

## HOUSING DEPARTMENT

### 3.4 Karnataka Housing Board – Application and General Controls of Information Technology Systems and Incorrect Assessment of Demand under ‘100 Housing Scheme’

#### Introduction

**3.4.1** The Government established (1965) the Karnataka Housing Board (KHB) for making such schemes and carrying out such works as are necessary for catering to the need of residential accommodation in the State.

The KHB had two important computer applications running. They were Customer Information System (CIS) and the Chief Minister’s Model Town Housing Plan (CMTHP). The CIS was intended to handle the processing of applications, registrations, and allotments/exchanges/cancellations, maintain data of properties, record the collection of registration fees, cost of allotted properties, *etc.*, and to provide up to date information to the management regarding status of housing schemes, sites, *etc.* The CMTHP was intended to handle monitoring/implementation and maintenance of the CMTH Project, which was started, with the objective of developing smaller towns with a population of 10,000-20,000 to cater to low-income groups.

The KHB formulated (July 2000) the ‘100 Housing Scheme’ with the primary objective of providing 13,500 houses affordable to various income groups\* and 15,000 developed sites of various dimensions at affordable prices, at 100 locations covering all districts in the State.

Audit review (September 2004 to November 2004 and April 2005 to June 2005) of the acquisition and utilisation of the two computer applications and assessment of demand and allotment of houses/sites under ‘100 Housing Scheme’ during 2000-05 disclosed the following:

#### Application and General Controls of Information Technology Systems

##### *Software development*

**3.4.2** The KHB decided (2001) to computerise its activities regarding handling of applications for sites/houses. This was felt necessary due to receipt of large number of applications during the year 2000. Thus, the computerisation of the functions relating to the housing schemes was initiated as a response to the large volume of applications received for the housing schemes rather than a part of a conscious Information Technology (IT) strategy with long term goals. It was seen that while going ahead for computerisation, no cost-benefit analysis or feasibility study was carried out. Audit observed that KHB awarded the work of computerisation to Canbank Computer Services Limited, Bangalore (CCSL) on a single tender basis.

The KHB did not ascertain competitiveness of rates agreed for software development. Terms for payment for processing/maintenance of database were vague

\* HIG-High Income Group, MIG-Middle Income Group and LIG-Low Income Group

Though the KHB replied that this was done so, as CCSL is a public sector unit, it was seen that no efforts were made to obtain competitive rates at least from other public sector organisations in the field of software development. Thus, the KHB had no benchmark with which to compare the rates offered by CCSL for computerisation. Moreover, the rates of payment for processing/maintenance of databases were agreed upon arbitrarily and the terms and conditions were drafted in an ambiguous manner. The observations regarding the system acquisition and implementation are detailed below:

### Customer Information System

For carrying out routine functions, KHB paid high prices

**3.4.3** The KHB entered into two Memoranda of Understanding (MoU) in 2001 with CCSL for setting up a CIS, which contained information of all the divisions of the KHB. The system was operated on Windows NT operating systems with SQL Server 2000 as back-end and Visual Basic as front-end. CCSL had been paid Rs.2.32 crore (November 2005) for designing, implementing and running the system. The KHB had no privilege over the source code of the package.

In May 2001, an MoU was entered into with CCSL for providing consultancy services for data capture/maintenance of sale of sites/ houses (May 2001) at the rate of Rs.50 per application for data capture and Rs.170 per allotment handled. The amount payable (Rs.50) per application entailed many activities like printing acknowledgements, photograph and signature scanning of applicants, capturing the details regarding organisation issuing loans, further repayments in lease-cum-sale, sale deed, possession certificate, *etc.* Audit, however, observed that 13,188 applications relating to old housing schemes were merely ported by CCSL from an earlier database only for the purpose of providing information. The payment amounting to Rs.6.59 lakh made on this account was unjustified since none of the activities envisaged in the MoU except porting was performed by CCSL. Further, it was noticed that the payment for data entry was released based on invoices presented by CCSL, without checking the same with the database. Audit also observed that for the year 2004-05, KHB paid Rs.55.84 lakh to CCSL, which employed 15 persons to man the operations at KHB. Thus, KHB was paying at an average rate of Rs.31,027 per man month for such routine functions as data entry and maintenance of database.

