violation of tender procedures

The Karnataka Transparency in Public Procurement Act, 1999 (KTPP Act) and the Rules framed thereunder prescribes the procedures to be followed while inviting tenders. It was seen in test-checked cases that KHB violated the prescribed procedures while inviting or processing tenders. The violations are shown in **Table-11** below:

Table-11: Violations of tender procedure

Sl. No.	Procedure prescribed by the Government	Procedure followed by KHB
1.	Tender documents should be made available from the date of notification inviting tenders to one day prior to the date fixed for submission	Tender documents were made available to the intending bidders only on a fixed date
2.	Period of 60 days was to be allowed for submission of tenders from the date of issue of tender document	Period of about only one week from the date of issue of tender documents was allowed for submission of tenders.
3.	Negotiations should not be resorted to only for the purpose of obtaining lower prices as such practices would encourage corruption. If quoted price is substantially above the estimated rates first choice is to reject all tenders and re invite fresh tenders	Negotiations were resorted to in almost all the cases in a routine manner to obtain lower prices, stating that quoted price was substantially high. The 1 st choice of rejecting the tender suggested by the Government was never resorted to.

Sl. No.	Procedure prescribed by the Government	Procedure followed by KHB
4.	Approval of the Tender Accepting Authority should be obtained by the Tender Scrutiny Committee after detailing the reasons and points on which negotiations are proposed to be conducted. The Tender Accepting Authority after careful examination of proposals approve the points (including the change in scope, specification, packaging etc) on which negotiations are to be held and appoint a Negotiating Committee consisting of tender inviting authority, a representative of Tender Scrutiny Committee and Tender Accepting Authority. The committee shall conduct negotiations on the approved points and make a record of the proceedings of the negotiations. The proceedings are then submitted to the Tender Accepting Authority for acceptance.	The reasons and points on which negotiations are to be conducted are never put forth to the Tender Accepting Authority and prior approval was also not obtained for conducting negotiations. No Negotiation Committee was appointed. The negotiations were being held by the Tender Scrutiny Committee itself without firming up the reasons and points on which negotiations are to be held and they were aimed at only obtaining lower prices and its decisions were routinely endorsed by the Tender Accepting Authority.

(Source: Information furnished by KHB)

3.1.3 Arbitrary design of pavement for roads

According to Indian Road Congress (IRC) Code 37, pavement thickness is dependent on two factors viz., California Bearing Ratio (CBR) value of the weakest soil type proposed to be used for sub grade construction or encountered extensively at sub grade level over a given section of the road as revealed by the soil surveys and the Million Standard Axles (MSA) expected to ply over the road during the design period. Based on these two factors, IRC 37 prescribes design charts for the guidance of road designer. All the roads should be designed based on these charts. However, it was seen that KHB never conducted any soil survey to arrive at the CBR value and calculated design traffic. The provisions made in the estimates for pavement thicknesses were arbitrarily reckoned. This arbitrary provision of pavement thicknesses either caused extra expenditure or deficient roads as discussed below:

In the work of Sites and Services Scheme at Devanahalli taken up by KHB during May 2010 at a contract price of ₹ 23.58 crore, the pavement composition provided for the roads of varying widths (9 metre, 12 metre and 18 metre roads) consisted of 300 mm Granular Sub-Base (GSB), 225 mm Sub Base Wet Mix Macadam (WMM), 50 mm Bituminous Macadam (BM) and 25 mm Semi-Dense Bituminous Concrete (SDBC). This composition did not exactly match any of the compositions given in the design charts. However, the design charts recommended 225 mm WMM and 50 mm BM for the traffic range of 2 MSA on the sub grades of CBR value ranging from 2 per cent to 10 per cent. The provision of 225 mm WMM and 50 mm BM for this work showed that the expected traffic on the roads of the projects was 2 MSA. For 2 MSA, the wearing course prescribed by design chart was 20 mm Open Graded Premix Surfacing. However, 25 mm SDBC was provided which caused extra expenditure of ₹ 18.06 lakh.

The thickness of the GSB for 2 MSA varied from 440 mm for 2 per cent CBR to 150 mm for 10 per cent CBR. Thus, there was arbitrary provision of 300 mm GSB without calculating CBR value of the sub grade which had the potential of extra expenditure of ₹ 41.45 lakh (assuming CBR value as 8 to 10 per cent as generally observed in Karnataka).

3.1.4 Excess payment due to excavation by manual means

The estimates prepared by KHB had been based on Public Works Department's Schedule of Rates (PWD SR). The PWD SR provides for separate rates for excavation by manual means and mechanical means. The rates for manual excavation were higher compared to the rates for mechanical excavation.

