## CHAPTER 1
## MINISTRY OF COMMUNICATIONS AND
## INFORMATION TECHNOLOGY

**DEPARTMENT OF POSTS**

**Performance Audit of Very Small Aperture Terminal (VSAT) based Money Order system**

**HIGHLIGHTS**

∗ **The Department of Posts (DoP) implemented Phase II of the VSAT based money order system at a cost of Rs 21.93 crore to bring the entire traffic of around 10 crore money orders on the network. However, deficient planning and injudicious procurement delayed the implementation of the project, besides leading to suboptimal performance of the system.**

*(Paragraph 1.5.1)*

∗ **As against the target of 100 *per cent* transmission of money orders through VSATs, only 13.54 *per cent* transmission could be achieved till 2004-05. The low transmission of money orders through VSAT indicated that DoP was still heavily relying on the manual system.**

*(Paragraph 1.9)*

∗ **The crucial issue of ensuring connectivity between the old CDMA and the new TDMA networks before placing orders for VSATs was not sorted out which resulted in decommissioning of the 77 VSATs of Phase I. The envisaged increase in coverage also did not materialize.**

*(Paragraph 1.5.1.1)*

∗ **Specifications of the host server at the planning stage were not worked out which resulted in procurement of a host server of lower configuration, leading to its clogging. DoP finally had to make use of servers of the National Informatics Centre from August 2003 to operate its VSAT money order system.**

*(Paragraph 1.5.1.2)*

∗ **Systems study and software development, the most critical components of the project, were not considered in the first instance, contrary to the instructions of the Expenditure Finance Committee. This would have facilitated correct assessment of the hardware configuration and also helped to avoid subsequent software deficiencies.**

*(Paragraph 1.5.1.3)*

∗    **Software developed by HECL failed during the field run, resulting in delayed commissioning of the project. DoP finally had to develop software in-house to run its VSAT operations.**

*(Paragraph 1.5.1.3)*

∗    **DoP diluted the terms of payment in the purchase order placed on HECL from 90 *per cent* payment on commissioning to payment on proof of delivery. DoP stipulated performance bank guarantee of only 5 *per cent* of the contract value as against the codal provision for 10 *per cent*. DoP failed to recover penalty of Rs 2.13 crore from HECL for defective software.**

*(Paragraphs 1.6.1.1, 1.6.1.2 and 1.6.1.3)*

∗    **DoP paid telecom licence fees at old rates up to December 2003 to HECL for ultimate payment to DoT. This led to excess payment of Rs 1.54 crore to HECL, which had not been recovered till October 2005.**

*(Paragraph 1.6.1.5)*

∗    **Sample checks revealed frequent breakdowns in the system ranging between four days to eight months in 16 out of the 20 circles reviewed.**

*(Paragraph 1.7.1)*

∗    **Sample checks revealed delays of three to 33 days in transmission of money order advices, three to 166 days in printing and three to 187 days in payment.**

*(Paragraphs 1.7.2, 1.7.3 and 1.7.4)*

∗    **Feeding of incorrect pin codes and configuration of incorrect pin codes in the system resulted in transmission of money orders to wrong destinations.**

*(Paragraph 1.7.5)*

∗    **Improper authorization of money order advices resulted in incorrect payments in 15 cases involving Rs 3.56 lakh.**

*(Paragraph 1.7.9)*

∗    **There were various threats to data integrity in the system due to weak controls, necessitating manual interventions. IT security related control measures were not adequate. DoP did not have a proper disaster recovery and contingency plan for business continuity.**

*(Paragraph 1.8)*

### SUMMARY OF RECOMMENDATIONS

∗    **DoP should ensure that the interests of the Government are not jeopardized by compromising on the essential conditions of contracts such as revalidation and encashment of bank**

    **guarantee and making payment only after satisfactory installation of equipment.**

∗ **DoP should procure host servers for running the VSAT money order operations and also consider providing a dedicated backup link to ensure smooth operations in cases of failure of the primary link.**

∗ **DoP may ensure that all SMO/ESMO stations function uninterruptedly. For this purpose, power backups should be ensured. Service level agreements should be entered into with vendors and their performance monitored closely.**

∗ **Postmasters should ensure that bundles of MOs are taken from non-SMO/ESMO stations more than once in a day to the attached SMO/ESMO stations to ensure transmission on the same day; printouts of the MOs should be taken by the destination SMO/ESMO stations immediately to ensure prompt payments.**

∗ **DoP should utilize the link available in the software between the VSAT system and the 'Meghdoot' software at the post office counters to avoid duplicate feeding and delays.**

∗ **The software should be re-engineered to strengthen its validation controls in respect of generation of PNR numbers and the status of printing; input controls should be strengthened to prevent the acceptance of erroneous dates.**

∗ **DoP should review the implementation of IT security related controls, prepare a detailed disaster recovery/business continuity plan and ensure strict implementation.**

## 1.1    INTRODUCTION

    The VSAT based money order (MO) system was introduced by the Department of Posts (DoP) in 1995 to transmit MO advices through satellite communications to enable the poorer sections of society to send MOs quickly at no extra cost. The system works through Satellite Money Order (SMO) stations situated in head post offices, where the VSATs are installed. Each SMO station is linked to a number of Extended Satellite Money Order (ESMO) stations in different post offices. The details of MOs received in any SMO or ESMO station are transmitted to their destinations via satellite.

    The project was to be implemented in two phases. In Phase I, 77 SMO stations were installed during 1995-96 along with 610 ESMO stations. The system operated as a Closed User Group (CUG) on Wide Area Network (WAN) using Code Division Multiple Access (CDMA) technology and the Department of Telecommunications' Remote Area Business Message Network (RABMN). DoP transmitted only 2.48 crore MOs as against the target of nine crore MOs during 1997-2000. In Phase II, 150 VSATs and 1,132 ESMO stations were installed in 2000-01. The main objective of Phase II was to bring the entire traffic of 10 crore MOs on the network at an average

of 2.73 lakh MOs per day and convert the MO service into a profitable service, through savings in cost without revising the rates of MO commission.

