UNITED NATIONS

DEPARTMENT OF ECONOMIC AND SOCIAL DEVELOPMENT (DESD)

EDP AUDITING — SHARING EXPERIENCES,
OPPORTUNITIES AND CHALLENGES

Report of the United Nations/INTOSAI
Workshop on Government Auditing

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NOTE

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INTRODUCTION

The United Nations Interregional Workshop on EDP auditing in Developing Countries was held in Vienna, Austria, from May 27 to June 4, 1992. This was the tenth in a series of interregional meetings organized jointly by the United Nations Department of Economic and Social Development (DESD) and the International Organization of Supreme Audit Institutions (INTOSAI).

I. BACKGROUND OF THE WORKSHOP

Traditionally the Department of Economic and Social Development (DESD) has undertaken on a continuing basis a variety of activities intended to assist developing countries in strengthening their public financial management systems. As part of these activities, DESD in cooperation with INTOSAI has been organizing interregional meetings on government auditing usually every two years. Over the last two decades nine such meetings were held to discuss various subjects of common interest such as audit of public enterprises, audit of public works, performance audit, comprehensive audit, principles of audit, internal management control systems, audit of major development programmes, applications of government audit standards, as well as accounting and auditing of foreign aid programmes. The present meeting chose as its theme computer-assisted audit.

It was held in the form of a workshop and covered discussions on computer concepts, the use of the computer in the audit process and operations as well as case studies on the implementation of computer audits and characteristics of well structured accounting systems. Participants had access to a Local Area Network (LAN) system on which they could practice various concepts and methods. Analytical papers, country experiences and case studies were prepared by the UN, INTOSAI, supreme audit institutions and agencies from several countries.

Welcoming the participants on behalf of the United Nations Department of Economic and Social Development (DESD) was Mr. A.T.R. Rahman, Chief, Public Finance and Enterprise Management Branch. He emphasized the importance attached by the UN to these meetings and the impact that they have in developing countries in terms of improved audit quality and increased knowledge of the usefulness of computers in the auditing process. He also underlined the importance of the workshop in sharing experiences in computer assisted auditing and subsequently to identify opportunities, challenges and measures to assist in appropriate development of computer assisted audit in developing countries.

On behalf of INTOSAI, Mr. Tassilo Broesigke, President of the Court of Audit of Austria (Rechnungshof) and Secretary General of INTOSAI welcomed the participants and underlined the importance of the joint efforts undertaken by the UN and INTOSAI in the organization over the years of interregional meetings on government auditing for developing countries.

the workshop discussed and studied the following topics,

(a)   Basic computer concepts,

(b)   Using the computer in audit operations and the audit process,

(b)   Implementation of computer audit in a Supreme Audit Institution (SAI):

Case studies with particular reference to:

(i)   development of strategy,

(ii)   organizational issues,

(iii)   products available,

(iv)   hardware systems,

(v)   requisition process,

(vi)   training requirements,

(vii)   implementation of computer audit, and

(viii) sources of funding and technical assistance.

A total of 30 participants from 25 developing countries and 5 developed countries attended the workshop. Representatives from the African Development Bank, the FAO, UNESCO, UNDP and UNIDO also attended the workshop. A list of participants is included in Annex I.

The workshop opened on May 27 with a plenary session and concluded its discussions on June 4, 1992 by adopting its report.

II. SUMMARY OF PRESENTATIONS

A United Nations — Public Financial Enterprise and Management Branch (PFEMB)

Many computer installations prove to be unsatisfactory once they have been set-up and an inadequate system can have far reaching consequences in a Lesser Developed Country (LCD). The system often does not live up to expectations. Sometimes this is due to inadequate hardware or software configurations, but more often than not the reason is that user needs have not been properly defined. Responsibility for this inarticulation must be shared by the LDC itself. Oftentimes its experience in computerization is limited or non existent and it therefore must rely on representations and experiences of foreign bodies operating in a more advanced technology setting whose needs have been more defined and adapted to their particular environments. Its systems oftentimes cannot be transplanted partially or wholly, to the context of a LDC. Cases where this has been done are not isolated. How can a LDC contemplating computer technology transfers, help minimize the risks of an unsatisfactory system set-up? The LDC government entity foreseeing computerizations of some sort should take its precautions by mobilizing all available human resources to objectively carry out the following steps:

(a)   identifying currently used procedures and determining the requirements of the present system;
(b)   identifying problems and weak spots inherent in the existing system;
(c)   identifying additional information needs;
(d)   and establishing a basis for designing a new system.

