



Office of the Auditor General

**Investigation into alleged computer fraud at
Kampala City Council**

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1. Introduction

- 1.1 Kampala City Council is the largest local authority in Uganda. In 2003, the KCC management found out that that figures of receipts recorded at cash offices relating to *building plan fees* differed substantially from those recorded at the Plans Offices, where the fees were initially assessed. An internal investigation conducted by the Senior Accountant (Revenue Department) revealed that the details of receipts at the cash office did not match the corresponding figures recorded in the plans office register. In many cases the receipts themselves were missing. The difference between amounts received at the cash offices and that shown in the plans office registers amounted to Uganda Shillings 214 million.
- 1.2 It was suspected that the computerized receipting system might have been misused to defalcate cash. All cashiers from all the cash offices were suspended. In November 2003, KCC management approached Auditor General with a request to conduct an independent inquiry into this suspected case of fraud.(Ref Letter dated 23/10/2003)
- 1.3 Following the request from KCC management , the Auditor General agreed to undertake the inquiry as he considered that as the independent external auditor of KCC his office would be in a position to do so . He appointed an investigation team with the resident senior auditor KCC as the team leader. Since the case involved suspected computer fraud, a member from the OAG IT workgroup was included as the second member of the team. The team was advised by the IT audit consultant appointed under the EFMP II project.

2. Scope of the enquiry

- 2.1 The terms of reference for the enquiry are given at Appendix I. In accordance with the TOR, the OAG audit team reviewed the process of assessment and collection of building plan fees. It also reviewed the computerized receipting system used at the cash offices. The system of internal controls was closely examined with a view to identifying the control weaknesses including those relating to the management and organization of information technology (IT).

- 2.2 Because of limitations on available time and resources, the scope of enquiry was limited to examination of receipt of building plan fees only.
- 2.3 Period covered : The OAG team looked into the transactions that related to the financial year 2002-2003

3. Approach

- 3.1 The OAG investigation team examined the available evidence with extra thoroughness than that would be required in a normal audit procedure. The methodology followed by the OAG investigation team for the purpose of establishing the occurrence of fraud and how it was committed, consisted of several lines of inquiry as described below
- 3.2 Review of the business process and internal controls : A detailed control questionnaire was prepared which served as the basis for the examination of the business processes relating to collection of building plan fees and understanding internal controls. The investigation team, in order to gain an overall understanding of the organizational structure and business processes conducted interviews with the senior staff of KCC including the Treasurer, conducted walk-through tests and reviewed available documentation
- 3.3 Examination of Physical evidence: In order to identify the physical evidence of the irregularities the following methodology was used.
- Copies of the receipts listed in the initial inquiry report were compared with the daily till sheet (collection summaries) at each Division.
 - A number of approved plans files from the Plans office were scrutinized to establish whether copies of receipts and assessment forms were available on the files.
 - In the next step the copies of the receipts retained at the cash offices were compared with the details recorded in the Plan registers for each Division
 - Finally, the copies of the original receipts given to the payees who were retained in the corresponding case files were obtained from the Headquarters office. These were compared with copies of alleged fraudulent receipts retained at the cash offices and the differences in figures and other details were *tabulated to establish the exact amount of shortfall in cash receipt.*

- 3.4 Review of the functionalities of the software : The software used in the computerized receipting system was reviewed thoroughly to identify the control deficiencies and security gaps which might have played roles in perpetrating the alleged fraud.
- 3.5 Review of IT management and organization at KCC : The system of IT governance, organization and management IT at KCC were reviewed. This was accomplished through interviewing key personnel, the software vendor and examining related documentation

4. Description of the business process

- 4.1 KCC collects revenue income from various sources. Most of the collection of KCC taxes has been outsourced. However, some revenues are still received directly in KCC cash offices. These include the collection of building plan inspection fees, graduated tax , ground rent and other miscellaneous charges. The receipting system was computerized in 1999.

Assessment of building plan approval fees

- 4.2 Before construction of any building within the Kampala metropolitan area, the building plans are required to be approved by the KCC authorities . For this purpose a *Building Plan Inspection fee* is charged by the KCC.
- 4.3 KCC is organized into five divisions. Each division functions as a semi-autonomous unit with its own plan office and cash office.
- 4.4 Upon presentation of the building plans and after filling up of application for approval of plans forms by the client assessee, the fees are assessed by a technical officer called a “Plans Clerk”, at the Plans Office in the respective KCC division. The method of assessment is quite straight forward – it is calculated on the basis of the actual area of construction at the rate of shs. 1,000 per square meter with a fixed amount of shs. 30,000 added for structural plans. The assessee is then given the assessment form filled in by the “Plans Clerk”(Preprinted).