The results of examination in audit of Phase I of the Project were reported in the Comptroller and Auditor's General of India Report No. 6 of 1997. The report, inter alia, highlighted that:

∗ DoP had procured slower VSATs while faster machines were available,

∗ DoP had incurred excess expenditure of Rs 1.36 crore on procurement of computers, dot matrix printers and UPS,

∗ There was delay in the commissioning of VSAT terminals resulting in a loss of Rs 3.64 crore worked out on pro-rata basis and

∗ DoP had sent only 3.20 lakh money orders through the satellite in six months against the anticipated traffic of 150 lakh.

During Phase II, DoP switched over to Time Division Multiple Access (TDMA) technology. As compared to CDMA technology, TDMA technology provided a larger bandwidth, permitted multiple access of transponders by different stations simultaneously, provided very high speed data transmission and was host driven. In the first instance, the data is transmitted from the sender SMO/ESMO station through the hub of the service provider to host server. Thereafter, the data is sorted SMO wise and transmitted to the destination SMO/ESMO stations. A pictorial representation of the VSAT network and a flow chart of the money order transmission through the VSAT system are given at Annexures-I and II respectively.

The main objectives of Phase-II of VSAT MO system were:

∗ to bring the entire traffic of over 10 crore MOs booked per annum on the network;

∗ to convert the MO service into a profitable service after fulfilling the social obligation to serve the rural poor and to achieve reduction in the cost of handling/transmission of money orders;

∗ to utilize the surplus manpower, which would accrue on the implementation of the project, and

∗ to achieve the social obligation of serving the rural areas with the superior technology of the VSAT MO system

The VSAT MO project is directly under the administrative control of Member (Operations) of the Postal Services Board, who is assisted by the Deputy Director General (Technology). The country is divided into 22 postal circles, each headed by a Principal Chief Postmaster General/Chief Postmaster

General. The SMO stations are headed by Chief/Senior Postmasters and ESMO stations are headed by Postmasters/Sub Postmasters.

For efficient and effective performance of the VSAT MO system, it was imperative that the controls associated with the system were strong so that there was complete reliance on the system for correct and speedy payments of MOs and the controls associated with the manual system were dispensed with.

## 1.2    AUDIT OBJECTIVES

The performance audit of Phase II of VSAT based MO system was taken up with a view to assessing

☞ whether it was planned properly based on earlier experience of Phase I and an adequate and correct assessment of the requirements including technological compatibility,

☞ whether procurement, installation and commissioning of the equipment were carried out economically, efficiently and effectively and

☞ whether the system had adequate controls and was performing efficiently to contribute to the achievement of the objectives

## 1.3.    AUDIT CRITERIA

The following criteria were used in the performance audit:

∗ the extent and nature of preparation for integrating the technology of Phase-I with that of Phase-II,

∗ extent of compliance with the departmental rules for procurement,

∗ performance indicators fixed by DoP in respect of achievement of coverage, speed of transmission and savings in costs,

∗ the extent of availability and use of trained manpower and

∗ the periodicity, regularity and quality of monitoring of various activities including standard IT security controls.

## 1.4    AUDIT METHODOLOGY

The performance audit of Phase-II of the VSAT based MO system in DoP was conducted during April to August 2005, covering the period 1999-2000 to 2004-05. Out of the total of 22 postal circles, records of 20 circles were examined in audit. In each of the circles, two SMO stations and 25 *per cent* of their ESMO stations were selected randomly for the purpose of audit. The details of SMO/ESMO stations test checked are given at Annexure-III.

The audit methodology included examination of the documents and discussions in entry and exit conferences with the auditee to assess the performance of the VSAT MO system on the basis of the audit criteria broadly

outlined in para 1.3. Audit also adopted computer assisted audit techniques such as the use of menu facilities, SQL[1] for queries and data analysis through spreadsheets for evaluating the adequacy of IT security controls and the correctness of data and MIS reports.

## 1.5    AUDIT FINDINGS

Audit observed deficiencies in planning, procurement, operational performance and IT controls associated with Phase-II of VSAT MO system, which resulted in delays in implementation of the project and non-achievement of the targets. The audit findings are discussed below.

## 1.5.1   DEFICIENCIES IN PLANNING

For successful implementation it was imperative that the DoP considered and provided for the following while adequately planning the project:

∗   ensuring inter-connectivity between the old and the new networks,

∗   adequate assessment of technical requirements based on data on proposed traffic, speed of transmission and area of coverage, on the basis of which the hardware and software were to be procured/developed, and

∗   adequacy of infrastructure such as power supply and trained manpower and readiness of sites for installation of equipment.

### 1.5.1.1 Non achievement of inter-connectivity between CDMA and TDMA networks

One of the major concerns that emerged out of Phase-I of the VSAT MO system was that the CDMA based system could not handle the large size of traffic due to limitations of bandwidth and baud[2] rate.

Accordingly, after evaluation by a technical expert, DoP decided to use TDMA technology for Phase-II. It was imperative that connectivity was established between the old network and the proposed new high-speed network so that the VSATs established in Phase-I were not rendered infructuous. The connectivity, however, required the permission of the Department of Telecommunications (DoT).

The Director, Network Operation Control Centre (NOCC), DoT, a member of the Tender Evaluation Committee (TEC), had informed the TEC in October 1999 that DoT might not permit such connectivity as a matter of policy since similar demands could be raised by other VSAT operators. He had further stated that DoT had a TDMA based high speed VSAT network 'HVNET' and that spare capacity was also available therein to cater to the needs of DoP.

