

Introduction

2.2.1 Andhra Pradesh State Housing Corporation Limited, Hyderabad (Company) was incorporated in July 1979 as a wholly owned Government Company with the main objective to formulate, promote and execute housing schemes for the benefit of people in general and the weaker sections in particular.

The Company implements various housing schemes for the homeless families below poverty line (BPL) in the State belonging to different occupational groups with Central/State assistance by arranging financial, material and technical assistance. In place of the existing Rural and Urban Housing Schemes, the Government launched (May 2006) a new programme, named “Integrated Novel Development in Rural and Model Municipal Areas” (INDIRAMMA) with a goal to develop all the villages and municipal towns in the state in a phased manner. This goal was planned to be achieved in a phased manner over a period of three years with a saturation approach.

Under the above scheme, the Government sanctioned 21,77,069, 25,71,161 and 25,16,059 houses (both in Rural and in Urban areas) between 2006-07 and 2008-09, under Phase I, II and III respectively. The basic unit cost of a house in Rural Areas was Rs 25,000 and of that in Urban areas was Rs 40,000. The unit cost consists of three elements viz., Subsidy, Loan and Beneficiary Contribution. The beneficiaries construct individual houses on self-help/mutual help basis and payment/material is released to them at various stages viz., Basement Level (BL), Lintel Level (LL), Roof Level (RL) and Roof Cast (RC). Apart from the Beneficiary Contribution, Admission Fees and Administrative Charges are recovered from the beneficiary. These are adjusted at the time of making payment to the beneficiary.

To monitor the financial and physical progress of the scheme, the Company developed a web-based application software.

Organisational set up

2.2.2 The management of the company is vested in a Board of Directors (Board). As on 31 March 2009, there were 12 Directors including a Chairman. The Managing Director is the Chief Executive and is assisted by an Executive Director, one Chief General Manager (Finance), one General Manager (Finance), one Chief Engineer and three Superintending Engineers at the Head Office. The Company has set up offices in all the Districts headed by District Manager, assisted by Deputy Executive Engineers (DEE) (at Divisional Level) Assistance Engineers (AEs)/ Mandal In Charge (MIC) and Work Inspectors (at Mandal Level).

Information systems set up

2.2.3 The web-based application software for monitoring the implementation of various housing schemes was developed with POSTGRE as back end and Java as front end. The operating system in use is Red hat Linux. The IT system architecture was client server.

Criticality of the database

2.2.4 The details of the beneficiaries under various housing schemes ¹ like beneficiary ID number, ration card number, names, photographs, addresses and the stage of the house constructed, along with value of cement issued and the amount disbursed are captured in the database. The database is thus critical and is vital for monitoring the stage-wise progress of the houses under construction, amounts to be disbursed, and recovery of Admission Fees, Beneficiary Contribution and administrative charges. Further, the above data would also be useful to arrest double payments.

Audit Objectives

2.2.5 The IT Audit of the application software was conducted with a view to

- ❖ Ensure that the process of software development was consistent with the accepted industry standards.
- ❖ Ensure that the application software supports various systems of procedure, guidelines issued relating to various housing schemes.
- ❖ Ensure that business rules were incorporated in the application software.
- ❖ Ensure that adequate input, process and output controls exist in the application software and the data captured in the system were accurate, complete and valid.
- ❖ Ensure that the application software has achieved the objectives with which it was developed.

¹ INDIRAMMA Rural and Urban Housing Schemes, Indira Awaas Yojana (IAY), Weavers Housing Programme, Fishermen Housing Programme, Beedi Workers Housing Programme, Jawaharlal Nehru National Urban Renewal Mission (JNNURM) and Integrated Housing and Slum Development Programme (IHSDP).

Scope and methodology of audit

2.2.6 All matters relating to development of the application software and its utilisation in monitoring the implementation of various housing schemes covering the transactions in four² out of 23 District offices and at Head Office were reviewed.

The data, covering transactions up to the end of March 2009, furnished by the Company was scrutinised using the Generalised Audit Software –IDEA. The results of queries were compared with the physical records/documents available at the Head Office and District Offices and also as displayed on the Company's website.

The methodology adopted also included

- ❖ Scrutiny of Agenda and Minutes of the Meetings of the Board of Directors, other files/records relating to implementation of application software.
- ❖ Discussions with staff and Officers of the Company at Head Office and District Offices which were later documented.

The process of making payments to beneficiary

2.2.7 Before the introduction of the application software, the progress in the construction of the house by the beneficiary was inspected by the Work Inspector and was reported to the AE. The AE would then inspect the progress, update it in the Measurement Book, prepare the bill and present it to the DEE. The DEE would inspect *ten percent* of the physical progress and pass the bill for payment.

After the introduction of the application software, the entire process from entering the master data to making payment of the Unit Cost to the beneficiary is automated. The initial master data relating to beneficiaries is entered in the database by the Data Entry Operator (DEO) at the Mandal Level. The services of DEOs were specially outsourced for the purpose. The progress of the construction of the house is supervised by the Work Inspectors. One AE, now designated as Mandal In charge (MIC), was made in charge of one Mandal and as the strength of the existing AEs was not adequate, services of private persons as MICs were also outsourced. The MIC updates the stage of the house, uploads the image of the latest phase of construction and then generates Cement Release Order for issue of cement, or Payment Release Order for releasing payment online to the bank account of the beneficiary. Under Phase

² Sangareddy, Kurnool, Warangal and Visakhapatnam.

II and Phase III, the payments are released to the bank accounts of Village Organisations/Self Help Groups (VOs/SHGs) of which the beneficiary is a member. The VOs then make payment to the beneficiary.

For this purpose, the Company procured Laptops, Digital Cameras, Printers and other hardware at a total cost of Rs 7.38 crore.

Constraints faced by Audit

2.2.8 The size of the Data dump covering the transactions between 2006-07 and 2008-09 was large and was about 10 GB in size. The data for images was found to be around 3 TB, and there was no Magnetic Media, which could be used to import and analyse the images. Depending upon the requirement, Audit looked up/ viewed the images on the website of the Company. Though certain cases of duplicate images were detected in audit, help of any specialised software could not be taken because of lack of storage space.