It is mandatory that three principal elements should be included in systems design and set up. These elements should always be done in the order that follows:

(a)   consultancy and systems design,
(b)   applications software identification,
(c)   and lastly, hardware specifications.

B India

In India the programme for use of EDP Technology was started by appointment of a Steering Committee by the Comptroller and Auditor General with all the powers delegated. The committee

adopted a twofold strategy: on one hand training efforts were started through five institutions and on the other hand a selected group started working on EDP applications like creation of data base, development of software for training and audit management, resource management and conducting pilot audits. Plans were also worked out to increasingly use desk-top printing for audit reports.

Development of inhouse capabilities was the core of EDP strategy of the Comptroller and Auditor General, although it did not exclude periodical help from outside experts. Training was given in stages to selected staff relying on the multiplying effect of such training. PCs were provided on a selected basis wherever there were trained personnel. Now there are large number of trained persons, a data base created and a number of Audit Reports published through Word processers to eliminate delays. Standardisation of hardware and software throughout the Department has accelerated this process. The first results on Pilot Audit of Inventory Management on Indian Railways have just come and they are quite encouraging.

With new awareness and international co-operation, SAIs will be able to make new contribution to the more efficient management of their national resources.

C   Canada

Over the last years, computer auditing in the Office of the Auditor General of Canada (OAG) has changed direction and evolved dramatically. Influences on computer auditing have included: strong management interest and support; pressure to reduce audit costs; comprehensive auditing experience; and the explosion of technology opportunities, in particular the introduction of personal computers (PC's). The office has made a significant long-term commitment to information technology for using an auditing computer system. All audit staff have access to microcomputers. The office has also been active in the development of audit software for PC's. For example, innovative software for data extraction and for the creation and management of electronic working paper files was conceived by the office.

Computer auditing in the OAG began with a major study of the computer systems of the federal governments in 1976 and 1977. Initially, reliance was put on outside consultants having information technology expertise to gain understanding of the government's information technology.

The study covered a broad range of data processing organizations of varying sizes and complexity, with varying vendor platforms and states of maturity. It involved extensive analysis of system flows

and detailed studies of controls, including security, and, in some cases requiring auditors to use the computers themselves. It was a natural extension of the systems-based approach to audit.

The initial system control and security evaluations illustrated the value of using computer assisted audit techniques (CAATS) to develop substantive compliance and value for money tests. A computer audit group with a mandate to support all information technology activities was set up with the CAATS. After this step, a training program in EDP audit skills was implemented for general auditors. This program required auditors, under the supervision of EDP personnel, to prepare environmental planning surveys, application reviews and CAATS for their audits as well as other audit teams. Many of these auditors have remained with the OAG and are now in middle-management positions in the audit groups. Their presence is continuing to have a major impact on the OAG and has helped bring about changes in audit approaches that often involve innovative use of information technology.

D United States – Assessing the Reliability of Computer-Based Data

As the use of computer-based data grows, auditors face an increased risk that the data they use to support their audit findings will be unreliable. Because of that risk INTOSAI auditing standards require that when computer-based data are an important part of the audit and the data is crucial to accomplishing the audit objective, auditors need to satisfy themselves that the data are reliable and relevant.

Assessing the reliability of computer-based data is a three phase process that incorporates five steps. The phases include (1) assessing the reliability risk of the data, (2) reducing the reliability risk, and (3) reporting the results.

Assessing the reliability risk is a two step process that involves (1) assessing how the data will be used to support the audits' objectives — sole support, corroborative support, or background information; and (2) determining what is already known about the reliability of the data and the system´s internal controls.

Reducing the reliability risk is also a two step process that involves (1) gaining an understanding of system internal controls and determining whether they can be relied on to reduce risk and (2) testing the data for accuracy, authenticity, and completeness. Testing may be done through manual or automated processes.

Reporting the results requires that the audit report include the scope of work, methodology for testing the data, and limitations on using the data in the report.

E   Sweden – The Life cycle approach

Sweden has one of the most computerized public sectors. EDP and the handling of information costs much. Therefore there is a great need for a strategic approach when auditing clients EDP-systems. The aim is to affect the whole public sector and not only the authorities that were audited.