The works executed by the KHB were mainly related to development of layouts on huge tracts of acquired land with the purpose of forming sites and constructing houses and apartments. These development works of KHB, *inter alia*, require large scale excavations. Such large scale excavations are usually tackled by deploying machineries such as hydraulic excavators, dozers, tippers *etc.* Manual excavation is adopted where quantity of excavation to be done is little or when machineries cannot be used due to restricted space at the work site.

It was seen in 18 of the 32 works that KHB adopted manual excavation in their estimates and these works had been tendered with the same specification. Evidently, the contractors' quoted rates were for manual excavation although the conditions were conducive for the use of machinery in view of the huge area involved. It was further seen from the photographs available in the files of two works, that the contractors had excavated using machinery. The Chief Engineer stated that excavation had been done only by manual means by the contractors and the manual excavation had been carried out to provide employment opportunities to the local labourers. However, the objective of these housing schemes was to provide housing at affordable prices to the public and not to create employment opportunities to the local labourers. As a result of payment for excavation by manual means, instead of mechanical means, KHB incurred an avoidable expenditure of ₹ 9.16 crore on excavation of 9,28,465.505 cum of earth.

3.1.5 Avoidable expenditure due to use of water bound macadam instead of wet mix macadam

Scrutiny of estimates/Detailed Project Reports (DPRs) and the contract documents for development works showed that the pavement composition for most of the internal roads constructed in the layouts formed by KHB across the State consisted of 20mm thick Water Bound Macadam(WBM), Tack Coat, Surface Dressing and Close graded Premix Surfacing. These pavement layers were laid on prepared sub grade. The pavement composition of few other roads in Suryanagar Block I to IV consisted of 10 mm thick GSB, 20 mm thick WMM, Primer Coat, 50 mm thick BM and 25 mm thick SDBC.

Both WBM and WMM are base courses. As per IRC specifications, WMM is a superior variety of base course. The cost of WMM is also cheaper than WBM due to machinery use in laying. However, KHB used WBM as base course for majority of the roads which led to extra expenditure of ₹ 5.26 crore in respect of 19 works. Agreeing that WMM was cheaper than WBM because of less labour, the Chief Engineer defended the decision to provide for WBM on the ground that WMM could not be used when the top bituminous layer recommended was chip carpet with seal coat. The reply was not acceptable as the IRC 37 recommended use of WMM even where the top bituminous layer consisted of chip carpet. The fact that WMM had been used with chip carpet for the road works in Suryanagar also would confirm that WMM could very well be used as a base course.

3.1.6 Excess payment to the contractor due to inclusion of additional item of plastering in respect of concrete works

The estimates for the works executed by KHB were prepared on the basis of PWD SR of the concerned circle and year. The PWD SR for the years 2008-09 and 2009-10 contained a note under the Concrete chapter which prescribed that the rates sanctioned for reinforced cement concrete (RCC) for chajja¹⁷ were exclusive of the cost of plastering. For other concrete items in the same chapter, the sanctioned rates were inclusive of plastering.

KHB had prepared several estimates using PWD SR of the years 2008-09 and 2009-10. Laying concrete for the RCC roadside drains, RCC works for Under Ground Water Tank, Over Head Tank, and Roof Ceilings *etc.*, were some of the items of concrete work and the specifications included the cost of plastering. However, it was seen that KHB provided for plastering for these items separately in the estimates again though the rate for concrete already included such cost. The provision of additional plastering to concrete surfaces in respect of 1,81,680 sq.metres led to excess payments to the contractors in respect of 11 works totaling to ₹ 1.80 crore. The Chief Engineer stated that plastering to concrete surface had been recommended and approved by the technical committee. Though plastering to the concrete surfaces was a necessity, there was no justification for including a separate item for plastering when the rate for concrete included the cost of plastering.

3.1.7 Excess payment due to double provision of loading and unloading charges for transportation of excavated earth to the dumping site or embankment site

The work of Construction and Commissioning of all works for the Composite Housing Scheme at Rambapura Road, Bijapur Block-I & II involved formation and commissioning of layout, construction of bridges, roads, culverts, RCC Road side drains, Size Stone Masonry Surface Drain, External Water Supply, External Electrification, *etc.*, besides construction of 13