Procedures for Payment of building plan fees

- 4.5 The payment of the fees takes place at the cash office of the respective division. The concerned cashier receives the assessed amount from the assessee in cash and enters the details of the transaction in the *Receipt module of the Ledger Works (LW) system*. The receipt is output in preprinted stationery in three carbonized copies. The original is given to the client. The carbonized copies are retained at the cash office.

Procedure for approval of the building plans

- 4.6 The client takes back the original receipt to the plans office as a proof of payment. At the plan office the receipt details including the amount and other client details and details of the plan, are entered in the *plans office register*, which is manually maintained. After recording in the plans register, a photocopy of the receipt is retained by the plans office. The *original receipt* is given back to the client. The plan along with proof of receipt is then sent to the Headquarters for scrutiny by technical committee before eventual approval by Council.

Accounting of cash receipts

- 4.7 In the cash office, using the LW at the end of the day a combined till *sheet* is printed from the computer. The monies are banked by the Chief cashier after reconciling the receipts (duplicates/triplicates) with the day's collection. Summary of the till sheet posted to the collection cashbook on item basis

Weaknesses in internal control and reconciliation procedures

- 4.8 The OAG team identified major control weaknesses in the abovementioned process. As the latter part of this report indicate, these weaknesses together with the application controls and application security controls of the receipting software (Ledger Works) provided the opportunity for manipulation of cash receipt figures. These are

- **Non-retention of assessment form copies at cash offices:** At the time of cash receipt the copies of the assessment forms are not retained by the cashiers. Assessment forms are issued in single copies, not pre-numbered, and the plans clerks and cash offices do not retain copies against which receipts could be compared by any supervisor. At times even the pre-printed assessment forms are not available- clerks then use any piece of paper for the assessment.

- **Absence of reconciliation between cash office and plan office figures :** There is no periodic reconciliation between the Plan Office register figures and cash office receipt figures and bankings. Plans office is not availed summary of plans collection by cash office to enable it to perform reconciliation of plans records and cash receipts

Other control weaknesses

4.10 Other control weaknesses found:

- Although the Chief Cashier is expected to check the duplicate/triplicate receipts against the till sheet, it was observed that majority of the till sheets did not indicate that there is cross checking done by any responsible official.
- The assessment is done by clerks based at the Division. Investigations revealed that all of them are not qualified in the field for example some are carpenters. (The building Principal Inspector attested to this and that at times there is under/over assessment).

5. Financial value of the loss

- 5.1 Physical evidence of manipulation of cash receipt figures was obtained by comparing the original receipts as given to the payees with the copies retained at the cash offices. In all the case which were examined the figures indicated by the cash office receipt copies were substantially less than that of the original receipts or that indicated by the plans register .
- 5.2 In many cases the details of the two sets of receipts (bearing the same number) differed altogether. For example although the plan office register would show figures for the building plan fees received to the tune of hundreds and thousand of UG shillings , the corresponding receipt at the cash office although bearing the same serial number showed entirely different details of the receipt . Not only the figures of receipts would be much smaller, but all other details like the types of receipt, the payee etc. all were different
- 5.3 In some cases although the receipts were recorded in the plans registers and for some the Xerox copies of the original was available, there was no corresponding receipts copies at the cash offices. Some typical examples are indicated at Table 1 below :