Life cycle consists of five instances; strategies, systems development, systems maintenance, upgrading of systems and finally decomissioning. An EDP system consists of different components with different life expectancies.

Sweden's experience shows that many if not all authorities have or will experience the same problems. One can therefore audit a sample of authorities and apply the result to the whole sector of central government.

This ambition has resulted in an eleven step methodology; survey, problem formulation, "state of the art" construction, analysis instrument development, possible proposed action simulation, auditee selection, auditing, audit report, a general audit report, post audit work and follow-up.

The auditing of a problem will thus take quite some time. The post audit work which includes promotion of the work can in some instances continue for years. In some cases audits have inspired government legislation.

The recent experience has shown that the interconnection and collaboration of agencies creates new problems. The latest audits have therefore been oriented toward information quality in complex information systems and the collaboration between authorities that share or develop such systems. Supply strategies based on our audits with the government are now being discussed. The audits have also led to a research program at the university level and for development standards within the EDP area.

F   United Kingdom – Managament, institutional, organisational and training issues related to introducing EDP Technology in an SAI

This paper dealt with the issues involved in introducing in an SAI, EDP systems for administrative support, management, and audit support. It draws on the experience of the United Kingdom National Audit Office (NAO), which is currently implementing an EDP strategy costing 6.4 million pounds sterling over 5 years.

To get funds for expensive EDP technology requires clear identification of the benefits to be gained. Forecasting benefits is difficult, but they generally include: improved efficiency of operations and reductions in costs, improvements in the quality of work, reduced audit risk, and improved response times. In the NAO, benefits were assessed by the line audit staff, to give extra credibility to the assessments, and to gain the staff's commitment to achieving the benefits.

It is also important to assess success or failure. NAO are measuring the costs incurred and the benefits actually delivered. To date, costs are within budget and have more than achieved the savings envisaged.

SAIs must ensure that the systems will meet their needs, and these will vary considerably. In identifying needs it is important to involve users, and in the NAO users participate in the Information Technology (IT) committee which decides strategy, in designing systems, and in project teams overseeing the development of systems.

Good EDP staff are scarce and expensive, and SAIs will find it difficult to compete for such people. Consultants may be used, but they often do not understand how the SAI works. In the United Kingdom it was decided that the bulk of the project team should be users, to ensure that user needs would predominate. The project team numbers 15-20 people and NAO invests heavily in training them. Consultancy support was used to get the project started, but consultants worked with NAO staff, and were withdrawn when skills had been transferred.

NAO is aware that retention of trained staff can be a problem. It pays staff special allowances, and has awarded promotions. Also, it tries to ensure that there are at least two people trained in key skills.

Implementing systems successfully requires effective project management, professional systems development and user training. NAO has regular progress meetings for projects under

development. It uses a modular approach to development; each module is controlled through stages and the outputs at each stage are reviewed by quality assurance teams. NAO regards good training for users as essential, and so far it has trained over 400 staff.

G Netherlands – 35 years of experience

The Netherlands Central Government started using Information Technology (IT) in 1955. At that stage the mechanization of applications regarding payrolls, stocks and taxes, started by using punchcard and tickertape equipment. In 1957 the Netherlands Court of Audit (Algemene Rekenkamer) for the first time reported about an IT matter. Since 1985 the Algemene Rekenkamer started to use IT technology as an audit tool for general auditors. This development has led to the situation that nowadays every auditor within the office has access to a personal computer and a broad range of standard software tools.

An analysis of the 35 years of IT audit within the Algemene Rekenkamer, shows the next development:

— 1955-1970; an audit methodology hardly existed, the auditors used common sense to track desinvestments and inefficiency in Governmental IT applications, and were very focused on the internal control measures as they occurred within the applications.

— 1970-1985; while IT developments became more and more complex with the arrival of Database technology and integrated concepts that were promising management information, a methodology to structure the IT-audit became urgent. Like many SAI's the Algemene Rekenkamer developed a kind of life cycle approach.

— 1985-1992; after being quite successfull, the life cycle approach proved to have certain limitations. This is why the Algemene Rekenkamer decided to introduce governmentwide audits covering certain aspects of IT. The latest approach to cover Governmental IT developments is to integrate the IT audit within other types of audits such as performance audits.