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[1] SQL - Structured Query Language.
[2] Baud rate – It decides the speed with which the data can be transmitted

Audit, however, observed that DoP, despite the advice of the Director (NOCC), went ahead with the procurement of VSATs. DoT on its part did not grant permission for inter-connectivity between the two networks but allowed the two networks to function independently. In the absence of inter-connectivity, 77 VSATs of Phase I initially used for sending MOs and hybrid mail[3] which were purchased at a cost of Rs 3.73 crore, were finally decommissioned by October 2004, after stabilization of the TDMA based VSATs and replacement of hybrid mail with the e-post[4] service.

The Department accepted the facts relating to decommissioning of VSATs of Phase-I.

### 1.5.1.2 Inadequate specification of configuration of hardware

As against 150 VSATs sanctioned by Expenditure Finance Committee (EFC), DoP procured 62 VSATs in March 2000 and 88 VSATs in March 2001. In order to increase the traffic of MOs through VSATs and ensure speedier transmission, the data load in respect of the proposed increase in traffic and speed was required to be correctly assessed. DoP would then have been able to arrive at the correct specifications of the hardware components before floating the tenders. One of the most important hardware components in a TDMA based system is the host server, the configuration of which should have been assessed properly based on the proposed data load.

It was, however, observed that the NIT for the first set of 62 VSATs did not provide the specifications of the host server. The TEC's assumption that the configuration for the host server would be the same as those for the LAN servers located at the SMO stations was not correct. The host server should have been configured in such a manner that it could have handled the traffic of 2.73 lakh MOs per day in order to achieve the objective of putting the entire traffic of 10 crore MOs per annum on the VSAT system. The lower configuration of the host server led to clogging once the traffic of MOs exceeded 15,000, resulting in backlog in transmission and holdup of data. DoP finally had to make use of the servers of National Informatics Centre (NIC) from August 2003 to operate its VSAT MO system. The placement of purchase orders for hardware without adequately assessing the hardware requirements reflected deficiency in planning.

The reply of DoP was awaited (October 2005).

### 1.5.1.3 Delay in stabilization of software

While approving Phase II of the VSAT MO system in March 1999, the EFC had instructed that the first stage of project implementation should comprise systems study and software development, though procurement of equipment could also be taken up simultaneously. Systems study and software

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[3] Hybrid mail: A one stop postal service which provides a range of business for high volume electronic to physical mail preparation.

[4] e-post: A value added service of DoP through which electronic messages are downloaded at identified post offices and delivered to the recipients as hard copies.

development should have been taken up first in view of the magnitude of the proposed data traffic, switching over to a new technology and the risk of hardship to the customers. This would have also ensured correct assessment of configurations of the hardware components, before commencing the process of procuring them.

Audit observed that the systems study and software development, the most critical components of the project, were not considered in the first instance and procurement of hardware was given priority. The purchase order placed on M/s Hughes Escorts Communications Limited (HECL) in March 2000 was both for VSATs and software development but DoP set up a software development group for specifying the user requirements only in March 2000. Sixteen weeks were required for software development and the entire work was required to be completed within one year from the date of the purchase order.

HECL provided the developed software (BETA version) to the Postal Training Centre (PTC), Mysore for testing in February 2001. PTC, Mysore observed 72 deficiencies in the first version of the software developed by HECL who did not rectify these deficiencies to the satisfaction of DoP. In spite of noticing that the software had not yet stabilized, DoP decided in August 2001 to go ahead with the loading of the software package for data transmission between two SMO stations. It was observed in audit that complaints regarding non-transmission and incorrect transmission of data were received from all circles. Based on discussions between DoP and HECL representatives, subsequent versions were released in December 2001, March 2002 and June 2002 after carrying out rectifications, but the problems continued.

Meanwhile, the module related to the ESMO stations was tried in April 2002, but was found to be incompatible with Windows 2000/XP loaded on the hardware, which could only be rectified in June 2002 after supply of a patch[5]. After using both the SMO and ESMO modules, complaints from user units regarding loss of data and non-updating of transmission status increased. Complaints from customers regarding non-receipt of MOs through VSAT system also mounted. Finally, in November 2002, the vendor accepted the failure in delivering the software component of the project.

As a fallback measure, DoP had decided in March 2002 to develop the software in-house through PTC, Mysore which developed its own software BETA 2.0 and after field-testing, the project was finally commissioned in August 2003, after a delay of three years.

The Department accepted the facts and stated in June 2005 that the payment of Rs 81 lakh to the vendor in respect of software development had been withheld. Audit observed that although payment of Rs 81 lakh was withheld, 90 *per cent* of the contract value i.e. Rs 7.43 crore was paid towards hardware between March 2000 to June 2002 whereas the VSAT Phase-II project could be commissioned only in August 2003.

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[5] patch- A program that modifies the original system or program.

### 1.5.1.4 Inadequate numbers of servers

In July 2002, while developing the software, PTC, Mysore gave a requirement for additional hardware of five servers for running the VSAT MO operations. It was, however, observed that the procurement was not made and as a result, the VSAT MO operations were still being carried out through the NIC servers as of October 2005. It was also observed in audit that the 88 VSATs procured during 2001-02 had no dedicated servers at 60 sites. VSAT MO operations were being run at these sites on servers meant for the Multi Purpose Counter Machine (MPCM)[6] project.

Further, it was imperative that in cases of failure of the primary link between the hub of HECL at Gurgaon and the NIC host server at New Delhi, there was an alternate link through a dedicated backup for smooth functioning of VSAT operations. It was noticed, however, that no dedicated back up link had been provided.

The Department accepted the facts and stated that efforts were on to procure the link.