Table 1 : examples of fraudulent receipts

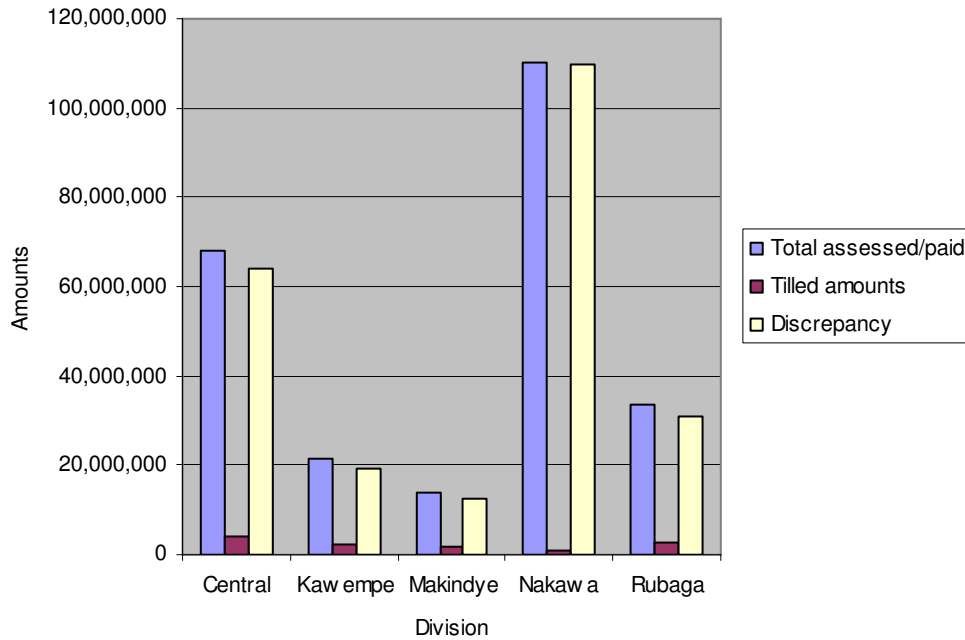
	Date	Register Particulars(Original receipt)	Receipt No.	Amount	VAT	Total	Till sheet particulars Dup. Receipt	Amount	Variance
Central division	20.01.2003	Dr. Bagambisa Box 1831, Kampala	073253	1,987,280	337,838	2,325,118	Kampala Engineering Plans (Str. Details)	35,100	2,290,018
	15.11.2002	G. W. Susume I. Namaka & Others	077605	291,600	49,572	341,172	Konde Sam UAB 231Other fees/charges	10,000	331,172
Makindye									
	11/4/2003	Silver oyet Okeny, JaneGrace O. O	039654	318,000	54,060	372,060	karamagi J Rates Arrears	5,000	367,060
	19/05/2003	Otim Simon & Sanyu Gettu	040190	149,460	25,408	174,868	Luyimbazi Rates Arrears	10,000	164,868
kawempe	11.07.2002	Francis Mbasabye					Matovu Henry		
		Box 22004, Kampala	027221	561,000	95,300	656,300	Licence forms	5,000	651,300
	15.11.2002	Spenco Services Ltd Box 926, Kampala	044031	1,129,156	191,957	1,321,113	Tusitukiramu women's grp	20,000	1,301,113
Nakawa									
	14.03.2003	Irene M. Mugoda Box 3554, Kampala	060920	378,000	64,260	442,260	Naleka Boda boda	14,000	428,260
	24.02.2003	M. Kakaranga ox 7348, Kampala	060284	2,431,170	413,299	2,844,469	Kiguba J.	2,000	2,842,469
	5/11/2002	Uganda Cons. Properties Alt Box 442, Kampala	057257	574,300	97,631	671,931	Muheru Jackson P. forms	2,000	669,931

5.4 By tabulating the difference of figures of receipts from two sets of documents, the amount of loss for each division could be established. This is indicated in the following table 2 and the accompanying chart which gives a graphical depiction of the extent of loss.

Table 2: Summary of loss for period July 2002 - June 2003

Division	Amount paid in	VAT	Total	Tilled amounts	Discrepancy
Central	58,620,176	9,478,074	68,098,250	3,873,176	64,225,074
Kawempe	18,403,614	2,991,154	21,394,768	2,341,200	19,053,568
Makindye	11,983,850	2,037,255	14,021,105	1,622,235	12,398,870
Nakawa	94,335,326	16,037,005	110,372,331	706,099	109,666,232
Rubaga	28,831,591	4,748,370	33,579,961	2,497,280	31,082,681
Total	212,174,557	35,291,858	247,466,415	11,039,990	236,426,425

Division wise comparisons of actual receipts and tilled amount figures



5.5 As may be noticed from the analysis, the total extent of financial loss suffered by KCC is more than Shs 236 million over a period of one year. This is more than that estimated by the internal investigation .While the irregularities took place in all the divisions, the largest amounts of loss were in the Nakawa division followed by Central Division cash office.

5.6 In some cases the anomalies were of a different nature. These cases are indicated below

Mukwano Enterprises Ltd. and PAN Africa Insurance receipts in Central Division:

5.7 Scrutiny of receipts issued to Mukwano Enterprises on the basis of which plans for Mukwano Shopping Arcade were approved revealed the following:

- Receipt No. 0084751 was issued to Mukwano Enterprises Ltd on 16/4/2003, in respect of Plan submission fees totaling to shs. 10,389,600, including VAT, paid by cheque No. 100099 of Standard Chartered bank.
- Copy on the plans file was tampered with and the receipt number reads 008475, (concealing the last digit "1".) This is the same serial (number missing "1" at the end) that was entered in the plans register.
- The receipt was not tilled on the date of issue and the Duplicate/triplicate not available in cash office. Therefore it was thus missing in the accounting records.