Using IT as an audit tool is a matter that can be approached from 2 angles, using computers to audit the automation (of the auditee), and using computers to automate the audit (in general). Since 1983 there is a limited use of audit tools of the first kind. Since 1985 a stormy development in using IT of the second kind took place. The Algemene Rekenkamer has introduced the IT for internal use in 2 phases both covered by an overall IT plan:

—   1986-1989; Some 100 stand alone PC's have been introduced together with a hands on training program focused on the specific audit work

—   1990-1992; The introduction of the PC's has without doubt led to a increase in the quantity and the quality of the audit work especially on the field of performance and effectiveness audits. The introduction of 200 more PC's, was combined with the introduction of 2 local area networks within the 2 central buildings of the Algemene Rekenkamer. A wide variety of software-tools are available for all the auditors, who all have their own PC.

III. COUNTRY PAPERS

A Barbados

The SAIs within the CAROSAI sub group have fully recognized the need for and potential impact of computerisation within their respective office. However, careful planning and proper training is essential for a relatively problem-free complementation.

One of the problems experienced by many SAIs within CAROSAI is the difficulty in obtaining training in the effective use of the hardware and software that they currently possess, and in respect of any audit specific software this may be acquired in the future. It was generally agreed at the IInd Congress of CAROSAI in 1991 that a cadre of specialists in the field of EDP audit could best be compiled at the regional level and CAROSAI was mandated to persue this. Various international agencies have promised assistance to CAROSAI in this aerea.

Some of the SAIs have been using Computer Assisted Audit Technologies (CAATs) with varying levels of success. A common emerging problem is the difficulty experienced in downloading data from the wide variety for computer systems used by the government of the region.

Another area of concern for the SAIs of the region is the need to develop standards in respect of hardware/software acquisition. At the IInd Congress was decided that CAROSAI should assist in their area by developing a directory of appropriate hardware and software.

B Chile

Developments in the field of computer technology within the General Audit Office of Chile (Contraloría General) are moving ahead gradually according to systematically defined plans and structures. Thus, there is an increasing shift from centralized EDP tasks on a mainframe to the decentralization of information systems. The following elements are available to achieve that end: a countrywide network of connections (at the administrative centre of each geographical region) linking all SAI Regional Offices; the institutional commitment to offer a service to public sector bodies through direct access to all SAI databases; and the gradual entry into service of personal microcomputers, most of them linked to the mainframe.

The Contraloría General of Chile has legally-oriented information systems such as those dealing with legislation and case law, national general accounts, public sector personnel and so on, as well

as those of an operational nature, i.e.: abstracts of audit reports; management and control of audit programmes; and a permanent audit file with institutions to be reviewed, etc.

In the area of personal computers, these are used mainly for the development and application of substantive audit tests prepared on spreadsheets, databases and other specific programmes. The fact that all PC equipment is connected to the mainframe allow large volumes of data to be reviewed by means of applications interacting on both levels of hardware. These review tasks cover, inter alia, the statistical sampling of such data.

The working methodology in this field includes three modules or phases: EDP environment audits, systems development and operation audits and data audits through specific control reviews.

C Colombia

Under the constitutional reform put into effect in June 1991, the auditing scheme being applied by the General Audit Office of the Republic of Colombia (Contraloría General de la República) underwent a basic change. Until then, the control method used had been of a numerical-legal nature only and was carried out a priori or ex post facto.

For this reason, the SAI of Colombia had no advanced computerised system; it could even be said that it had no computerised system at all as the control structure would not allow for one. From that moment on, and working already on financial, operational and systems audits, the development of these areas has been a top priority. Thus, it has established a strategy aimed at procuring new equipment, training staff and acquiring good quality systems software. It has already applied the IDEA system as well as other programmes.

D Costa Rica

The General Audit Office of the Republic of Costa Rica (Contraloría General de la República) has been making firm efforts in the last few years to improve auditing functions in the area of public finance, a task that is granted it by the Constitution.

As part of these efforts, the Contraloría General de la República has embarked upon the modernization of its activities through computerization in order to streamline its functioning and achieve efficiency, value for money and effectiveness in carrying out its tasks. At the time of writing, the Contraloría General de la República is in the process of awarding a contract for the supply of state-of-the art open architecture computer hardware designed to meet minimum requirements of connectivity, integration and processing speed. It should be pointed out that the

Supreme Audit Institution for Public Finance has a modern Training School with specialized equipment and personnel where SAI officials have received training in computer skills in addition to the vorious courses organized under the auspices of UNDP, IDI, IDB, OLACEFS and other organizations.