### 1.5.1.5 Non assessment of adequacy of infrastructure

In order to ensure that there was no delay in installation and commissioning of the VSATs, it was imperative that infrastructure such as power supply and sites were kept ready before the scheduled date of delivery. It was however, observed in audit that out of 62 VSATs, five VSATs at Delhi, Gorakhpur, Guwahati, Shillong and Srinagar could not be installed within the scheduled date of 30 September 2000 due to failure on the part of DoP to keep the sites ready in time adversely affecting the operational performance.

Thus the failure of DoP to address the major concerns at the planning stage contributed to delays and deficiencies in implementation.

**Recommendations:**

∗ **DoP should consider enquiring into the lapses and deficiencies in planning of VSAT based MO system especially in Phase-II, so as to avoid its recurrence in future projects.**

∗ **DoP should procure host servers for running the VSAT money order operations, as recommended by the Postal Training Centre Mysore.**

∗ **DoP may also consider providing a dedicated backup link to ensure smooth operations in cases of failure of the primary link.**

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[6] MPCM: MPCMs at post offices provide single window service to customers.

## 1.6 DEFICIENCIES IN THE PROCUREMENT PROCESS AND CONTRACT MANAGEMENT

For Phase II of the VSAT MO system, DoP placed purchase orders between March 2000 and December 2001 for various types of equipment such as VSATs, servers, computers, UPS and modems at a total cost of Rs 21.93 crore. The details are given at Annexure-IV. Audit observed major deficiencies with regard to procurement and contract management, which are discussed below. Most of these deficiencies pertained to contracts with HECL and are discussed first.

### 1.6.1 Undue benefit to HECL

#### 1.6.1.1 Inadequate terms of payment

The NIT for 62 VSATs stipulated that 90 *per cent* of the payment towards equipment would be made only after commissioning and the balance of 10 *per cent* would be paid against the performance bank guarantee. Audit, however, observed that the payment condition in the purchase order on HECL was diluted from 90 *per cent* on commissioning of the equipment to 90 *per cent* on proof of delivery.

#### 1.6.1.2 Inadequate provision for performance bank guarantee

Clause 6.10 of the DGS&D Manual stipulated that a performance bank guarantee should amount to 10 *per cent* of the contract value. Audit, however, observed that in disregard of the above, DoP stipulated a performance bank guarantee of only 5 *per cent* of the contract value in all the purchase orders issued for procurement of VSATs and other hardware.

Audit also observed that DoP failed to get the bank guarantees extended beyond their validity period in the case of purchase of 150 VSATs from HECL. On this being pointed out, the Assistant Director General (Technology) accepted the facts and stated (June 2005) that the department had issued reminders to the vendor for extension of the bank guarantee, but the vendor had not responded.

Thus, as a result of diluting the terms of payment and inadequate provision for performance bank guarantee, DoP was left with no safeguards against any non-performance.

#### 1.6.1.3 Failure to encash bank guarantees and levy penalty for non-commissioning of software

As mentioned in para 1.5.1.3, the purchase order for procurement of 62 VSATs on HECL provided for software development at a cost of Rs 81 lakh. As HECL had failed to stabilize the software required to be developed by them, DoP sought a legal opinion in February 2003 from the Ministry of Law, Justice and Company Affairs, on a proposal of the vendor for the deletion of the software development clause from the purchase order. The Ministry, while suggesting that DoP should come out with a concrete proposal, advised them

to withhold the remaining payment and encash the bank guarantees. Audit, however, observed that DoP not only failed to encash the bank guarantees, but also released the earnest money deposit amounting to Rs 30 lakh in April 2005.

Besides, the committee constituted by DoP to look into the aspect of levying penalty against the vendor for failure to deliver a satisfactory software recommended a penalty of Rs 2.13 crore. The Postal Services Board directed the committee in June 2005 to negotiate with the vendor for imposition of this penalty besides withholding Rs 81 lakh for the defective software. The penalty had not been recovered as of October 2005. The chances of recovery of the penalty were bleak as the department was left with only Rs 83 lakh, being 10 *per cent* payment due to the vendor and hub charges.

The reply of DoP was awaited. (October 2005)

### 1.6.1.4 Failure to recover liquidated damages for delays in supply and installation of hardware

As per the purchase orders placed on HECL, 62 VSATs were to be commissioned by September 2000 and 88 VSATS by September 2001. There were considerable delays in installation of VSATs and allied hardware, the details of which are given at Annexure-V. Mention was made in paragraph number 1.7.5 of Report No.2 of 2004 of the Comptroller and Auditor General of India that liquidated damages of Rs 88.92 lakh had not been recovered from HECL till August 2003. Audit observed that the recovery was still outstanding (October 2005).

The reply of DoP was awaited (October 2005).

### 1.6.1.5 Excess payment of telecom charges

As per the purchase order placed on HECL, DoP had to pay telecom charges of Rs 55,100 per VSAT per annum to HECL for ultimate payment to DoT, subject to amendments issued by DoT from time to time.

As per the New Telecom Policy of 1999, the telecom licence fee structure was changed from a fixed to a revenue sharing regime. HECL shifted to the revenue sharing regime in March 2002, according to which the annual licence fee was to be 10 *per cent* of the Adjusted Gross Revenue[4] with effect from 1 October 2001. HECL communicated the same to DoP in June 2002. As a result, DoP was required to pay at the rate of only Rs 8,628 as against Rs 55,100 per VSAT per annum with effect from 1 October 2001.

Audit scrutiny, however, revealed that DoP paid licence fees at the old rates up to December 2003. This led to excess payment of Rs 1.54 crore to HECL, which had not been recovered till October 2005. On this being pointed out, DoP while stating in July 2005 that a committee had been constituted to

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[4] Adjusted Gross Revenue – Portion of gross revenue accruing to a telecom service provider for services rendered and goods supplied after excluding service tax, sales tax etc, on the basis of which telecom charges payable by a service provider are calculated.

look into the aspect of migration to revenue sharing did not intimate the status of recovery of the excess payment.