### Chief Minister's Model Town Housing Plan Package

New software developed was underutilised

**3.4.4** Though the CIS had been developed by CCSL in 2001, the KHB in 2002 instructed the same company to develop a separate software on the same Relational Data Base Management System (RDBMS) and operating systems for the CMTHP scheme having largely similar functionalities. No thought was given to explore the possibility of modification/customisation of the existing software. The KHB hired CCSL for developing a package for monitoring/implementation and maintenance of the project, at a cost of Rs.12,900 per month per division with the data entry, taking backup, *etc.*, to be carried out by the KHB staff in all divisions. They were paid Rs.27.99 lakh for the period of ten months from September 2002 to June 2003; their services were terminated in July 2003.

Audit observed that the new software developed was grossly underutilised. This was evident as the number of entries made was very low. To cite an example, in two divisions, for ten months, only one entry was made. Similarly, in 13 divisions no entry was made during that period. Apart from data entry, the KHB did not get any other services from CCSL for activities of updating property details, handling allotments, lease-cum-sale details, updating the website, *etc.*, contemplated in the MoU. It was calculated that CCSL were paid Rs.27.99 lakh for the period from September 2002 to June 2003 to maintain an average of just 376 records per division. The KHB replied that the demand was very meagre as against their expectations and hence sufficient data were not available. The reply is not tenable, as the development of the package was not justified even on the basis of the expected number of applicants (800 per division) pointing to lack of a thorough analysis. Thus, had the KHB conducted a proper feasibility study and need analysis before embarking on an advanced RDBMS package, the expenditure to the tune of Rs.27.99 lakh for such a small volume of data, could have been avoided. This showed that the KHB lacked a proper IT strategy but still went ahead with costly investment on IT.

### System documentation

Data generated were not dovetailed with the financial accounts of KHB

**3.4.5** The system developer had not adopted a standard System Development Life Cycle Methodology, with the result the design and the development were made without a thorough study of user needs with regard to input formats and output report formats including their frequency. Even the issue of how the data generated would be dovetailed with accounts of the KHB was not addressed. Neither the design/development was properly documented and approved by the KHB beforehand nor were the acceptances of the users test-signed-off indicating their approval.

### Audit trails

The IVRS was inconsistent and incomplete

**3.4.6** The Interactive Voice Response System (IVRS) was meant to assist the KHB in providing information to the customers without human intervention, giving out details of vacancy, cost, area/project check of application, *etc.* The system had not incorporated audit trails with fields like ‘updated by’, ‘updated on’ and ‘updated from’ and a test-check brought out differences between the information regarding vacancy position of sites/houses as derived from IVRS and the data available in CIS, as detailed below:

**Table 1: Details of differences between IVRS and CIS data**

	Kelakote (Chitradurga) Sites		Haliyal (Karwar) Sites		Gopishetty Koppa (Shimoga)			
	IVRS	CIS	IVRS	CIS	Sites		Houses	
					IVRS	CIS	IVRS	CIS
HIG	23	26	0	0	55	61	05	01
MIG	48	42	48	40	128	133	20	15
LIG	142	145	0	0	81	81	61	66

Thus, the IVRS being inconsistent and incomplete was unreliable and had the potential of adversely affecting the customer confidence in the system, making the expenditure of Rs.9.37 lakh incurred on it unfruitful.

### Analytical review of data

**3.4.7** The data of the CIS package, analysed using the software – IDEA, indicated that the package lacked adequate input controls leading to data entry errors and process controls, resulting in inaccurate reports, making it unreliable for management decision making.

### Data for annual accounts

Information on database did not help in decision making

**3.4.8** The balance sheet of the KHB for the year 2003-04 projected, under current assets, the value of house property in hand at Rs.56.82 crore and land in possession at Rs.44.37 crore totalling to Rs.101.19 crore. The value of assets in hand, as shown in the computerised database was, however, Rs.115.82 crore. Thus, the figures compiled from the records maintained manually differed from the computerised records by Rs.14.63 crore. Moreover, out of 11,373 un-allotted cases in the database, 8,764 records were blank for the value of the asset. The omission was stated to be due to delay in communication from the Allotment and Finance Departments in furnishing the requisite information to the IT Wing. This made the information contained in the database outdated and of limited use for decision making.