¹⁷ Chajja means a sloping or horizontal structural overhang, usually provided for protection from sun and rain or for architectural considerations at lintel level

houses. On a review of Bills of Quantity (BOQ) it was seen that in respect of earth excavation works an additional item of loading and unloading of excavated soils had been provided although loading and unloading had already been included in the rate for excavation item. Thus, action of KHB in providing loading and unloading charges again as an additional item resulted in excess payment and undue benefit to the contractor aggregating ₹ 5.34 crore. The Chief Engineer stated that the extent of area covered was 100 acres which needed to plan to execute all activities of the project in phases. It was further stated that excavation was carried out at different places and excavated material was rearranged and refilled as it was not possible to excavate the entire quantity and dispose of the same outside because of practical conditions at site. The reply was not acceptable as the additional loading and unloading had been included while preparing the DPR itself and had not been introduced due to practical conditions at site. Further, it was the contractor's responsibility to load and unload the excavated material as he had quoted his rate after observing the site conditions. By including an additional item in the DPR itself for the second loading and unloading operation, the contractor received an excess payment of ₹ 5.34 crore for 7,73,735 cum of earth.

3.1.8 Undue benefit due to adoption of higher rate for disposal of excavated earth

In the case of composite housing schemes at Gadag and Bagalkot, it was seen that the BOQ prepared by KHB included a higher rate for carting away the excavated material as compared to the rate as per PWD SR 2009-10. In the case of the housing scheme at Gadag, while the BOQ contained a rate of ₹ 60 per cum for carting to a distance of 2 km, the corresponding rate as per PWD SR was only ₹ 5.24 per cum. Similarly, in the case of the scheme at Bagalkot, the respective rates were ₹ 60 per cum and ₹ 8 per cum. As the contractors' offers were based on these rates, they received an undue benefit of ₹ 72.22 lakh for 1,23,187 cum of carted earth.

3.1.9 Excess payment to contractors due to use of fly ash bricks instead of burnt clay bricks

The contract for Group Housing Schemes at Biddapur, Gulbarga District required the contractor to construct houses by using Burnt Clay Bricks with the strength of 35 kg/cum. Based on the request of the contractors that burnt bricks were not available in sufficient quantity and the quality of the available bricks was poor, KHB granted (February 2007) approval for the use of Fly Ash Bricks. The number of bricks that were to be used in the work of construction of Houses, Pump House as per the BOQ of Biddapur scheme was worked out by audit at 52,18,694 as per specifications of SR. However, the number of fly ash bricks used in the work was only 43,00,000 because of its larger size. Further scrutiny of the SR for the year 2007-08 showed that the cost of each brick of burnt 35 modular bricks was ₹ 2.70. At the same time, the cost of Fly Ash Bricks as per CPWD SR was ₹ 1.79 per brick.

Hence, the contractor saved ₹ 63.93 lakh due to difference in price. Clause 26.8 of the contract agreement specified that variations, if any, had to be compensated or recovered as the case may be. However, the contractor had not passed on the savings to KHB. KHB also did not initiate any action to recover the same from the contractor.

The Chief Engineer stated that the construction was carried out with better quality bricks and there was no change in the BOQ quantity and the executed quantity of work. The reply was not acceptable as unauthorised benefit had accrued to the contractor on account of change in specification of brick and KHB did not take action to insist on recovery of the saving before approving the change in specification.

3.2 Costing and pricing

Costing as per financial terms is defined as classification, recording and appropriate allocation of expenditure for the determination of the costs of every order, job, contract, process, service or unit as may be appropriate, for the presentation of suitably arranged data for purposes of control and guidance of management. Further, the main objective of costing is to ascertain the actual cost and determination of selling price.

The KHB Allotment Regulations, 1983 under Rule 2(I) defines 'Price of Site' as the value of the site including all incidental charges incurred for acquisition of such site and 'Price of the house' means the value of the house together with the price of the site on which it is built which in turn also includes all incidental charges that were incurred for construction of the said house. Further, it also includes administrative and service charges that may be incurred by KHB.

Test-check of 10¹⁸ costing files pertaining to projects allotted during the period of performance audit showed the following:

- The costing section had not devised specimen costing sheet for the projects taken up by KHB to obtain details of expenditure incurred from all the related sections viz., land acquisition section, town planning section and technical section. In the absence of participation of all the related sections, data adopted for costing was unreliable.
- KHB had neither adopted post costing method¹⁹ nor continuous costing method²⁰ for arriving at the final project cost. Instead, it was seen that KHB had adopted detailed project cost and the tendered premium for

¹⁸ Basavanabagewadi, Bijapur, Airport land-Gulbarga, Muddebihal, Bagalkot, Gangavati, Dharwad, Belgaum and Kundavad Phase I & II – Davanagere, Ganeshnagar-Koppal, Channapatna-Hassan,

¹⁹ Post costing: Analysis of actual information as recorded in the financial books where price is determined finally on the basis of actual cost.