### 1.6.2 Other irregularities in contract management

### 1.6.2.1 Irregular NIT resulted in limited competition

The basic objective of tendering is to encourage competition. Audit observed that the NIT issued in June 1999 for procurement of 266 computers for ESMO stations specifically indicated the IBM brand, although procurement of computers based on specific brand names was not permissible under the extant orders of the Ministry of Finance (MoF), as it curtailed competition. DoP approached the then Ministry of Information Technology (MIT) on the advice of MoF for grant of a special relaxation for allowing procurement of IBM brand computers. However, as MIT did not grant the permission, DoP cancelled that part of the tender and procured 266 computers from M/s Compaq in March 2000 on the plea that the firm had emerged as the successful bidder in respect of the MPCM project for which purchase orders were placed in March 2000. This was irregular since the vendor had not even participated in the tender. It was also observed that M/s. Compaq had been the successful bidder in the case of the MPCM project because all others had been rejected.

Thus not only did DoP issue an irregular NIT but also placed purchase order in disregard of the stipulated rules of tendering on a vendor who had not even participated in the tender. DoP denied itself the benefit of competitive prices which would have been possible if they had followed correct tendering procedure.

### 1.6.2.2 Irregularities in release of payments

The purchase orders for procurement of computers for the ESMO stations placed on M/s Compaq stipulated that 90 *per cent* payment towards the hardware was to be released on proof of delivery and the balance on installation, commissioning and training at the sites. Audit, however, observed that DoP had released the balance of 10 *per cent* payment to the vendor in respect of 668 out of 732 ESMO sites, without obtaining any reports from the circles as to whether the stipulated training had been imparted to the staff.

On this being pointed out in audit, DoP accepted the facts.

Thus DoP did not address the major concerns and specify their requirements at the procurement stage resulting in failure to obtain the best value for money for the supplies. DoP also did not safeguard its interests in case of non-performance and did not prevent undue benefit from being extended to HECL at different stages.

**Recommendations**

* **DoP may ensure that the interests of the Government are not jeopardized by compromising on the essential conditions of contracts such as revalidation and encashment of bank guarantee.**

* **DoP may closely monitor the status of enforcing recovery of excess payment and liquidated damages from HECL and ensure that no undue benefit is extended.**

**1.7   OPERATIONAL   PERFORMANCE   OF   THE   VSAT   MO SYSTEM**

Transmission of MO through the VSAT system commences with the counter clerk accepting the MO advices at the MPCM counters in post offices. Thereafter, the MOs, which are to be sent by VSAT, are fed into the VSAT MO system and after authorization by the supervisor, are transmitted to their destinations through the central server. The destination stations print the MO advices for payment. After payment of the MOs, the payment dates are keyed into the system by the destination stations for updating the database in the central server for automatic pairing between the MOs sent and the MOs paid.

In respect of non SMO/ESMO stations, the MO advices received from the customers during the day are entered manually in the MO list and sent along with the list of MO advices once in a day in MO bundles to the attached SMO/ESMO stations from where they are transmitted to their destinations. After receipt at the destination SMO/ESMO stations, the MOs are printed and entered in the MOs received list and sent to the concerned delivery post offices for payment to the payees.

In order to ensure that the VSAT MO system worked efficiently, it was imperative that:

* there was no breakdown of the system;

* there were no delays in transmission of MO advices, printing of MO advices at the destination and final payment of MOs;

* all the pin code ranges were fed into the system accurately to ensure that the MO advices were transferred to the correct destinations;

* there were no delays in transmission of MOs on account of problems in transmitting messages in the MOs, especially those in regional languages;

* there were effective controls to guard against incorrect payments and double payments;

* the system was used for the purpose of automatic pairing of MOs received and payments made to ensure correct payments and accounting; and

* there was adequate trained manpower to ensure smooth functioning.

Audit observed inadequacies at each of the stages, which resulted in delays in payment of MOs beyond the targeted period for delivery of two to three days as discussed below.

### 1.7.1  Frequent breakdowns in the system

Test check in the Bihar, Chhattisgarh, Gujarat, Haryana, Himachal Pradesh, Jammu and Kashmir, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, North East, Orissa, Punjab and Uttar Pradesh circles revealed that the SMO/ESMO stations in these circles had not been functioning for periods ranging from four days to eight months during the period covered by audit due to frequent breakdowns in the system. The details are given in Annexure-VI.

On these being pointed out, the circles attributed the non-functioning of the system to hardware and software problems, connectivity problems and power failures.  In order to ensure smooth functioning of the VSAT MO systems, DoP should enter into service level agreements with respect to hardware and provide generators for back up against power failures. PTC Mysore should be directed to ensure that software problems are attended to promptly.

### 1.7.2  Delays in transmission of MOs

Sample checks revealed delays in transmission of MOs in 16 of the 20 circles reviewed. The delays ranged from three to 33 days as detailed in Annexure VII. One of the major reasons for this was the delay in delivering the MO bundles from non-SMO/ESMO stations to the SMO/ESMO stations. Besides, the bundles of MOs booked at the non-SMO/ESMO stations were being delivered to SMO/ESMO stations once in a day. In order to achieve the objective of efficiently serving the rural population and transmission of MOs through the VSAT system within three days, DoP should consider taking the bundles of MOs from non-SMO/ESMO stations more than once in a day to the attached SMO/ESMO stations.

### 1.7.3  Delays in printing of MOs at the destination

The printouts of MOs received through VSAT should be received by the destination office immediately to ensure that they were delivered to the customers within the stipulated period of two to three days. It was, however, noticed that there were delays in printing of MOs in 19 of the 20 circles reviewed. The delays ranged from three to 166 days during the period of audit as detailed in Annexure VII.