- On the same date, receipt No. 084761 was issued to the same firm for the same amount shs. 10,389,600 in respect of G.tax and Education tax paid by the same cheque number 100099. This was tilled and banked.
 - No schedule of employees from Mukwano is available for issue of G.tax tickets for this amount. A different schedule is available for all the tickets issued to Mukwano Enterprises' employees for shs 12,653,000 paid vide receipts 0084849 and 0085533.
- 5.8 While Mukwano Ent. Ltd. was able to provide a copy of receipt No. 0084751, it was not possible to get a copy of receipt No. 0084761 whose duplicate was available in cash office and no duplicate for receipt No.0084751.
- 5.9 The circumstances under which the firm could issue one cheque for two receipts paying for different items remain unclear. The two receipts show signatures of different cashiers, suggesting collusion between the cashiers and probably pulling out the equivalent amounts in graduated tax tickets and selling them for obtaining illegal gains.
- 5.10 Similarly, Plan file for PAN Africa Insurance indicates that the plans were approved basing on receipt No.0080900, for shs. 2,150,000 in respect of graduated tax collection (recorded as 2m in the plans register).

6. How the alleged fraud was committed

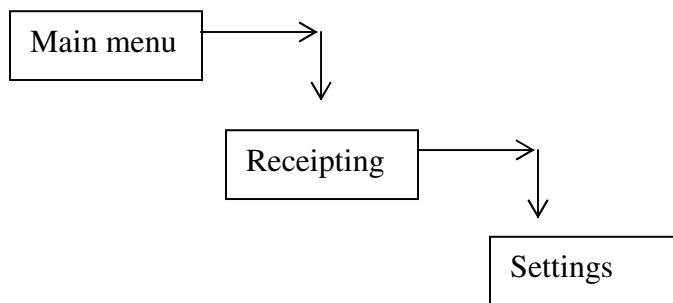
- 6.1 From the available evidence it was clear that somehow it was possible for the perpetrators of the alleged fraud to print fraudulent duplicate copies of original receipts at the cash offices. Since all receipts were printed using the Ledger Works system, it was apparent that it was possible to manipulate the software to print duplicate copies with the same serial numbers but with different figures of receipts and other details.

Control deficiencies in the LW software

- 6.2 The investigation team observed that different versions of the LW software were being used at different divisions of KCC. A review of the functionalities of the version being used at Nakawa cash office revealed that there are several features in the software which might allow making unauthorized changes to the receipting entries.

Changing the sequence number of the receipts

- 6.3 One of the features of the software is that it allows the user to change the sequence number of the receipt transaction. For each receipt transaction the system generates a running serial number which is printed on the receipt. However, the pre-printed stationery on which the receipts are printed also follows a series of consecutive serial numbers. When feeding a series of pre-printed stationery, the system is set up in such a way that the printed serial number matches the system generated serial number. This is accomplished by manually changing the initial number of the system generated sequence using the Receipting → Settings menu item. In the settings, the user can change the starting number of the sequence any time. Automatically, the system will generate the running reference numbers for each consecutive receipt.



Features peculiar to printing of receipts using LW

- 6.4 One of the peculiar features of the way the line feed printer is set up is that every time a receipt is printed, the stationery form feed needs to be reversed in order that the next number in the sequence is printed on the next receipt (and the system generated reference number matches with that pre-printed on the stationery)

Unless this is done, the next print would be a blank receipt bearing the next consecutive serial number. This will result in a mismatch between the system generated sequence number and the printed sequence number for subsequent prints.

- 6.5 Sometime this actually happens when the user forgets to reverse the form feed. When this occurs, the software allows the same user to reset the system sequence

number using the above mentioned menu item. It was observed that in using this feature

- There is no segregation of duties or need for authorization. The cashier who enters the receipts can change the sequence numbers
- The change can be made any time

6.7 It was thus apparent that this feature could also be misused to run a print twice with the same serial numbers but with different details for the receipt. When this is done it the details of the last printed receipt which is captured by the system and subsequently printed in the till sheet.

Chief internal auditor's report on the LW software

6.8 The Chief Internal Auditor of KCC made available to the investigation team a copy of his report "Evaluation Report – Ledger Works Receipting System". Although this report does not bear a date it was given to understand that it was prepared quite recently. In this document among other things mentions that, the internal audit of KCC had also observed that different version of the software were running at different division. It reports that one version of the software being used at the Nakawa division allowed the users to interactively change the details of the receipts, including the sequence number, and print the receipt again after an initial copy was printed.

6.9 This position (that the users could edit the receipt entries easily) was subsequently confirmed by the vendor of the software. He mentioned that this feature was disabled for LW version used Central Division but it was done only recently after the alleged fraud was discovered.

Physical evidence confirms manipulation of the printing facility

6.10 A close examination of the copies of the receipts for which the amounts were manipulated that these are clearly recognizable as original machine prints and not carbonized copies . The other copies which are batched together with these however are clearly carbonized duplicates. *This provides clear evidence to support the supposition that the fraudulent duplicates were printed after the*

original receipt was printed. This was facilitated by the fact that in the printed forms all three copies of receipts are printed as "originals".