²⁰ Continuous costing: Collects information about cost as and when activity takes place. On completion of project, cost of project should be arrived at.

arriving at the final project cost. Hence, the rates adopted for costing prior to completion of project was inaccurate.

- The system of costing adopted by KHB reflected lumpsum expenditure on cost of land without indicating the breakup of compensation for land, advertisement charges, legal charges, documentation fee, registration charges and other incidental charges. Hence, the data was not verifiable.
- Interest on the cost of the project (as per DPR) for periods ranging from 12 to 24 months was charged while fixing the allotment prices, instead of the actual period taken for completion of the project. This resulted in undervaluation of project cost.
- In some of the projects, KHB had resolved to grant 40 *per cent* of the developed land in lieu of land compensation or incentive sites either free of cost or on subsidised rate, besides land compensation to the land owners. In the present system of costing and also in absence of data with respect to such projects, it was not ascertainable whether such factor had been considered for determining the allotment prices of sites and houses.
- In the absence of any pricing policies and procedures, there was inconsistency in determination of sale price of plots for allotment of sites/houses in each project. In 10 test-checked cases it was observed that percentage of leverage added over and above the actual cost of house and site varied from 0.77 *per cent* to 75.44 *per cent* and 9.96 *per cent* to 183.33 *per cent* respectively (**Appendix-1**).
- In addition, KHB loaded 10 *per cent* as Administrative and Service Charges on project cost arrived merely from the tendered amount for determining the rate for allotment of sites and houses. However, it would have been prudent had KHB charged the Administrative and Service charges after including expenses on project management cost, deposit with other departments, taxes *etc.*, excluding interest. Non-adoption of such computation resulted in under valuation of cost of site/houses and, thus, loss of revenue to the tune of ₹ 16.34 crore (**Appendix-2**).

Detailed scrutiny of costing of three out of 10 test-checked projects showed inconsistencies as brought out below:

3.2.1 Hassan District – Channapatna project

The project at Channapatna was commenced in December 2006 and was completed in May 2010. The expenditure incurred on implementation of the project was ₹ 86.59 crore. However, costing was carried out during August 2008 itself taking into account the cost as per the DPR, tender premium and interest on tendered amount/cost of land for a period of two years at the rate of 13 *per cent* per annum. Total revenue realisation predicted was ₹ 182.44 crore. On recasting, based on the actual expenditure at the end of the project, interest on actual expenditure and period of interest for cost of land worked out for the complete project period (3½ years) the total revenue realisation worked out to ₹ 191.65 crore. Thus, the loss incurred by KHB was ₹ 9.21 crore.

3.2.2 Gulbarga District – Airport land project

The project at Airport land, Gulbarga was taken up in December 2006 and was completed in June 2010. The detailed project cost of ₹ 21.51 crore at the time of costing (July 2008) had escalated to ₹ 44.49 crore at the end of the project period. However, KHB allotted sites at the rate of ₹ 300 per sft and houses at the rate of ₹ 225 per sft determined during July 2008.

However, as per actuals at the end of the project period, the sale price of sites and houses should have been ₹ 328 per sft and ₹ 266 per sft. Hence, KHB incurred an irrecoverable loss of ₹ 11.89 crore.

3.2.3 Davanagere District – Kundavad project

The project at Kundavad, Davanagere had been taken up during March 2005 at a cost of ₹ 59.27 crore. The project was still in progress and the revised detailed project cost had increased to ₹ 99 crore. The cost of the project was calculated by KHB during April 2012 on the basis of DPR cost and tender premium while the project was still in progress. Deficiencies noticed at the time of costing of the project are detailed below:

- Though there was escalation in the cost of the project, cost was not revised on the basis of the revised cost of the project.
- The land cost was taken at ₹ 13.25 crore against actual expenditure of ₹ 16.84 crore.
- The interest on land was computed for a period of 5 years while it was to be computed for 7 years (March 2005 to March 2012).
- KHB was liable to grant 2,43,239.86 sft of developed land as per the policy of granting 40 *per cent* of the developed land in lieu of land compensation to the land owners where land were acquired by KHB under the provisions of Sec. 33(2) of LA Act, 1894. However, the said area was not deducted from the total saleable area while arriving at site price.
- KHB resolved to grant incentive sites at 25 *per cent* of the allotment rate to the land owners, whose land were purchased directly. KHB purchased 216-28 acres of land through direct purchase against which the area of land to be reserved for incentive sites was approximately 2,68,800 sft. KHB had failed to consider this aspect at the time of costing for the purpose of determination of allotment rate.

Thus, by not revising the sale price, KHB would incur a tentative loss of ₹ 125.16 crore on the said project.