### 1.7.4 Delays in payment of MOs

After the printouts of MO advices are obtained at the destination stations, immediate steps should be taken for prompt payment of the money to the payees. Audit, however, observed that there were delays in payment of MOs in 19 of the 20 circles reviewed. The delays ranged from 3 to 187 days during the period of audit as detailed in Annexure-VII.

DoP accepted the facts in respect of delays in transmission, printing and payment.

### 1.7.5 Delays in payment of MOs due to wrong allotment of pin code ranges

The SMOs and ESMOs had to enter pin code ranges served by their stations to ensure that the MO advices were transferred to the correct destination.

Test check in the Bihar, Chhattisgarh, Delhi, Gujarat, Jharkhand, Maharashtra, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal circles revealed that all the pin codes had not been fed into the system and in a few cases, incorrect pin codes had been assigned in the system which resulted in transmission of money orders to wrong destinations.

On this being pointed out in audit, the Postmasters in the different circles accepted the facts. They also stated that the concerned authorities had been requested to re-allot new pin code numbers in the next version of the software.

### 1.7.6 Non-transmission of MOs in regional languages

Although VSAT MO software had the facility of data entry/transmission of MOs in 10 languages including English, it was observed that this facility was not being utilized in all the circles examined in audit. It was also observed that no training had been imparted to the data entry operators in transmitting MOs in regional languages. As a result, MOs received in regional languages were either translated into English and sent through VSAT or were sent manually. This resulted in some customers preferring to send their MOs manually to communicate with the payees in their own languages.

A spot survey carried out by Audit on 11 July 2005 in 20 post offices in Andhra Pradesh, Bihar, Chhattisgarh, Gujarat, Haryana, Karnataka, Kerala, Maharashtra, North East, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal revealed that out of 5,042 MO forms received, 3,181 were received in English and 1,861were received in Hindi and regional languages. Out of these, 2,904 MOs or 57.60 *per cent* were transmitted through VSAT, all of which were sent in English (including MOs received in other languages) as detailed in Annexure-VIII.

DoP accepted the fact that the data entry operators had not been trained in transmitting MOs in Hindi and other regional languages.

### 1.7.7 Low transmission due to difficulties in transmitting 'messages'

One of the major reasons for low transmission of MOs through VSAT has been the problem of transmitting individual messages[7] in MO forms written by the senders, especially those written in regional languages. Audit observed that in order to overcome the above problem, DoP was in the process of introducing short standard messages in various languages through PTC Mysore. DoP should instruct PTC Mysore to expedite the introduction of such messages and promote their use through wide publicity to increase the number of MOs transmitted through the VSAT MO system.

### 1.7.8 Non-utilisation of the link facility between the VSAT system and Meghdoot

The Meghdoot software was developed in July 1999 by DoP to handle all post office counter functions, except the Savings Bank functions. One of the modules in Meghdoot software was the 'point of sale module'. This module was used for all transactions undertaken through multi-purpose counter machines including booking of money orders. The BETA 4 version of the VSAT MO software developed by PTC Mysore had the facility of linkage between the Meghdoot software and the VSAT MO software. This facility should have been used to directly transfer MO data from the Meghdoot software to the VSAT MO software, which would have avoided duplicate entry and delays. It was, however, observed that this facility was not being utilized in the SMO/ESMO stations test checked, except at Indore under the Madhya Pradesh Circle and Mumbai and Kalbadevi under the Maharashtra Circle.

DoP accepted the facts.

### 1.7.9 Incorrect authorization of MOs

The data entry operators at the SMO/ESMO stations fed all the details from the MO forms into the system and the entries had to be authorized by the supervisors after ensuring their correctness.

Test check in the Gujarat, Karnataka, Madhya Pradesh, Maharashtra, and Orissa circles revealed that the values of some of the MOs transmitted differed from the amounts originally booked as shown in Annexure-IX. Out of 15 cases of incorrect payments noticed involving Rs 3.56 lakh, there was short payment in 11 cases, while in four cases excess payments were authorized. In one case involving bulk MOs, the payee refused the incorrect payment of Rs 3,44,492 instead of Rs 34,492. These examples highlighted the failure of the supervisors to ensure the correctness of the entries before authorization of

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[7] Money order forms have an allocated space for the senders to write messages for their payees

the MOs. The risk of manipulation and fraud could not also be ruled out in some of these cases.

On this being pointed out in audit, DoP stated that the mistakes were due to untrained staff and oversight.

### 1.7.10 Pairing of MOs

The VSAT software had the facility to feed the payment data and details in respect of MOs received through SMO/ESMO stations and paid to the payees back into the VSAT system. Information in respect of dates and amounts of payments in cases of paid MOs should be regularly fed back into the VSAT system to pair the MOs for ensuring correct payments and accounting. DoP had issued instructions in July 2004, to ensure that information about paid MOs was invariably fed into the VSAT system.

Audit scrutiny in 20 circles, however, revealed that automatic pairing was not being generated by the SMO/ESMO stations as the payment dates were not being fed into the system at the payment end. Details are given at Annexure-X.

On this being pointed out in audit, the heads of SMO/ESMO stations accepted the fact of not keying in the payment dates and attributed this to shortage of staff.

Further, it was noticed in Audit in all the circles that even manual pairing was in arrears for periods ranging from one to three years. This was fraught with the risk of double payment, irregular payment, incorrect payment and avoidable and often difficult subsequent recoveries.

### 1.7.11 Inadequate trained staff

As per the directions of the Expenditure Finance Committee (EFC), the manpower requirement for handling the entire operation of Phase-II of the VSAT MO system was to be met from the existing available staff by training them adequately.

Audit scrutiny revealed that VSAT MO operations suffered on account of lack of adequate trained staff. The heads of different SMO/ESMO stations attributed problems such as non-pairing of MOs automatically through the system and other mistakes and delays to lack of adequate trained staff. Audit also observed that the data entry operators were being entrusted with jobs other than entering the data related to VSAT MO operations, which resulted in delays in transmission.