Further, when the Audit party queried the database for existence of duplicate ration cards, or more than one beneficiary on one ration card, it was seen that the field “Ration Card Number” contained irrelevant characters. The ration card issued to a family should contain three alphabets followed by 12 numbers-a total length of 15 characters. There were 14,90,632 (out of 22,41,412), 2,64,741(out of 24,08,011) and 1,036 (out of 17,97,591) records in Phases I, II and III respectively without a proper Ration Card Number. These cases could not be analysed in a meaningful way to detect existence of more than one beneficiary on one ration card. Only the records containing a proper ration card number were considered for the purpose of analysis.

Because of this, not only the database depicted an incorrect picture but also any report generated on matters relating to Ration Card from the database for the use of the Management or the Government was not true and transparent.

Audit findings

2.2.9 The Audit findings were reported (17 September 2009) to the State Government/Management and discussed (7 October 2009) in the exit conference which was attended by the Principal Secretary, the Managing Director, the Executive Director and the representative of the Centre for Good Governance (CGG). In the exit conference the Government and Management accepted the observations and explained the changes made in the application software. The audit findings are discussed below.

Lack of IT Policy

2.2.10 The Company has not formulated and documented Information Technology (IT) Policy for automation of various activities/ branches of operation or Long Term and Short Term Information Technology Plans appropriate to the needs of the Company.

Development of application software

2.2.11 During the year 2006-07 when the Government of Andhra Pradesh launched the programme INDIRAMMA, the Company decided to monitor the implementation of the programme through a web-based application software.

The development of application software was initially entrusted (January 2007) to the Institute of Electronic Governance (IEG), Hyderabad, under the administrative control of the Department of Information Technology and Communication, Government of Andhra Pradesh. From December 2007, the task of database maintenance and further development of/making changes to application software was entrusted to another State Government agency viz., Centre for Good Governance (CGG) without entering into any agreement/Memorandum of Understanding.

Up to March 2009, the Company had incurred an expenditure of Rs 1.57 crore towards development of the application software and changes to the software. (IEG Rs 12.42 lakh and CGG Rs 1.45 crore). The Company incurs a monthly expenditure of Rs 5.34 lakh towards maintenance of servers and administration of database.

Since the Company did not have an IT Policy, it was observed that

- ❖ For the purpose of automation of activities, the Company initiates development on ad-hoc basis considering the requirements in each functional area
- ❖ The development of application software did not follow the accepted development cycle. The processes of feasibility study, finalisation of User and System requirement, testing, and post implementation review were not followed
- ❖ The intellectual property rights of the application software still rest with the CGG.

Though the Government of Andhra Pradesh formulated (August 2001) IT standards, guidelines and best practices and made them mandatory to be implemented in all IT Projects including the projects in the pipeline, the Company did not advise the agencies entrusted with the task of development of application software to follow these standards.

Absence of Security Policy

2.2.12 The Company has not formulated any security policy of its own. Absence of security features exposes the data to the threat of accidental or intentional errors, which would lead to payment to unauthorised persons. In spite of this threat, it was seen that the data was not encrypted during online transactions. It was observed that the Company had not implemented Secure Sockets Layer (SSL) and thus, tacitly compromised Security of the system and data.

Absence of user name and password control policy

2.2.13 Though the Company's website was accessed by about 2500 users regularly to update the data and for releasing payments to the beneficiaries by using their user ids and passwords, the Company neither formulated any password policy nor issued any instructions to the users to follow the guidelines released by the Government in May 2006 with respect to Information Security. Basic password control procedures like minimum length, unique user name and password, periodical compulsory change, limiting the consecutive unsuccessful attempts to login, password protected screens, idle time per session, restricting multiple simultaneous login by the users, etc. were also not followed.

No Change management controls were in place

2.2.14 For the purpose of recording and performing changes in the software in the post implementation stage, a well-defined and documented Change Management Policy is essential. The Company had no such policy. The changes sought by the Company and carried out by the developer were not documented. Even the changes actually made were not compared with the changes sought to be made. The changes were also not tested before implementation.

Lack of change management policies exposed the system to the risk of unauthorised/uncalled for changes being made and may render the system difficult and expensive for correction and improvement.

No business continuity and disaster management plan

2.2.15 The data residing in the server is critical to the business needs of the Company. The Company did not develop a documented business continuity and disaster recovery plan defining the roles, responsibilities, rules and structures for continuing the operations in the event of a disaster. The Company also did not have an alternative processing facility to be employed in case of a disaster.

In the absence of a business continuity and disaster recovery plan, a disaster impacting the servers and other systems could paralyse the normal operations of the Company and result in loss of vital data. Absence of such a plan could also result in loss of goodwill, unwarranted expenditure, duplicate payments and processing delays.

Legacy data entered without verification

2.2.16 At the time of introducing the online method of payment through the web based application software, though the data relating to the existing beneficiaries was entered in the database, its comprehensiveness, correctness, and completeness was not verified, with the result that the data is incomplete, incorrect and irrelevant.

A test check at Warangal District Office revealed that the data pertaining to 414 out of total 689 beneficiaries under Beedi Workers Housing Programme was not entered in the database. The payment made to these beneficiaries up to the end of July 2009 was Rs 68.43 lakh.

Non achievement of primary objective of automation

2.2.17 One of the major constraints resulting in delay in completion of houses by beneficiaries was delay in stage wise release of funds to the beneficiaries. The system in vogue before automation was time consuming and the beneficiaries were put to a lot of hardship because of delay in release of funds for the work done by them. Under the automated system, the payments were released online and directly to the bank account of the beneficiary/VO thereby reducing the time between work done and release of funds. Thus one of the objectives of introduction of automation was to complete a higher number of houses.