- 6.11 On some of the fraudulent duplicate copies found at the Nakawa Division the original amounts were evident in some corners of the duplicate receipts (Please refer Table 3 below) These provide further evidence that the duplicates were printed after the originals were printed .In summary , it was possible for the investigation team to establish as to the method by which the alleged fraud was committed by taking advantage of the deficiencies of the software.

Table 3

Receipt Nos.	Details of assessed / paid of plan fees	Duplicate receipt value
0059431	cash	2,000
0057367	506,700	86,130
0057172	235,750	2,000
038507	508,500	2,000
037528	370,539	5,000
036610	cash	2,000
036880	Beina M. Nafula	2,000
036319	200,000	2,000
036363	675,540	2,500

7. Problems with the Ledger Works software

- 7.1 The KCC receipting system was computerized in 1999. Previously receipting of cash was manual. For each receipt carbonized copies were generated. However, fraud was being committed in collection of cash. The cashiers were allegedly falsifying the second and third copies of the receipts. They would keep a hard board under the first copy, and give it to the client showing the correct amount.
- 7.2 The management expected that with the introduction of the Receipting module of the Ledger Works software, the fraud could be controlled as well as the efficiency of the collection process would improve.

- 7.3 OAG audit team conducted a detailed review of the functional features of the software as installed. They also held a lengthy interview with the proprietor of the software company who has originally developed LW software . The software was found possess some significant weaknesses often in critical areas

Installation

- 7.4 The software is installed from a diskette. Autoexec batch files are used to copy the executable(.exe) files and the configuration data tables to a directory chosen by the user. In fact the installation programme gives the option of copying the software files to any folder – making it possible to run two copies of the software from the same computer.

Security features

- 7.5 The software offers some rudimentary security and access control features. There is a facility for the system administrator to set up access control and authorization for various privileges using password system. However the password files are also in dBase and not encrypted making it possible to easily access the password table and read the password .

Access to data base files

- 7.6 Another significant weakness is that the database table is in dBase format without any access control features. It is possible for anybody to bypass the Ledger Works software and access and alter dBase data files using even Excel spreadsheet software. The vendor admitted that this was a significant weakness of the software.

Weak password control

- 7.7 The audit team was informed by the users in the Nakawa and Central divisions cash office that all the cashiers and even the Accounts in charge were in fact using in fact a common password to access the various menus and functionalities of the software. Although strictly speaking it is not a fault of the software , the vendors should have emphasized the need for using different password by the users and for periodic changing of passwords.

Version control and weak change management

- 7.8 Since the time the LW was first acquired by KCC in 1999, the software was modified several times and the modified versions of the software were installed in various divisions of the KCC. From a discussion with the vendor and the employee who has been supporting the LW software in KCC, it was revealed that these changes to the software were made following informal requests from various user divisions. No track or audit trail of the changes was kept.
- 7.9 Written in dBase III/ IV and compiled with Clipper, LW was developed by a local vendor. It is being used in several organizations in Uganda including some public sector users and a number of private businesses. It was first marketed in 1994. Although it was first marketed in 1994, over the years the software was not upgraded to include adequate security features

Manner of acquisition

- 7.10 Standard procedures were not followed in the acquisition of Ledger Works software. Although from the Report of the Chief Internal Auditor that the decision to computerize the receipting system was taken centrally, OAG was informed that each division purchased its own copy of the software from the vendor. The purchase prices varied depending on what the vendor was able to negotiate with the concerned divisions.
- 7.11 Contrary to usual practice in which a big organization like the KCC should have entered into a contract for purchase and maintenance of the software with the vendor centrally, there is no annual maintenance or service level agreements with the vendor. The audit team was told that whenever there was a problem faced by the users or the users needed the software to be modified, an employee of the vendor provided the requested support on an unofficial basis and the charges were paid directly by the requesting divisions.
- 7.12 No serious user training was provided by the vendor because as OAG was informed there was neither any request from the management for user training nor any payment was made to them for such service. Apparently there was no purchase contract or agreement and in the absence of it, the vendor only provided minimal training to the end users.

7.13 Initially at the time of the supply the vendor provided the supervisor password . However there was no training for the supervisors especially any training on maintenance of security of the system. As mentioned previously the audit team found that this supervisor password was being shared by all the users . Such practices a contrary to industry standards and inherently risky.

8. The roles of KCC management and Internal Audit

8.1 The factors immediately responsible for creating the conditions that made perpetration of fraud possible were

- (i) weak internal controls,
- (ii) weak application controls of LW software and
- (iii) collusion amongst cash office personnel

(Refer to sections 6 and 7 of this report)

However, the main issue which underpins the entire incident is lack of management control and ineffective supervision over IT function in KCC.