E   Jamaica

The Auditor General's Department, being acutely aware of the assistence which the computer is capable of providing, has always taken the opportunity to expose its officers to whatever training is available in this field. A number of officers have participated in courses conducted by the National Computer Centre and in 1990 the Department benefitted from the assistance of the UNDP when a specialist from the Office of the Auditor General (OAG) of Canada was assigned to the department for a month to impart the properties of IDEA.

The objective of utilizing the computer for administrative support seems to have been met but the response in regard to the usage for hands-on experience has not been as successful as was anticipated. In 1989, the Auditor General's Department embarked on the computerization of a number of its administrative activities. It was considered that this would be best achieved if a phased approach was adopted, and each completed before work on the next phase was undertaken.

At present the audit of computer-based operations employs the audit-around-the clock technique.

F   Philippines

The prevalence of the much improved and faster information processing systems and the aquisition and use of information technology in government, require improvement of the audit service delivery. In response, the Philippine Commission on Audit, institutionalized its Information Technology Center (ITC) to appropriately discharge its audit function in computerized environments.

In line with the current thrusts of the Philippine Commission on Audit, the scope of computer auditing includes reviews of general and application controls of computerized systems, financial and non-financial controls, to several areas for improvement and recommend measures to alleviate deficiencies.

The difficulties the Philippine Commission on Audit are facing to carry out the computer audit function can be summarized as follows:

(a)   technical competence of the auditors,

(b)   resistance to changed-approach to audit,

(c)   differences in computer languages, hardware and software used by client agencies, and

(d)   preparedness of the the Philippine Commission on Audit to support the computer audit activity.

G   Malawi

The audit has to be planned   and a programme issued. The programme briefly will include examination of control systems and procedures, accessibility and security of the computer, control of input data, manipulation process of the computer, storage of the output data preparation of Final Accounts from the input data processed.

The actuel audit of complicatet computerized acounts is done by computer specialists and auditing by other personnel is facilitated by prduction of computer print-out which are checked with source documents.

The report auf the Auditor General is tabeld before Parliament by the Honorabel Minister of Finances after it has been discussed at the Public Accounts Committee Sessions.

H   Myanmar

The tendency in the near future in Myanmar seems to be the increased use of computer for accounting and financial controls in government departments. Computerized accounting systems are being developed in financial institutions such as Central Bank of Myanmar, Myanma Economic Bank, Myanma Agricultural and Rural Development Bank and Myanma Insurance.

Since the introduction of computer applications in government departments, the Office of the Auditor General has been conscious of the impact of computerization on its functions and responsibilities. This is essential to ensure that the Office of the Auditor General can discharge its audit functions in computerized accounting and information processing environments.

The development of EDP audit capability of the Office of the Auditor General is still in its early stage. The initial approach to computerization of its audit functions has been to train selected staff in basic computer processing and provide them with training in EDP audit.

I Pakistan

The Pakistan Audit Department of the future seeks to have implemented a sophisticated information system for carrying out its duty of auditing expenditures, transactions, trading and accounts of any authority or body established by the Federation (or a Province) and report to the President (or the Governor), effectively and efficiently.

Computerization is not to be judged as to how well it performs the immediate functional objectives, in isolation. Applications must add value to the overall Information System in the Pakistan Audit Department rather than just automate its functions.

Computerization can not only aid auditing efforts, it can also build new capabilities of the Pakistan Audit Department. For instance, the administrative workload will be streamlined. Detailed career personal records, including education and training history, can be compiled for each employee and the services of the employee can be used accordingly.

It is an established rule that if a new project merely replaces the old system without adding value to it, than its contribution to the bottom line of the operation is seen only as an expense. Simply automating an exisiting process may reduce costs, manual effort, or shorten a particular step in the cycle, but that should not be the ultimate goal. Information technology has to be applied to the Pakistan Audit Department requirements and all developments should be made under the umbrella of a well-thought and approved architectural plan. The real issue is managing change and needs in a controlled way, without compromising on the efficiency and objective of the organisation.