A review of the houses sanctioned and completed during the five years ended 2008-09 revealed that the percentage of houses completed after introduction of automation actually decreased. The details are given below:

Sl. No.	Year	Number of houses sanctioned under various schemes	Number of houses completed	Percentage of houses completed to sanctioned
1	2004-05	6,88,943	5,28,552	76.72
2	2005-06	8,15,816	6,83,243	83.75
3	2006-07	21,77,069	5,73,840	26.36
4	2007-08	25,71,161	8,81,101	34.27
5	2008-09	25,16,059	12,20,783	48.52

It may be seen that the percentage of houses completed to sanctioned came down from 83.75 in 2005-06 to 26.36 in 2006-07, during which year automation was introduced. Though the percentage increased during the year

2008-09, it was far less than what was achieved before introduction of automation.

Thus the primary objective of introduction of automation was not achieved even after three years of introduction of the application software.

Input controls

Incomplete database of Phase I

Data entered by outsourced personnel was incomplete and inaccurate.

2.2.18 In view of the situation explained in paragraphs from **2.2.10 to 2.2.16**, the database developed over the years was not complete or accurate and lacked integrity and thus could not be relied upon. The Master Data entered by the DEOs and MICs, who were employed on contract basis, was not authorised by any higher authority and thus the database was updated without any supervisory control. This exposed the database to the risk of unrestricted data manipulation. Neither the application software itself nor the data residing in the database were ever subjected to Internal Audit.

Not only the business rules relating to various parameters of the housing schemes were not incorporated, but also fields capturing vital and critical data were not marked mandatory. Further, whereas certain crucial data was not captured, input controls restricting the total payments to the beneficiaries to the Unit Cost of the house were not incorporated. It was also seen that beneficiaries under different housing schemes were grouped under housing schemes having identification numbers not present in the Scheme Master.

Multiple beneficiaries on one Ration Card

2.2.19 The fields capturing the Ration Card number, annual income of the beneficiary, the scheme id number, the patta number etc were not made unique and mandatory.

Non-existence of input validation controls led to sanction of multiple houses on same ration card contrary to the scheme guidelines.

The guidelines issued under various Housing Schemes envisaged, *inter alia*, that only one member should be considered for sanction of a house from a BPL Family. A ration card typically represents the unit "Family".

Since, the objective of the housing schemes was to facilitate maximum number of "families"- as opposed to maximum number of "beneficiaries"- to own a house, the process of identification and selection of beneficiaries also stipulated that only one member of a family should be considered for sanction of a house from each of the families.

Guidelines issued by the Government of Andhra Pradesh in May 2006, while launching housing programme under INDIRAMMA in 2006-07 also stipulated

that only one member should be considered for sanction of a house from a family.

Guidelines also stipulated that the AEs concerned should ensure that no beneficiary covered under any other earlier housing scheme either on his name/name of the spouse, be covered under the above scheme and the policy of “one house to one family” should be adhered to strictly. The intention of the Government was clear that there should not exist more than one beneficiary on a ration card. This implied that a ration card number should appear only once in any one of the three phases irrespective of the Scheme.

A query on the database revealed the presence of multiple beneficiaries on one ration card not only in Phase I and Phase II simultaneously, but also in certain instances, in all the three phases. This not only defeated the intentions of the scheme but also deprived other deserving families of the benefit of the scheme.

The details of the result of the query is as follows:

Phase	Number of records (more than one beneficiary per ration card)	Amount disbursed to these beneficiaries (Rs in crore)
Phase I	22,355	200.86
Phase II	63,906	265.85
Phase III	Nil	Nil
Same Ration Card appearing in more than one Phase	3,365	12.84
Total	89,626	479.55

Following are further observations:

- ❖ As the orders of the Government clearly indicated that only one member should be considered for sanction of a house from a family, presence of more than one member from a family as a beneficiary resulted not only in violation of the guidelines of the Government but also in denial of benefit to other eligible families
- ❖ The presence of a ration card more than once in the database points to the fact that the application software did not have input controls restricting the entry of the same ration card in the master database

Double payment to the same beneficiary

2.2.20 The objective of developing the application software and building up the database of the beneficiaries was also to ensure that the payments were made only to a genuine beneficiary and were released directly to him/her.

A query on the database on similar names/spouse names in the same district, same Mandal and same panchayat (village) of Kurnool District revealed that in respect of 1,971, cases payment was made to the same beneficiary twice. A total amount of Rs 4.15 crore was paid to these beneficiaries as detailed below.

Phase	Number of beneficiaries with similar names/spouse names	Amount paid to these beneficiaries (Rs in crore)
Phase-I	1,389	3.04
Phase-II	518	1.03
Phase-III	64	0.08
TOTAL	1,971	4.15

The beneficiary details available on the website of the Company confirmed that the beneficiary was the same and was registered under a different beneficiary identity number.

A view of the beneficiary details of certain cases from out of the above 1,971 records also confirmed that the photographs were also same. Such beneficiaries were not only admitted in the scheme but payment was also made to these beneficiaries without verifying the identity of these beneficiaries.

The following further observations emerge:

- ❖ Presence of such records in the database reveals that the software does not prescribe any validation checks in respect of the fields capturing the above data, or the validations prescribed were inadequate in preventing entry of similar names, father/spouse names, etc. in identifying the genuineness of the beneficiary
- ❖ Lack of adequate validation checks and non-supervision of the data entered resulted in payment to the same persons under different IDs.

Issue of cement in excess of norms fixed - Passing on of excess subsidy to the beneficiary

2.2.21 Cement is issued to a beneficiary at a subsidised price at various stages of construction. The maximum number of cement bags that could be issued to a beneficiary, under any of the housing schemes, for completing the house is 50.

A query on the database revealed that cement issued at various stages of construction was in excess of the norms fixed for the relevant phase.

It was seen that a total of 9,07,659 bags of cement was issued to 78,818 beneficiaries under three Phases in excess of the norms. The value of cement

issued in excess of the norm was Rs 13.62 crore. The details are indicated in **Annexure-16**.

The following observations emerge:

- ❖ Issue of cement in excess of the norms was possible apparently because there were no validation checks to monitor the issue of cement.
- ❖ Though the value of cement issued to the beneficiary was a part of the final unit cost of the house, issue of cement in excess of 50 bags tantamounts to passing on of excess subsidy to the beneficiary than intended.