8.2 One of the reasons why LW itself was introduced was that in the previous system of manual receipt of cash , fraud was being committed at the cash offices. The Chief Internal Auditor's report mentions several cases of alleged fraud, although OAG could not get further details on these. There is one alleged fraud case however which took place *after* LW was introduced. In 1999 one cashier in Nakawa was found to have manipulated cash receipts of trade licenses , obviously taking advantage of the weaknesses of the software . The case was very similar to the present case. The individual was reported to have been dismissed from service , but OAG could not get further information as to the outcome of investigation on it, if any. This particular case was highlighted in Auditor General's Report of FY 1999-2000 .

8.3 The 1999 fraud case would have made KCC management was aware of the weaknesses in the Ledger Works software. However , apparently the management failed to initiate any action to rectify the problems. The vendor of the LW software informed OAG that the problem was not even escalated to them and as such they were not even aware of it. Had the management taken timely action to review the internal controls and the functionalities of the software, subsequent financial losses could have been avoided . The OAG investigation

team was unable to obtain a satisfactory explanation on this issue from KCC management

- 8.4 This also brings into focus the role of internal audit. From his report, the Chief Internal Auditor makes it clear that the internal audit first suggested procurement of the LW software for handling cash receipts. However the internal audit apparently failed to suggest that standard procurement practices be followed in acquiring the software. The 1999 incident (*refer paragraph 8.2*) at Nakawa also does not appear to have been probed in depth by internal audit. Had this been done the serious weaknesses in the software could have been discovered and corrective action could have been taken.

9. IT organization and management in KCC

- 9.1 The fraud was committed by making unauthorized changes to data relating to cash receipts. Making these unauthorized changes was possible because of vulnerabilities of the Ledger Works software. This could have been avoided if the deployment of the software across KCC was supervised properly making it difficult to run different versions of the programme in various divisions of KCC .This incident clearly illustrates the need for properly controlling IT .
- 9.2 The term '*information technology*', with respect to a public sector organization means any equipment or interconnected system or subsystem of equipment, that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information .
- 9.3 It is commonly acknowledged that IT based information systems need to be adequately controlled because of the risks peculiar to computer environments. These risks are unauthorized access and unauthorized alteration of data and programmes, loss of confidentiality, loss of data and services due to system failure, disasters, and of misusing computer systems for committing irregularities and unlawful activities
- 9.4 A computerized financial management system must ensure integrity, security and confidentiality of data and programmes and produce relevant and reliable information enabling the management to take informed decisions and fulfill its fiduciary obligations. A framework of general and application controls should

support the organization's IT systems. General Controls comprise policies and procedures affecting the overall IT infrastructure and help create the right environment for individual computer applications to operate efficiently and effectively. Application controls are a set of manual and automated procedures specific to each application designed to ensure integrity of input, processing, data files and output of specific application programmes.

- 9.5 General Controls comprise policies and procedures, which affect the overall IT infrastructure. These controls relate to IT organization and management, system development and programme change procedures, IT security, documentation, operations, and business continuity. OAG's review of the general IT controls over KCC IT systems, revealed weaknesses which impaired its capacity to use its IT resources efficiently and effectively.
- 9.6 It is obvious that an organization of the size and importance of KCC cannot afford not to make effective use of IT. However, to get the maximum benefit out of IT not only in terms of enhanced efficiency and productivity but also for better accountability, IT must be governed and managed appropriately. The KCC investigation demonstrates that poorly controlled IT can actually lead to substantial financial losses through exposures to risks of fraud and misuse of resources

Lack of management involvement

- 9.7 As the investigation would indicate, there appears to be total lack of direction and control in managing IT in KCC. There exist very significant deficiencies in the IT control environment, in IT governance and as described in Chapter 7 serious deficiencies in its computerized Financial Management System
- 9.8 There has been a general lack of senior management involvement in the IT management owing to a possible lack of understanding of the potentials and risks of IT. There is no IT steering committee to provide senior management oversight and guidance to the IT function. Inadequate management involvement may lead to a direction-less IT function which, in turn does not serve the business needs.

Lack of IT structure and organization

- 9.9 The first step towards establishing an adequate control framework is to organize the IT function properly. The OAG investigation reveals that KCC has not taken

appropriate steps to organize its IT function. Currently Council does not possess a regular IT department. What it has at its Headquarters office is a small data processing unit under the Deputy TC headed by a data Processing Manager, assisted by four data entry clerks. Although there is no written charter of this data processing unit and no job description of the functionaries, it is learnt that the scope of the duties of this unit is limited to maintaining a dBase package used for rates.