The Department replied that due to shortage of staff, it was not possible to deploy Postal Assistants independently for data entry work.

**Recommendations:**

∗ **DoP may ensure that all SMO/ESMO stations function uninterruptedly. For this purpose, power backup should be**

**ensured. Service level agreements should be entered into with vendors and their performance should be monitored closely.**

∗ **Postmaster should ensure that bundles of MOs are taken from non-SMO/ESMO stations more than once in a day to the attached SMO/ESMO stations to ensure transmission on the same day; printouts of the MOs should be taken by the destination SMO/ESMO stations immediately to ensure prompt payments.**

∗ **DoP may ensure that training is imparted to data entry operators and supervisors for transmitting MO messages in regional languages and also ensure that the authorization of MOs is carried out accurately to avoid any lapse.**

∗ **DoP may promote the use of short and standard messages, especially in regional languages, to eliminate the delays on account of transmitting individual messages.**

∗ **DoP may utilize the link available in the software between the VSAT system and the 'Meghdoot' software at the post office counters, to avoid duplicate feeding and delays.**

**1.8    INADEQUATE INFORMATION TECHNOLOGY CONTROLS**

Adequate information technology (IT) controls are absolutely essential to ensure that an IT system performed efficiently and effectively. The controls ensure data integrity, proper mapping of business rules and IT security.

A system is effective only if the users had confidence in the data that it generated. Otherwise, they would continue to rely on manual procedures or intervene manually to correct the system generated data. In both the cases, the effectiveness of the system gets diluted due to the increased work load and it becomes prone to errors. Various shortcomings noticed by Audit in the IT controls of the VSAT MO system which resulted or could result in double payment of MOs are discussed below.

**1.8.1   Inadequate controls to prevent double payments of MOs**

One of the major concerns in regard to payment of MOs would be that there should be no double payments. While transmitting MOs through VSATs, double payments can occur through double transmission, transmission of the same MOs through VSAT as also manually, double printing at the destinations and issue of duplicate MOs without checking whether the original MOs had been paid or not.

**1.8.2   Double transmission of money orders**

Test check in the Chandigarh SMO station revealed that 301 money orders valuing Rs 3.97 lakh were transmitted twice, once on 24 March 2004 and again on 25 March 2004. While the System Administrator, Chandigarh

SMO station denied any double payment and attributed double transmission to problems in the server, it was noticed that there were double 'paid dates' in respect of seven such MOs.

A similar case was noticed in the Tamil Nadu Circle, where an MO was transmitted on successive dates namely, 8 March 2004 and 9 March 2004 from the Palayamkottai SMO station. The Senior Postmaster, however, stated that double payment had been avoided since duplicate copies of the printouts had been retained at their end.

Audit requested DoP to confirm whether any double payment had actually been made in respect of the cases pointed out in audit. Their reply was awaited (November 2005). In any case, double transmission of MOs was fraught with the risk of double payment, necessitating manual intervention. In the absence of reliability of the system, the manual controls would have to continue, defeating the objectives of computerization.

### 1.8.3   Transmission of MOs both through VSAT and manually

Test check in the Bihar, Delhi, Jharkhand, Maharashtra, North East, Orissa, Rajasthan and Uttar Pradesh circles revealed that in 79 cases, MOs were transmitted initially through VSAT followed by manual means, resulting in double payment of MOs totalling Rs 59,188.

On this being pointed out in Audit, it was stated that the since the MOs sent through VSAT were reported as not received at the destination, they were sent again. However, the system subsequently transmitted the MOs, which were printed and paid at the destinations. Meanwhile, the same MOs were also sent manually and were paid again.

The Management of the Delhi Circle stated that efforts were on to recover the excess payments made. No recovery had been made as of October 2005. In the other circles, it was noticed that recovery was in process.

A similar case was noticed in Kochi SMO station where an MO was transmitted initially through VSAT and later manually. However, double payment was avoided since the printout at the destination was taken out the day after the payment of the original MO and so the same could be detected.

### 1.8.4   Double printing of money orders at the destinations

SMO/ESMO stations received data of inward MOs pertaining only to their areas. On successful receipt of the MOs, the SMO/ESMO stations automatically acknowledged the same along with the date and time for every individual MO received. This data was to get updated in the host computer as well as in the SMO/ESMO stations.

Test check in the Gujarat, Madhya Pradesh and Maharashtra circles revealed that in 78 cases, money orders bearing the same PNR[5] number were printed more than once at the destination.

On this being pointed out, the Senior Postmaster Bhopal stated that no information was available regarding double payment of such money orders. As in the case of double transmission of MOs, double printing could also lead to double payments. DoP should urgently reengineer the software to put in place adequate validation controls in respect of double printing of MOs at the destination.

The above instances of double payments were a result of lack of adequate controls in the system as discussed below.

### 1.8.4.1 System accepting same MO number

Once an MO was fed into the system, the system generated a PNR[*] number. Only one PNR number should be generated against one MO number to ensure uniqueness of the transaction. It was, however, observed that the system generated more than one PNR against the same MO number.

While the local management accepted the fact, DoP needed to re-engineer the software to ensure that only one PNR number was generated against one MO number.

### 1.8.4.2 System showing status as not printed despite printing

One of the projected advantages of the VSAT based MO system was a more effective reporting system. After printing the money orders at the SMO/ESMO stations, the system should capture this information and update their transaction data for effective reporting and monitoring.

Audit scrutiny of the reports of MOs collected and entered for the periods from October 2004 to March 2005 in 17 circles revealed that in 2,78,306 cases, the dates of printing were not available as detailed in Annexure-XI.

On this being pointed out, the Senior Postmasters/Postmasters of the respective circles stated that due to technical problems, the dates of printing were not available. The units were not aware of the fact whether these MOs had been paid or not. This system failure not only defeated the objective of accurate reporting but also entailed the risk of double payments. DoP should urgently reengineer the software to rectify this problem.