Other than ST beneficiaries under SPR

Non-incorporation of business rules led to allotment of houses under SPR Scheme to other than ST beneficiaries.

2.2.22 Semi Permanent Rural Housing Scheme (SPR) implemented by the Company was meant exclusively for the members of ST. This Scheme was implemented in Phase I only.

A query on the database revealed that a total number of 13 beneficiaries not belonging to the ST category were allotted houses under this Scheme. An amount of Rs 1.03 lakh was also disbursed to these beneficiaries whose houses were under different stages of completion.

This was not only against the guidelines of the Scheme but also deprived the deserving ST members of the benefit.

Houses under Urban Housing Schemes classified under Rural Area

2.2.23 In Visakhapatnam District, under Phase I, 247 beneficiaries were sanctioned houses under Urban housing scheme in Pedagantyada Mandal, though this Mandal falls under Rural area. These beneficiaries were at various stages of construction and a total amount of Rs 97.20 lakh was paid to them. It was seen that 243 out of the above 247 beneficiaries who have completed the construction were paid in excess of the unit cost (Rs 34,250 under Rural Housing Scheme) of the house and such excess payment amounted to Rs 13.97 lakh.

Similarly under Phase II, 107 beneficiaries were sanctioned houses under Urban Housing Scheme in that Mandal. These beneficiaries were at various stages of construction and a total amount of Rs 18.11 lakh was paid to them. It was seen that 18 beneficiaries who had completed the construction were paid in excess of the unit cost of the house and such excess payment amounted to Rs 0.98 lakh.

This was apparently a result of not properly mapping the Mandals into Rural and Urban areas and listing them in the Mandal Master. As the Unit Cost in an Urban area was different from that of one in Rural Area, such

misclassification could lead to either payment of higher unit cost to a beneficiary of Rural areas being included in an Urban area or otherwise denial of the total unit cost to a beneficiary.

Transfer of completed houses from one scheme to another

Because of not making necessary changes in database and in books of account the database depicted an incorrect picture.

2.2.24 It was also noticed that completed houses under Rural Housing schemes were transferred to Indira Awaas Yojana (IAY). The software did not have provision to capture the dates on which such transfers were made.

Further, it was noticed that beneficiaries under both these schemes were also grouped under a single "Scheme ID number", which made the data analysis irrelevant.

The Rural Housing Schemes were sponsored by the State Government and the Unit Cost contained an element of Loan. The Unit Cost under the IAY was entirely subsidised and did not contain a loan component. The subsidy was shared by the State and Central Governments in the ratio of 25 per cent and 75 per cent respectively. No rectification entries were however made either in the books of account or the database in cases where such transfer was affected.

Also, since the Unit Cost under IAY was lower than that of Rural Housing schemes, upon transfer of beneficiaries to IAY, the actual payments made appeared as payment in excess of unit cost and the component of Loan would cease to exist. Because of the BPL status of the beneficiary, this was rendered unrecoverable.

This also tantamounts to tacit misrepresentation of the actual number of houses completed under these schemes and accounting of funds received thereunder. The process and quantum of recovery of Interest on the Loans advanced also gets adversely affected.

Because of this, not only the database depicted an incorrect picture but also any report generated from the database for the use of the Management or the Government was not true.

Process controls

Non-incorporation of business rules in procedure for making payments to the beneficiaries

Non-incorporation of business rules resulted in non-verification of payments authorised by MICs.

2.2.25 After the implementation of the application software facilitating on-line payment to the beneficiaries, it was observed that the MICs were authorised to generate the Payment Release Order (PRO) by updating the

stage of construction. There were no checks on the data updated by an MIC, as were available in the erstwhile procedure. The DEE was not provided with a login ID.

The data fed by the MICs was updated in the database, without being authorised by any higher authority, nor any M-Books were created in the database, to be checked by the DEE. In these circumstances money was disbursed to beneficiaries by an outsourced MIC without any check by a higher authority, which was contrary to the procedure so far followed by the Company.

In Mandals, where the payments were to be made to beneficiaries/ VOs having an account with a bank not equipped with core banking facility, the MIC manually issued a Funds Transfer Requisition (FTR) enclosing all PROs generated online, to bank concerned. The PROs generated were in PDF format. The FTR contained the total amount of all PROs to be paid to the beneficiaries who held an account in that Bank. The local Banks released the amount as per the details available in PROs enclosed with the FTR and claimed the amount from their designated Branch in Hyderabad, which in turn claim the amount from the Company by providing the details of FTRs on which the payment was made.

As per the Memorandum of Understanding signed between Company and Nodal Banks in November 2007, the Banks would submit a daily statement to the Company, showing the receipts/ drawals on their account, Mandal-wise/ FTR wise for reconciliation.

PROs generated by MICs in respect of non-core banking facility, could be altered by altering the beneficiary name/account number manually, before handing over to the local banks.

Though there was necessity for manual intervention in such cases, no internal control mechanism like, say, the FTRs countersigned by a higher authority before they were presented to the bank, or issue of advices to the bank to allow only system generated PROs, was built in.

It was observed that in the Warangal District Office the details of daily disbursements were not obtained and the daily payments by the Banks were not reconciled. During the period between April 2008 and January 2009 the Regonda and Kothapally Branches of Andhra Pradesh Grameena Vikas Bank disbursed payments amounting to Rs 1.84 crore and Rs 1.22 crore respectively. These payments could not be verified by the Mandal Office because of lack of availability of any supporting records with them.

Lack of security in online payment to beneficiaries

Lack of provision for seamless transfer in application software resulted in fraudulent disbursement of Rs 2.29 crore.