J Papua New Guinea

In the audit of computerised systems, EDP auditors of the Supreme Audit Institution in Papua New Guinea place priority on areas of systems security and data integrity. Reviews are done on the control over physical acess to the computer site, access to data files, tapes and terminals. Also, reviews are done on application controls involving authorisation controls, input controls, processing controls, and output controls.

Prior to the commencement of an audit, an entrance interview is conducted with the auditee organisation. The purpose of this interview is twofold. Firstly, it allows the personnel of the organisation to understand the nature and objectives of an EDP audit as opposed to the common financial attest audit which they are already fimiliar with.

Secondly, a more detailed understanding of the system and the established controls is obtained from interviews, review of documentation and direct observation of the system in operation.

K Poland

During the last years the use of computer techniques in Poland has been implemented in some management and accounting systems. Government and public organizations have used the EDP system earlier than the Supreme Chamber of Control had it done. The increased use of EDP support in public administration has not affected the work of the Supreme Chamber of Control. Thus the Supreme Chamber of Control is now faced with the challenge of introducing and applying the computer techniques in EDP auditing.

With growing use of computer-based systems in public management, the Supreme Chamber of Control recognized the need for developing expertise and experience. The new Supreme Chamber of Control leadership approved a policy with regard to computerization in the areas of audit, accounting, administration and training.

EDP-techniques and computer-aided information systems should have changed the auditors working methods. Many auditors look at computers as something difficult and unknown, but the government work make sure that the auditors are well prepared to use the computer as a support tool while making its use more effective.

It is no longer possible to conceive the audit functions performed by the SAI's without this new technology.

The Supreme Chamber of Control has thus been led to adapt its methods to this new environment and to train its auditors in electronic data processing techniques. However, the Supreme Chamber of Control is at an early stage of this task, and there are urgent needs of introducing the right system.

L Tonga

The usage of the general software packages such as word processor, spreadsheet, and database are the most common among the entities of the public sector and proved to be useful to management. Only few Statutory bodies, such as the Tonga Electric Power Board and the Tonga Telecommunication Commission use a computerised system for other more specific functions such as billing of their debtors.

Lack of computer expertise as well as lack of nationals eager and committed to computers were identified as one of the problems regarding with the computer systems of the public sector environment in Tonga.

However, recommendations were provided on the future of the computer system in Tonga which include the appropriate hardware and software available for the work of the public sector entities. The introduction of a proper accounting package necessary for the processing of transactions and the preparation of the Public Accounts was also recommended. This will be a step towards some additional advance accounting package in the future. Auditing package software was also recommended in order for a more efficient and effective audits to be carried out.

M   Tunisia

As supreme audit institution, the Tunisian Court of Accounts must adapt its audit approach to the modernisation of auditees management. EDP auditing has thus become an imperative.

After the introduction of office automation, the Tunisian SAI implemented since 1989 a general computerization scheme which aimed at ensuring rapid and efficient data processing, at defining and refining the interfaces between the SAI and its environment. Most stages in this computerization process have already been accomplished, especially for the required studies. Some applications have even been developed.

Most of the hardware necessary for installing the computer system has been acquired and training programmes are being developed.

Meanwhile the auditors at the Tunisian SAI audit by relying on the skills gained in training and staff development programmes. Computers are still used on a very limited basis in auditing, however, audits "around" the computer and "through" the computer are progressing.

In such matter two types of audit are used:

(a)   audits of an organisational and administrative nature;
(b)   audits concerning data processing activities.

IV.   COMPUTER WORKSHOP

A   <u>EDP as an Audit Tool / computer assisted Audit Techniques (Canada)</u>

The objective was to increase the awareness of what microcomputers can do for the auditor through hands on experience with selected audit software packages.

The morning was used to present the Electronic Briefcase components used by the Office of the Auditor General for work in both Attest audits (financial audit opinions) and Value for Money (VFM) audits.

The hardware included a laptop and in the future a small notebook which is used in the office then brought to the entity where the audit work is carried out. The software in the Electronic Audit Briefcase includes;

(a)   IDEA - to examine data bases,

(b)   AuditPro - audit programs, audit filing of word,

(c)   processing and spreadsheet and review,

(d)   Text Retrieval - searching through large text bases,

(e)   Spreadsheet - Lotus 123 version 2.x,

(f)   Word processing - Wordperfect version 5.1,

(g)   assorted other packages such as FAST! and Grammar checkers.