### Database for exchange of allotted houses

The database was deficient

**3.4.9** According to the rule of KHB, the applicants were given the option to seek an exchange of the allotted house/site by payment of an exchange fee. It was noticed in 141 cases, that the exchange fee levied was recorded as zero in the database. It was replied (December 2004) that the omission was due to non-receipt of the advice from the Allotment and Finance Departments. This clearly showed that though the KHB had gone ahead with computerisation, proper procedures were not in place to ensure that IT is made full use of for management support functions. Moreover, as this levy is statutory in nature, timely updation of the same should have been ensured by the management.

Various other deficiencies noticed in IT enabled analysis, using IDEA, of the database are given below:

- The same property was found allotted twice, to two applicants with different registration numbers. This showed lack of process controls with the risk of the database being misused. The KHB replied (December 2004) that to accommodate multiple allotments the alteration was made manually.
- As against the rules of the KHB, a single applicant was found to have been allotted two different properties.
- Details of payment of initial deposit and registration fee were not recorded in many cases. Out of 8,142 allotments, no payment was recorded for initial deposit in 2,404 cases and for registration fee in 695 cases. It was replied (December 2004) that in some cases the initial deposits and registration fees were not charged. The database, however, did not indicate this status of the allottees.

- The table pertaining to property details contained 8,172 cases shown as allotted while another table in the same database containing allotment details showed 8,143 allotments. The difference was attributed to multiple allotments. The database, however, did not contain any check boxes or flags to indicate case of multiple allotments for management information.
- The field depicting basis for sale of property by sale or lease-cum-sale was indicated as 'NA' in 80 cases. This indicated lack of input controls making database incomplete. The KHB agreed to rectify the error.
- IT enabled analysis revealed that the date of birth of applicants was not recorded in 1,336 cases besides presence of minor applicants in 1,467 cases.
- Out of 18,640 applicants recorded as unmarried, spouse names were recorded in 3,033 cases.

These observations indicated that in spite of paying substantial costs to CCSL for data maintenance, the database was neither integral nor reliable.

#### **Utilisation of the application as a tool for Management Information System**

**3.4.10** One of the major advantages envisaged by the CIS, was its ability to aid the KHB in decision making by timely generation of reports based on data analysis and generation of various Management Information System (MIS) reports for taking decisions aimed at reducing arrears due from allottees. During the course of review, it was observed that even though the allotment table allowed the recording of provisional cost, amounts paid and balance due from allottees, and action taken to levy penalty or cancellation of allotment or non-payment, the same was not on record. In fact, in 2,129 cases the 'provisional cost to pay by date' was omitted to be recorded which rendered the data incomplete for follow-up.

#### **General Information Technology controls**

**3.4.11** Though the KHB had implemented major IT applications, it was yet to formulate and document a formal IT policy and a long term/medium term IT strategy incorporating the time frame, key performance indicators and cost-benefit analysis for development and integration of various systems. No planning/steering committee with clear roles and responsibilities existed to monitor the software for each functional area in a systematic manner. CCSL, an outside agency, was functioning as manager of the data in all the three packages, while the Systems Department functioning under the Commissioner of the KHB was involved merely in providing facilities and acquisition of hardware/software. The KHB had also not formulated and documented an IT security policy for the security of its IT assets and software including its data. The CIS package is an important system for KHB as its business and revenue earning capacity is dependant on the decisions based upon the information contained in the system. There was, however, no documented 'Disaster Recovery and Business Continuity Plan' outlining the action to be undertaken immediately on the occurrence of a disaster.

**IT policy, strategy and disaster management plans were absent**

### Incorrect Assessment of Demand under '100 Housing Scheme'

**Incorrect assessment of demand led to improper planning**

**3.4.12** The Government approved (January 2001) the Scheme at an estimated cost of Rs.850 crore for completion by December 2002. Of this, Rs.720 crore was to be in the form of loan from Housing and Urban Development Corporation (HUDCO) without Government guarantee and Rs.100 crore in the form of loan on Government guarantee and balance from the self-financing scheme by KHB. The KHB availed of a total credit of Rs.188.07 crore from the HUDCO (Rs.83.07 crore) and nationalised banks (Rs.105 crore) during 2002-05 for funding the Scheme. The KHB incurred a total expenditure of Rs.218.86 crore (Rs.124.06 crore in 2003-04 and Rs.94.80 crore in 2004-05).