2.2.26 Where a beneficiary/VO holds an account in a bank having a core-banking facility, the payment is released from the Head Office using net

banking facility offered by the banks. The PROs generated during the earlier working day in respect of banks having core-banking facility, were e-mailed by the central server to the designated officers in Head Office. The details of bank wise PROs so received were in the form of Comma Separated Value (CSV) files. The officers using their user ID and password logged on to the net banking and uploaded the file received from the server for making payment. The threat in this transaction lied in the fact that the CSV files could be edited and could be uploaded more than once. The account number values could be altered before making payment through the net banking facility. Payment gateways should have been sought from the banks to curb this threat.

Lack of provision of any kind of seamless transfer of the file received from the server resulted in payment of Rs 2.29 crore to bank accounts other than those of the beneficiaries. This occurred because the excel sheet was edited and account numbers of beneficiaries were replaced fraudulently with account numbers other than those of beneficiaries, before uploading the sheet for release of payment.

Short-recovery of administrative charges

2.2.27 The Administrative Charges recoverable from Rural and Urban beneficiaries were fixed at Rs 1,350 and Rs 3,300 respectively.

A query on the database revealed that there was a short-recovery of Administrative Charges in respect of Rural and Urban beneficiaries amounting to Rs 1.78 crore as shown below:

Number of beneficiaries who have reached RC stage	Administration Charges recoverable (Rupees)	Administration charges actually recovered (Rupees)	Short recovery of Admn. Charges (Rupees in crore)
19,914	2,68,83,900 (@Rs 1,350)	1,00,01,489	1.69
631	20,82,300 (@Rs 3,300)	11,29,750	0.09
Total			1.78

It is evident from the above that the application software was not designed to recover the Administrative Charges as specified under the schemes.

As Administrative Charges were recovered mainly to absorb the administrative expenses incurred by the Company in implementation of housing schemes, short recovery thereof had a direct and negative impact on the Receipt and Payment Account.

Presence of a look-alike website owned by a third party

2.2.28 The Company had registered a domain name styled “apshcl.gov.in” in April 2005. But instead of hosting their website on their own domain name, it

was seen that the company had hosted its site on the site of the software developers as a sub-domain “housing.cgg.gov.in”.

Incidentally, another website identical and with similar properties to the Company’s website owned by a third party also existed. The Emblems And Names (Prevention Of Improper Use) Act, 1950 prevents the improper use of certain emblems and names for professional and commercial purposes. Further, Section 14 of the Information Technology Act, 2000 (21 of 2000) also states that the information/data compiled must remain confidential, secure and retaining its integrity. Computer programmes and databases cannot be copied or downloaded without the owner’s permission. Audit observed that so far. (August 2009) no action had been initiated to block the look-alike web site.

Audit did not have requisite tools to vouchsafe that the look-alike website was not capturing personal and confidential information of the users and putting it to illegal use, in the event of a user accidentally accessing the said website.

Inadequacies in application software

Generation of a Cement Release Order (CRO)

2.2.29 A CRO could be generated on-line, when the details of the stage of construction are updated in the database. Against the CRO, cement is issued to the beneficiary from the cement godowns in the Mandal.

An examination of the process of on-line generation of CRO, revealed that:

- ❖ A CRO could be generated for (a) a quantity more than the available stock or (b) even when there was no stock in the godown. This was possible because the CRO was not integrated with the stocks in the godowns
- ❖ Some beneficiaries opt for Asbestos Cement (AC) sheets for roof in place of RCC slab. In such cases also a CRO could be generated. In such cases, the MIC generated the CRO, printed it and recorded thereon the fact that the beneficiary had opted for AC sheets for roof and hence, cement would not be issued to him. There was a threat of misappropriation/misuse of a CRO in such cases

The option of the beneficiary could be taken in the initial stage itself. The process of generation of CRO for the roof in such cases could be disabled *ab initio*. Later when the beneficiary opts for RCC roof, the option could be enabled by the District Manager/Superintending Engineer.

Alternatively, as the Work Inspectors and the MICs are in frequent contact with the beneficiary, when it is known that the beneficiary is opting for AC sheets, the generation of CRO could be disabled in such case.

Inadequate capture of data

2.2.30 It was observed that the following vital information was not captured in the database, making the database incomplete and unreliable.

- ❖ After completion of the house, the beneficiaries would repay the Loan by way of EMIs. The software did not have provision to capture the EMIs actually paid by a beneficiary and the amount of Loan and Interest outstanding. As a result, the software was not capable of indicating the total outstanding dues, for the Management to monitor the recovery process
- ❖ The beneficiaries lodge their documents relating to allotment/ownership of land on which the house is constructed. After the loan is fully repaid, these are returned to the beneficiaries. Though there was a provision in the database to capture the date of lodging of documents there was no provision to capture the details of returning the documents to beneficiaries
- ❖ The VOs/SHGs were entitled to a commission of 0.5 *per cent* of the amount disbursed to the beneficiaries. Amount due/paid to them on account of commission is also not ascertainable from the database

Amounts disbursed not accounted until the house is complete

2.2.31 The unit cost of a house, under most of the housing schemes, consisted of three components of finance viz., (a) Beneficiary Contribution, (b) Grant/Subsidy from Government and (c) Loan.

It was seen that the payments released to the beneficiaries were not captured in the Module Online Financial Management System. The software was redundant to this extent.

It was also seen that there was no order in which the funds released were accounted for in the books of account. The amounts paid to the beneficiaries were segregated into the three components only after the construction of the house was completed. It was seen that the value of houses yet to be completed stood at Rs 6,360.56 crore as at 31 March 2008 (as per Provisional Accounts) and the components under which these funds were disbursed were not known.

Presence of out of place images

2.2.32 The MICs were required to upload the stage wise photograph/image of the beneficiary standing in front of the house, depicting the progress made and thus qualifying for release of cement/payment. It was noticed that in many instances the images other than the ones prescribed were uploaded, as was seen from the page showing Beneficiary Details on the company's website. Such images included the images of gods, screen savers and other irrelevant images. Even same images were uploaded more than once.

Missing Records and Records deleted from database

2.2.33 A beneficiary in Warangal (Urban) Mandal was paid a total amount of Rs 0.39 lakh during July, August and September 2008, but these details did not find place in the data dump (table indicating payments to beneficiaries) provided to Audit which was up to March 2009.