Lack of an IT budget

- 9.10 The investigation indicates that the KCC management has not established a separate budget for IT. Absence of an IT investment plan handicaps KCC in making decisions regarding implementing effective IT solutions which meets its business requirements . *Poor direction of IT and lack of management supervision and control over IT usage in KCC might have been indirectly responsible for the occurrence of fraud and the resultant financial loss .*
- 9.11 A 2002 consultancy report prepared as part of the World Bank funded Strategic Framework for Reform Implementation Support (SERIS) project recommended various measures to improve acquisition and management of IT in KCC. There is no indication that KCC management has initiated any action to implement these recommendations. Given the level of IT awareness of KCC management and IT skill amongst KCC staff, a phased approach should be adopted in improving management and deployment of IT in KCC .

Readiness for IFMS

- 9.12 KCC is an important pilot site for the GoU IFMS system. From the discussion with the management it appeared that KCC was yet to develop a coherent strategy to effectively implement the IFMS. Some of the issues relating to implementation of IFMS which are yet to be resolved are the integration of the IFMS which will be initially deployed only in KCC headquarters and central division with the legacy financial systems running at the other KCC divisions , creation and maintenance of alternate users , establishment of a proper IT governance and management structure within KCC in order to effectively manage the IFMS operations and risks , and the development of a revenue system and its integration with the IFMS . Unless these issues are resolved as a matter of urgency the

success of IFMS of IFMS pilot and roll out implementation at KCC may be adversely affected.

10. Recommendations

This section of the report contains a number recommendations relating to improving internal controls , management of IT and fraud control in KCC. These are for consideration of KCC top management .

Immediate steps

- 10.1 As an immediate step to control fraud at cash offices in receipt of building plan fees following controls may be established.
- Reconciliation: The figures of building plan fees from the plan office registers should be periodically reconciled with that from the cash office till sheets
 - Copies of assessment forms: A copy of the building plan assessment form may be retained at the cash offices and attached to the duplicate receipt
 - Supervision: Procedures for supervision of the cash office operations by the divisional finance officers should be strengthened
 - Internal audit: the cash office transactions should be periodically reviewed and examined by internal audit
 - Improve record and data management at the plan offices including proper keeping of files which are currently scattered all over the place.

Information Technology

- 10.2 Comprehensive strategy is needed to improve Information Technology Management in KCC. It should adopt a strategy to completely overhaul its Information Technology management function. In particular, the following recommendations are made

IT organization and management

- 10.3 Organization and management controls relate to IT Strategy and aligning IT with an organization's objectives. An IT strategy based on the organizations business strategy is the important starting point for making effective decisions regarding present and future investments in IT. IT long term and short term plans help to implement the IT strategy.

- KCC should develop an IT strategy with a view to aligning IT with its business objectives. Long term and short term IT plans should be developed to implement the IT strategic plan
- An IT Steering committee headed by a member of the KCC senior management and consisting of other management level officers should be established to provide adequate oversight of the IT management function. Care should be taken to ensure that the members of the Steering Committee actively participate and take informed decisions relating to IT management.

10.4 It was informed that action has been initiated by KCC to recruit an IT manager and other IT personnel. Care should be taken to ensure that an experience and qualified person is recruited as IT manager who shall be responsible for--

- i.) Providing advice and other assistance to the top management and other senior management personnel of KCC to ensure that information technology is acquired and information resources are managed;
- ii.) Developing, maintaining, and facilitating the implementation of a sound and integrated information technology architecture; and
- iii.) Promoting the effective and efficient design and operation of all major information resources management processes

IT information architecture

10.5 An information architecture helps align the IT systems with the business processes that support the organisation's mission and goals, achieve integration and security of information systems, and promote the application and maintenance of standards and benchmarks by which the agency evaluates and acquires systems. The information architecture should cover the areas (a) business process analysis (b) information flows and relationships, (c) applications, (d) data descriptions and (e) technology infrastructure,

- It is recommended that KCC should develop a systematic process for architecture development to ensure that the architecture is aligned with KCC business objectives and meets its current and future information processing needs,

IT investment management

10.6 IT investment management helps select projects that will best support an organization's business needs, provide an optimum return on investment, and control project development to identify problems and quickly solve them.

- ▶ KCC should adopt policies and procedures and define processes for effective investment in IT, in order to ensure that IT projects result in tangible benefits for KCC and that the risk to return on investment is minimized

Software development and acquisition

10.7 Software development and acquisition policies and procedures help ensure that information systems are developed within the planned cost and budget, and meet the schedule goals. Without established policies and defined processes for software development and acquisition, practices will likely be ad-hoc and not adhere to generally accepted standards. These weaknesses can delay delivery of software products and services and lead to cost overruns.

- ▶ It is recommended that KCC should establish policies, procedures, and processes for software development and software acquisition covering areas such as user requirements specification management, project planning, project management, software quality assurance, configuration management, acquisition planning, product evaluation, and change management.