**3.4.13** The KHB did not conduct a proper survey for assessing the demand for houses and sites so as to ensure proper identification of the beneficiaries and to prioritise funding. The KHB, instead, considered the applications received for registration as the demand. The registration forms did not contain details of annual income of the applicant and his family, mode of payment including the option for refund, proof of domicile, other property ownership, *etc.* The information obtained was also not cross verified with other sources like census reports, *etc.* In the absence of details and cross check, the assessment of demand adopted by the KHB was fraught with the risk of extending assistance to those who had not even applied. Such an assessment was thus reduced to a mere formality aimed solely at selling the houses constructed, instead of providing houses to those who had applied.

**Developed properties remained un-allotted**

**3.4.14** The position of construction/development and allotment of houses/sites as of July 2005 was as indicated below:

**Table 2: Position of construction/development and allotment of houses/sites**

Number of locations in which the Scheme was to be implemented	100
Number of locations in which execution was actually taken up	70
Number of locations in which execution was completed	44
Total number of houses envisaged	13,500
Number of houses completed	1,579 (12 <i>per cent</i> )
Number of houses allotted	849 (54 <i>per cent</i> )
Number of sites to be developed	15,000
Number of sites actually developed	8,228 (55 <i>per cent</i> )
Number of sites allotted	2,934 (36 <i>per cent</i> )

Thus, even after two and a half years of the originally scheduled date of completion (December 2002) only 12 *per cent* of the houses were completed and 55 *per cent* of the sites were developed. This was attributed by KHB to land litigation, heavy monsoon, change in foundation design, *etc.* Further, only 54 *per cent* (849) of the houses completed and 36 *per cent* (2,934) of the sites developed were allotted. In 14 locations, the KHB developed land/constructed houses in excess of demand and could allot only 21 *per cent* (**Appendix 3.13**). In three<sup>□</sup> project units test-checked, the KHB developed 2,123 sites/houses, adjacent to projects for distribution of sites by local Urban Development Authority. Consequently, 963 sites/houses developed during

<sup>□</sup> Chickmandya/Mandya - 1,349, Kanbargi/Belgaum - 558, Kankanady/Mangalore - 216

2002-05 remained unallotted as of July 2005. The inability of the KHB to allot the property indicated incorrect initial survey and lack of demand.

## Conclusion

### *Computer applications*

**3.4.15** The KHB made large investments in IT without having a clear IT strategy, resulting in heavy expenditure on development and maintenance of applications with limited utility. The CIS had poor general IT controls and contained incomplete information which was not completely reliable and thus of limited use as a tool for MIS. The flow of data from the Finance/Allotment department to the IT system was tardy making the data in the system outdated. The KHB was heavily dependent on CCSL and making heavy payments for routine functions like database maintenance, *etc.*

### *Incorrect assessment of demand under '100 Housing Scheme'*

**3.4.16** The assessment of demand for houses and sites was improper, resulting in 46 *per cent* of the houses constructed and 64 *per cent* of sites developed remaining unallotted.

## Recommendations

### **3.4.17 Computer applications**

- ✎ The KHB should define a clear IT strategy with well defined goals before making further investments to harness IT.
- ✎ The deficiencies in the existing package should be rectified so as to ensure reliability of the output data for its MIS.
- ✎ The KHB should develop in-house expertise to lessen its dependence on the outside service provider and avoid heavy outgo on maintenance charges.
- ✎ The IVRS should be updated so as to provide authentic and timely information to the customers.

### **3.4.18 Incorrect assessment of demand under '100 Housing Scheme'**

- ✎ Proper assessment of demand for houses and sites should be conducted before venturing into schemes, that too with borrowed capital.
- ✎ Measures should be taken to allot the remaining houses/sites constructed/developed expeditiously.

**3.4.19** The above points were referred to Government in August/September 2005; reply had not been received (November 2005).