Upon a verbal enquiry with CGG it was informed that though the payments were entered as above, they were really made "off line", i.e., before implementation of application software, but were entered in the database only in April 2009.

It was seen that the data available on the website (Report on Details of Beedi workers' Schemes), indicates no change in the number of beneficiaries as at the end of March 2009 and as at July 2009 in the Warangal (Urban) Mandal. Also, the dates of payment entered in the details (Report on beneficiary Details) did not reflect in the Table detailing the Payment Release Orders. Hence it could be concluded that they were not correct. If the payments were in reality made earlier to the implementation of the application software the legacy data (backlog data) said to have been entered in April 2009 should not have allowed the option of entering "dates of payment", instead an option of entering only "off-line payment" should have been allowed. The addition in the Warangal (Urban) Mandal does not show in the Report generated from the website. This could be because the addition of one beneficiary would have been compensated by deletion of yet another one. The Report generated in the instant case, is obviously incorrect. It was also seen that though one beneficiary was added in the District, the addition was shown in Cherial Mandal and not in Warangal (Urban) Mandal. The officials concerned in the District Office could not confirm the addition in either of the Mandals. In the absence of communication to the District Office, it is not known how the Management ensured that the number of beneficiaries was in conformity with the number sanctioned by the Government. Circumstances under which the beneficiary was added was not made clear by the officials of the District Office. This also indicated that the data was incomplete, could not be relied upon and the veracity of the data could not be vouchsafed in Audit.

In another instance, in the Visakhapatnam District, records relating to two beneficiaries under Phase I/Spill Over Schemes were found to be deleted from

the Beneficiary Details on the website. An amount of Rs 0.26 lakh and Rs 0.23 lakh respectively was paid to these beneficiaries.

It was also noticed in the tables “public_pro”, “public_cro”, “public_mro” and “public_payments”, that there were gaps in the serial number of the release order. This indicates that these records were deleted from the database.

Records were thus deleted in violation of the principles of RDBMS. Any reports generated from such a database would not be true.

Spill over housing schemes

Observation on the database relating to Housing Scheme for Beedi Workers

2.2.34 Government of India, Ministry of Labour & Employment issued (May 2005) guidelines in respect of “The Revised Integrated Housing Scheme 2005 for Beedi Workers etc.”. As per the guidelines, the minimum cost of construction of a house was Rs 45,000, out of which the Central subsidy was Rs 40,000 and Beedi Worker’s contribution Rs 5,000. The guidelines stipulated, *inter alia*, that the house would be completed within a period of 18 months failing which the amount of subsidy should be forfeited and should be recovered along with penal interest to be determined by Government of India. The subsidy and such penal interest were to be recovered as arrears of land revenue.

The details of number of houses sanctioned/allotted for the Warangal District are as follows:

Year	Original sanction by GOI	Finally Taken up	Already completed	Balance no. of Houses at various stages
Up to 1996-97				31
2003-04	906	430	48	382
2005-06	2,561	2,561	1,231	1,330
2007-08	480	480	0	480
Total	3,947	3,471	1,279	2,223

A query on the database relating to the beneficiaries of the above Scheme revealed presence of many shortcomings, which rendered monitoring the progress of work and of expenditure impracticable. The observations are as follows:

a) Different identifying numbers for the same scheme under two tables

The database revealed that the Scheme ID assigned to the Scheme of the Beedi Workers housing programme was '69' (as per the table "public_beneficiary details") at 31 March 2009, which was different from that of Online ID (Nomenclature of Scheme ID as visible on the Company's website) which was "1C".

Further, in the table indicating the details of payment to beneficiaries the ID of the Scheme was not captured. Normally, the payments to be made to a beneficiary should be monitored with reference to the scheme. The ID of the scheme was however captured in the table indicating details of the beneficiaries but not in the table indicating details of payment. As the unit cost and phase-wise payment varies depending upon the Scheme, capturing the ID of the Scheme in the table indicating payment would help in keeping a check on the total payment made/to be made. Because of this there existed a threat that the payments could not be monitored, if the user was not vigilant.

As the Scheme ID is different from Online ID, there is a possibility of confusion and the varying Scheme ID would make it difficult for user to identify the scheme and trace the beneficiary. In the absence of a common Scheme ID number, the MIS reports generated on this scheme would also be incorrect.

b) Discrepancy in the number of beneficiaries

A query on the database revealed that there was also discrepancy in the total number of beneficiaries under the above Scheme. It was seen that the number of beneficiaries as per the database was 1,210 (as per the table indicating beneficiary details under Phase I) and the number of houses (as per the table indicating details of payment) was 2,223. The number of beneficiaries under this scheme as at the end of March 2009 available on the Company's website and available on the IT Manager's login, was 1,718, which does not agree with either of the above two tables.

The difference in the number of beneficiaries under two different tables in the database indicates that the database was incongruous, lacked integrity and thus was unreliable.

c) Non-recovery of subsidy from the Tenements not completed within the stipulated period

Non-monitoring of the progress of the Scheme defeating one of the objectives for the development of software.

A query on the database of Warangal District revealed that 650 beneficiaries had not completed the construction within the stipulated time. The delays (represented by the time lapse between date of last update and date of documentation) ranged between 549 days and 1618 days. Query also revealed that in case of 84 beneficiaries out of the above 549, either of the two date fields was blank. This indicates that the validation checks were not adequate to aid watching the progress of the scheme.

Further, there was no provision to capture the delays in order to compute the quantum of penal Interest to help commence the process of recovery of penal Interest.

As per the database, the total amount paid to these 650 beneficiaries and recoverable from them was Rs 2.38 crore. This was neither forfeited nor exemption orders obtained from the Government of India. This amount was locked up in the shape of houses under various stages of construction without attaining the objective for which they were advanced.

Thus, the application software did not help the Management in monitoring the implementation of the housing schemes.

d) Short-payment to beneficiaries:

A query on the database revealed that as many as 413 (out of 992) beneficiaries who had reached the RC level, were paid less than the unit cost. As per the database, such short-payment was Rs 12.57 lakh.