### 1.8.4.3 Acceptance of invalid dates

The VSAT MO system had four crucial dates namely booking date, transmission date, print date and paid date. The date of transmission was to be

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[5] PNR : Public Numeric Number, which is a unique number which identifies a transaction in the SMO system
[*] explained in page 28

on or after the date of booking and the date of payment on or after the date of printing.

Audit scrutiny in the Andhra Pradesh, Karnataka, Maharashtra and Tamil Nadu circles revealed that there were instances where the dates of transmission were prior to the booking dates and the payment dates were earlier than the printing dates. Acceptance of incorrect dates by the system could lead to the issue of duplicate MOs.

DoP accepted the facts.

**1.8.4.4 Paid money orders being shown as pending transmission**

Test check showed that in the Madhya Pradesh, Chhattisgarh and Delhi circles, 2,256 MOs were pending for more than six months (Annexure-XII). Though the system showed these MOs as pending, it was noticed through the track and trace[8] system that these had already been transmitted/received and printed at the destination SMO/ESMO stations. DoP uses the track and trace facility only when a complaint regarding non-receipt of MO is received.

On this being pointed out, the Chief Postmaster New Delhi GPO stated that due to problems in the software, the system was showing transmitted MOs as pending. It was further added that the software problem had been brought to the notice of PTC Mysore in April 2005.

**1.8.4.5 Deficiencies in mapping of business rules**

Though the rules and regulations regarding receipt, transmission and delivery of MOs had generally been incorporated in the software, it was noticed that the following functions had not been incorporated:

* The procedure for refund of MOs to senders, if MOs remained undelivered due to the death of the receivers and refund of undelivered MOs to the legal guardian of senders in the case of the death of the senders.

* The provision to delete the original entries once an authorised MO was not intended to be transmitted for any reason.

* The provision to stop payments on requests by senders.

**1.8.5   Information Technology security related issues**

Computer security guidelines issued by DoP in May 2001, July 2001 and July 2004 stipulated allocation of specific user IDs and passwords, regular revision thereof and effective controls thereon.

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[8] track and trace : A module in the VSAT MO system which shows the status of a particular MO

### 1.8.5.1 Deficient password

The passwords used to gain access to the package and the system resources should not be easy to guess, should be changed regularly and should comprise a minimum of eight alphanumeric characters.

Audit scrutiny revealed deficiencies in password procedures in all the 20 circles as follows:

↘ the system accepted passwords of single character,

↘ the user IDs and passwords were not changed,

↘ the system did not provide controls against unauthorised attempts to login,

↘ the system did not generate log reports on unauthorised attempts.

On this being pointed out (August 2005), Senior Postmasters/ Postmasters of the respective SMO/ESMO stations replied that suitable instructions would be issued to follow the guidelines issued by DoP.

### 1.8.5.2 Ineffective segregation of duties

Segregation of duties ensures that officials are granted access only to their respective operational areas and are not able to trespass into the areas of operation of other officials, especially those of their supervisors, who exercise checks over their activities. In the case of the VSAT MO system, the data entry operators were assigned user IDs with limited access to the data base, while their supervisors, who had different user IDs and wider access to the database, authorized the entries keyed in by them.

Audit scrutiny, however, revealed that there was no segregation of duties in the SMO/ESMO stations and the data entry operators did the work of entering as well as its authorization. This is fraught with the risk of manipulation of data leading to fraudulent payments.

### 1.8.5.3 Non formulation of disaster recovery and business continuity plan

The VSAT MO system played a very important role in the department's business dealings. Human errors, failures on account of electric and magnetic fluctuations, natural calamities or crashing of the computerised system could severely disrupt the activities related to VSAT MO operations. DoP needed a detailed disaster recovery and business continuity plan so that after any eventuality, operations were brought back to normal at the earliest with minimum losses.

DoP had issued orders for taking regular backup of data but did not have a documented disaster recovery and business continuity plan for all its computerized activities. Audit scrutiny in the 20 circles revealed that even the orders issued for regular backup of data were not being followed. It was also observed that the back up data was not being reviewed periodically in order to

ensure that there were no problems in data retrieval. The back up data was also not stored in off site locations.

**Recommendations**

* ∗ **The software should be re-engineered to strengthen its validation controls in respect of generation of PNR numbers and the status of printing.**

* ∗ **Input controls should be strengthened to prevent the acceptance of erroneous dates.**

* ∗ **DoP should review the system and incorporate the departmental rules/checks, wherever lacking.**

* ∗ **DoP should review the implementation of IT security related controls.**

* ∗ **DoP should prepare a detailed disaster recovery and business continuity plan and ensure its strict implementation.**

## 1.9    CONCLUSION

DoP had introduced the VSAT MO system with the objective of extending greater benefits to customers with speedy transmission of MOs at no extra cost; an accurate reporting system and generation of profit through lower operational costs. However, as against the target of bringing the entire traffic of over 10 crore MOs on the network, DoP transmitted only 47 lakh (4.74 *per cent*) MOs through VSAT in 2003-04 and 1.49 crore (13.54 *per cent*) in 2004-05. The low transmission of money orders through VSAT indicated that DoP was still heavily relying on the manual system. The shortfall in sending the MOs through VSAT had a major impact on the profitability of the project as the VSAT operations suffered losses in each of the four years of its operation. Since the pairing work was still being done manually, the required staff reduction was not achieved.

DoP did not achieve the desired objectives due to deficiencies in planning and procurement, frequent system failures and inadequate monitoring. Problems in hardware/software and deficient IT controls compounded the situation and rendered the achievement of the objectives more difficult. These inadequacies needed to be urgently addressed to ensure optimum performance of the VSAT MO system.