Information security

10.8 Information security helps protect the integrity, confidentiality, and availability of the organization's data and systems it relies on by reducing the risks of tampering, unauthorized intrusions and disclosures, and serious disruptions of operations. Information security activities include conducting risk assessments, promoting awareness, implementing controls, performing evaluations, and providing centralized coordination and oversight of all security activities.

- ▶ Entity wide security policies and programmes heighten security consciousness amongst employees and help manage the considerable IT security risks effectively. A system of physical and logical access controls is required to restrict access to computer facilities and to resources like data files and programmes. In view of the importance attached to the proper implementation of the IFMS, it is recommended that KCC should develop an entity wide security policy and a security plan and take steps to ensure that these are implemented.

IT human resource management

10.9 IT human resource management helps provide employees with the appropriate knowledge and skills to effectively execute critical IT functions. Key processes for human capital management involve assessing IT knowledge and skills requirements, inventorying existing staff's knowledge and skills and assessing them against requirements, developing strategies and plans to fill the gap between

requirements and existing staffing, and evaluating and reporting on progress in filling the gap in knowledge and skills.

- ▶ Training on IT awareness and IT management good practices should be organized for the benefit of senior and middle management of KCC . In particular the senior management must be made aware of the potentials and the risks of the FMS and other IT systems in use

Documentation

10.10 Documentation comprising system and user procedures manuals are an essential component of IT general controls

- ▶ System documentation and updated user procedure manuals for the KCC information systems should be developed. In particular policy regarding proper use of the FMS facilities should be developed and communicated to all users clearly stating the misuse of the facilities will not be tolerated.

Fraud control

10.11 The management of KCC and the external agencies responsible for exercising oversight on it, should take definitive steps towards establishing an effective fraud control mechanism. Best practice in fraud control requires *that “an organization should state its intentions on fraud in a publicly available Fraud Control Policy Statement, which should have the support of its entire staff. As a minimum, the policy should set out the organization’s attitude to fraud, and what action it will take where fraud is discovered , (i) set out staff’s responsibilities for behaving ethically;(ii) describe the overall responsibilities for the management and control of fraud; and (iii) set out the procedures for staff to follow when fraud is suspected.”*

- ▶ As a first step, the KCC management must make it clear that dishonest and illegal activity will not be tolerated under any circumstances. Furthermore, KCC should investigate all cases of suspected fraud, theft and irregularity mentioned in this Report and, where appropriate, prosecute cases or take disciplinary action.
- ▶ A Fraud Control Policy should be immediately formulated and communicated to KCC staff , which should :
 - hold all levels of management responsible for preventing and detecting fraudulent activities
 - assign clear central responsibilities for responding to reported cases fraud
 - spell out a clear reporting mechanism in case fraud is detected and support the whistle-blowers
- ▶ Copies of the fraud control policy should also be made available to KCC business partners and suppliers .

Internal controls

- 10.12 A comprehensive strategy is needed which will combine specific steps to prevent fraud and misconduct in KCC . This strategy should include steps to be taken for strengthening of internal controls and effective use of Information technology for better supervision and monitoring
- 10.13 A sound system of internal controls is an essential component of a good financial management system. Internal controls are a combination of manual and computer-based procedures necessary to be carried out, in order to ensure *economy and efficiency of operations, including safeguarding of assets and achievement of desired outcomes; reliability of financial and management reports; and compliance with laws and regulations*
- ▶ The top management should assume full responsibility of establishing and maintaining an adequate system of internal controls. The existing systems and procedures should be analysed and a risk analysis should be carried out with external assistance, if necessary, to strengthen the internal control systems.
 - ▶ Internal audit function should to be strengthened with specific mandate to periodically evaluate the internal controls

Internal audit

- 10.14 It is well known that a strong internal audit is the first line of defense against fraud in an organization. However, the internal audit department of KCC it suffers from lack of capacity in terms of manpower, skills and other resources. In view of the very high amounts at stake, it is urgently necessary to enhance the capacity of the internal audit department and equip its staff with skills for combating fraud.
- ▶ It is recommended that the internal audit division of KCC should be strengthened by providing additional staff and other resources and training of the internal audit staff.
 - ▶ A fraud control unit within the internal audit division should serve as a focal point for coordinating activities to combat fraud.

Code of ethics

- 10.15 The management must demonstrate its support for ethical behavior. A code of ethics for the KCC employees as well as for the KCC business partners and suppliers should be developed.

- ▶ The code of ethics should be communicated to each employee and copies may be given to each prospective contractor and to any association of the contracting industry.
- ▶ KCC management must establish a system of incentives for ethical behaviour and penalties for unethical behaviour and negligence of official duties. The Staff appraisal system should be revised taking into account the performance of employees in upholding ethical behaviour. KCC should also put in place the necessary administrative mechanisms that would ensure that disciplinary action promptly taken against those members of the staff found to be grossly negligent of their respective duties leading to financial loss.

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