It was evident that the validation checks to monitor the quantum of money to be paid upon reaching a level of construction were also inadequate, in as much as the beneficiaries were deprived of the legitimate benefits available to them under the housing scheme.

Miscellaneous

2.2.35 A query on the database relating to the various housing schemes of the Warangal District in Phase I revealed the following:

a. Same Scheme IDs for different Schemes:

All the data relating to the various housing schemes implemented by the Company throughout the State is also displayed on the Company's website. On the website the scheme is also assigned an identification number. It was seen that the Scheme ID number assigned to a housing scheme in the data dump was at variance with that assigned on the website.

A query on the database also revealed various other inconsistencies. It was observed that in the data dump, the beneficiaries who were sanctioned houses under two different schemes were grouped under one Scheme ID number. Thus, the data contained therein was incorrect and unreliable.

The results of the query are detailed in **Annexure-17**.

b. Inclusion of certain Schemes not implemented in Warangal District

A query on the database revealed that some beneficiaries were included in schemes, not executed by the Warangal District so far. The details are as hereunder.

Name of the Scheme	Scheme ID assigned as per Dump	Number Of beneficiaries	Amount Paid (Rs in lakh)
IHSDP	15	6	1.05
JNNURM	16	4	0.10
Total			1.15

It is not known how these beneficiaries were grouped under the Scheme.

c. Some beneficiaries not grouped under any of the Schemes

It was seen that a total number of 51,743 beneficiaries through out the State as at the end of March 2009 were not grouped under any of the Schemes. These were grouped under "Other Schemes". The payment made to these beneficiaries as at July 2009 was Rs 96.06 crore.

Not grouping these beneficiaries under any of the Schemes rendered them unbound by any of the guidelines and thus not susceptible to any checks regarding quantum and time of payments.

In the absence of any details, it could not be verified in Audit whether the payments made to these beneficiaries was regular and within the unit cost.

It is apparent that at no stage the Management reviewed the database. A review would have either prevented or helped detection of presence of such irrelevant data.

General Controls

No Login ID for the District Manager

2.2.36 The District Manager/Superintending Engineer is overall in-charge of the District and supervises the work done by the EEs, Dy. EEs and AEs/MICs. He is responsible for the operation of housing schemes in the District.

After introduction of the application software the progress of all the activities in the District were updated in the database by the MIC/IT Manager, through

their Login Id. The post of the IT Manager was created after implementation of the application software and was occupied by an out-sourced person.

The District Manager has not been provided with a Login Id. He has to depend on the IT Manager for getting the online reports. In the absence of the IT Manager, the District Manager cannot obtain the required reports online.

The District Manager also conducts/attends periodical review meetings in the District/villages and also conducts surprise checks of the housing programme in the District. Provision of a Laptop with Internet facility and Login Id would go a long way in better discharge of his duties and would also eliminate his dependence on the IT Manager and Mandal in-charge who are provided with a Login Id.

Back up of Data/Images at the District Offices

2.2.37 The MICs/IT Managers usually store data/images pertaining to beneficiaries/houses on their Laptops/machines before uploading/ updating them in the database. It was seen that no regular back-ups were taken of these data. Further, no instructions have been issued by the Head Office to the MICs/IT Manager to take backups at regular intervals.

In the event of crash/malfunction/loss of images/laptops provided to the MICs/machines at the District Office the data/images stored would be permanently lost as there is no back up available to restore the system. The back up of the data not yet uploaded by the MICs was also not available with the IT Manager in the District Office.

Redundancy of Module, Records and Work

Cement logistics and payment

2.2.38 There exists a provision in the application software under the module “Cement logistics and payment” which facilitates the District Offices to place indent on the cement manufacturers whenever the stocks were low. The cement manufacturers also could upload the details of despatches of cement made. The module would also facilitate Head Office in allocation of cement to various Districts/Mandals/Godowns and making payment to the cement manufacturers for the supplies affected by them. It was seen that because of lack of integration with the cement godowns, this facility was not being used. The software, to this extent, was redundant.

Replacing the system of maintenance of physical records

2.2.39 Before implementation of the application software, the following records were being maintained manually in the various Field Offices of the Company (i.e., by the Assistant Engineers, DEEs, Executive Engineers and at District Offices) for monitoring the implementation of Housing Schemes:

1. Register of Houses sanctioned – G.O.-wise/ Proceeding-wise/ Year-wise/ Scheme-wise
2. Register/Statement showing Beneficiary Contribution and Admission Fees
3. Statement of Loan Recoveries with details of Principal and Interest
4. Loan Ledgers
5. Bank Subsidy Ledger (Form 17)
6. Completed Houses/ Colony Register (Form 23)
7. Schemes in Progress (Form 24)
8. Individual Beneficiary Ledger/Beneficiary Payment Register (Form 30)
9. Stock Register (Cement/ Nirmitti Kendra Material) Form 31

Automation is normally aimed at dispensing with maintenance of records and should, in the normal course, result in reduction of number of records maintained manually.

A review of the records maintained in the Field Offices of Warangal District after implementation of the application software revealed the following:

a. Records continued to be maintained manually, though information is available in the database

The maintenance of the following two records was not discontinued though the information is available on the website of the Company.

1. Form 24 Register (Schemes in Progress)
2. Form 30 (Individual Beneficiary Ledger/ Beneficiary Payment Register)

b. Records discontinued to be maintained though the information is not available online

The information relating to the amount of Loan disbursed to beneficiaries, the amount of Interest to be recovered from them and the amount actually recovered with details of Principal and Interest was not being captured in the database and hence not displayed online. But it was seen that the maintenance of the following three registers, dealing with the above was discontinued, resulting in loss of valuable data.

1. Statement of Loan Recoveries with details of Principal and Interest

2. Loan Ledgers
3. Loan Recovery Statement

c. Redundant records additionally maintained manually, in spite of automation

The field offices were instructed to maintain the following records/ registers, though the information is available online and can be easily accessed.

1. The information available online was to be compared with the records maintained manually and if any discrepancy is noticed it has to be brought to the notice of higher authorities so that can be resolved without any delay.
2. Preparation of abstract of the PROs, CROs and MPROs and the Statement "Schemes in Progress" scheme-wise/ year-wise.
3. Preparation of bank-wise statements indicating draws.
4. Maintenance of separate bank book for the houses taken up departmentally.
5. Maintenance of physical progress reports scheme-wise/year-wise on weekly basis by taking prints from online records.

Preparation and maintenance of these records resulted in redundancy of work as well as redundancy of records.

Other observations

Computation of loans to the beneficiaries under Current Assets, Loans and Advances

2.2.40 The recovery of the Loan component of the unit cost commences in the form of Equated Monthly Instalments, from the month following the completion of the house. The Loan recovery was one of the important functions of the Company.

Though the Interest on loans due from beneficiaries is accounted for on cash basis in the Books of the Account, the amount of Interest actually recovered is brought to the Income and Expenditure Account. The Loans to beneficiaries is accounted under Loans and Advances.

The Company converted many completed houses from RPH schemes to IAY. The unit cost of the house under IAY had no loan component and consisted entirely of subsidy. No corresponding changes were being made either in the database or in the accounts, thereby the figures of number of houses completed under various housing schemes, the loan disbursed to and interest thereon due from beneficiaries as shown in the website were not correct.

As a result, Current Assets, Loans and Advances, under Schemes in Progress as exhibited in the Balance Sheet were not true.

It was also observed that the District Offices furnish their progress report showing the loan and interest due thereon in respect of completed houses under various schemes. To furnish the above figures, the District Offices took out a report from the Company's website in respect of various schemes and based on the report, arrived at the quantum of loan component by multiplying the number of houses with the loan component available under the scheme. But as no changes were made in database upon transfer of completed houses to IAY, the report so prepared was also not true.

All the above factors have impact on the compilation of the value of Loans to beneficiaries under Current Assets, Loans and Advances.

Physical verification of IT related Inventory

2.2.41 All the field offices were provided with desktops, laptops, and other hardware. It was seen that no periodical physical verification of these stocks was conducted.

Non-integration with other Departments

2.2.42 The critical data relating to the Ration Card, door/house number, patta possession certificate number etc., were captured while entering the master data of the beneficiary. As these certificates were issued by various state government departments and the database is available with them, sharing that database or looking up that database, for ensuring that the applicant is genuine would help at least in reducing the instances of duplicate beneficiaries in the same names/spouse names.

The observations were issued to the Management and the Government in September 2009. The replies from them have not been received so far (October 2009).

Acknowledgement

Audit acknowledges the co-operation and assistance extended by the staff and the Management of the Company at various stages of conducting the Information Technology Audit.

Conclusion

- ❖ *Since the Company did not have an IT Policy, the development of application software did not follow the accepted development cycle. It was observed that the Company did not also advise the agencies entrusted with the task of development of application software to*

follow these standards formulated by the Government in August 2001.

- ❖ *The processes of feasibility study, finalisation of User and System requirement, testing, and post implementation review were not followed. The application software was not tested before putting it into operation.*
- ❖ *The data relating to the existing beneficiaries before automation though entered in the database, the entry of such data was not supervised or authorised by any higher authority. Data relating to some beneficiaries is yet to be entered in the database, rendering the database incomplete and un-reliable.*
- ❖ *Although the database of the beneficiaries was built up and application software was developed with an objective to monitor the progress of housing programme and timely payment to the beneficiaries, because of incorrect, irrelevant records and payment to beneficiaries through Village Organisations/Self Help Groups, these objectives were not achieved.*
- ❖ *Because of inadequacy of input controls more than one beneficiary was admitted on one ration card in violation of the scheme guidelines and cement was issued to beneficiaries in excess of norms fixed.*
- ❖ *Because of lack of security in the application software, and non-incorporation of business rules, payments were made to bank accounts other than those of the beneficiaries.*
- ❖ *Though completed houses were transferred from one scheme to another, no correcting entries were passed in the books of account and no changes were made in the database, rendering the database incorrect. Because of this the figures as exhibited in the annual accounts of the Company under Current Assets, Loans and Advances were not true.*
- ❖ *Contrary to the norms of the RDBMS, records were deleted from the database, rendering the database incomplete.*
- ❖ *Vital data on repayment of loans by the beneficiaries, the dates of return of their original documents etc., were not captured in the database.*
- ❖ *The module on cement logistics and payment was not fully developed and was not being used. The payment made to the beneficiaries was not being captured in the module online finance management system.*
- ❖ *Certain physical records maintained prior to automation continued to be maintained though the information is available on the Company's website, whereas certain others were discontinued though data relating thereto is not captured in the database.*

Recommendations

- ❖ *There is an urgent need for formulating IT Policy and Security Policy*
- ❖ *The threats present in the application software are to be urgently removed*
- ❖ *The Company has to formulate a change management policy and record all changes made in the application software*
- ❖ *All the modules of the application have to be completely developed and utilised*
- ❖ *The Company has to document business continuity and disaster recovery plan*
- ❖ *The data relating to beneficiaries which is not yet updated is to be updated making the database complete*
- ❖ *The data entered in the database is to be authorised by a higher authority preventing entry of incorrect and irrelevant data*
- ❖ *Adequate validation controls are to be built in preventing presence of blank fields, entry of irrelevant and incorrect data*
- ❖ *Business Rules are to be incorporated in the application software*
- ❖ *Steps are to be taken to disable multiple beneficiaries on one ration card so as to ensure that only one beneficiary on one ration card exists*
- ❖ *When completed houses are transferred from one scheme to another, correcting entries are to be passed in the Books of accounts and the database, so that the database exhibits the true picture*
- ❖ *While entering the data relating to the Ration Card, door/house number, patta possession certificate number etc., sharing that database or looking up that database would ensure that the applicant is genuine and would help at least in reducing the instances of duplicate beneficiaries in the same names/spouse names.*