AuditPro, a future type of software, which

(a)   helps prepare and Audit Program including ,

(b)   audit objectives and audit steps,

(c)   allows the supervisor to review and comment upon the objectives and steps, then approve,

(d)   electronic audit filing, which allows attachment of reference done in other software packages like WordPerfect and Lotus 123,

(e)   file review by the supervisor including preparing review notes.

The participants used the program to create a Payroll Audit program and audit file. They were able to create several steps and link them to references done in Wordperfect and Quattro Pro spreadsheet like Lotus 123 on the computer.

IDEA was used to

(a)   import and explore a Bank file,

(b)   index and link other data such as customer name and address,

(c)   Total fields.

B   Auditing computer-based Data (United States)

In this workshop the participants learned several techniques for performing automated tests of computer-based data. The participants used Quattro-Pro, a spreadsheet program, to perform both attribute and relational tests.

Attribute tests performed included checks for (1) the presence or absence of data, (2) whether data was alphabetic or numeric, (3) positive or negative, and (4) whether the data was within defined ranges.

Conditional tests looked at relations between two or more data elements such as years of service and number of hours of leave learned.

Computer techniques used to perform these tests included:

(a)   single and multiple column sorts,

(b)   recomputation of formulae,

(c)   look-up tables to verify multiple-field computations, and

(d)   logic tests.

As a wrap-up, representatives of the SAI's of the developed countries gave a summary presentation of the use of EDP technology in auditing functions. This was done in the form of a panel with questions coming from the floor.

V. TRAINING OPPORTUNITIES (PANEL DISCUSSION)

Representatives of United Kingdom, The Netherlands, United States of America, Sweden, United Nations and Canada exposed their respective country's and Institution's training programmes both at the national and international levels. All these national SAI's have extensive experience in training people in the aquisition of EDP technology know-how and they communicated how they went about their training. Details of all these activities are contained in the INTOSAI-publication "Training Activities of SAI" authored by INTOSAI as well as IDI-Course Listing. All country respresentatives expressed an interest looking into the possibilities of colloboration with participating countries. The United Nations DESD/PFEMB was deemed a convenient intermediary for channelling requests for this support.

VI. CONCLUSIONS AND RECOMMENDATIONS

EDP Technology in the recent years has made rapid strides and its use in Governmental operations has grown to a considerable extent. SAIs have always shown an acute awareness to this issue. However the time has now come for the decisive action on their part, since otherwise their effectiveness may be seriously eroded. At the same time the new technology offers a unique opportunity to SAIs to enhance their audit capability and improve their internal operations. It is in this context that the relevence of EDP Technology to SAIs has to be perceived.

Comments emanating from the participants were most positive for all facets this UN/INTOSAI Meeting. The participants were most enthusiastic about the new component introduced in the form of a workshop with comments about this hands on approach being excellent. The majority of participants would have spent more time behind the terminals had it been available. The participants were especially pleased with the presenters for the quality and the relevancy of the contents of the presentations and the different methods used by the presenters. For the hands on part, the material and tutorship provided by the three EDP-technology auditing experts were found most satisfactory by all attendees.

Experiences of the more developed countries were found especially relevant in the context of LDC's future EDP technology implementation. Common pitfalls can thus be avoided in the SAI's of the participant's countries.

Training programmes which were described were very revealing and of the utmost usefulness in transferring technology skills to LDC's.

Participants recommended follow-up activities in the nature of hands-on computer training. It was also suggested that similar workshops be held on a regional or national basis. Another recommendation was that some means of communicating the most recent developments in EDP hardware and software technology applicable to SAI's. EDP training and exercises should be related directly to contemporary situations and problems facing SAI's.

Annex I

AGENDA

1.   Opening of the Workshop

2.   EDP Auditing - Sharing Experiences, Opportunities and Challenges

(i)   Basic Computer Concepts – (United Nations)

(ii)   Computer audit experience – (India)

(iii)   "EDP as an Audit Tool / computer assisted Audit Techniques" – (Canada)

–   introductory presentation / lecture

–   training / hands-on exercises (eg, wordprocessing, electronic spreadsheets, data base management systems, use of CAATs, reconciliation of accounts/ banking records, etc)

–   panel discussion

–   questions / answers

(iv)   "Auditing computer-based Data" – (US)

–   introductory presentation / lecture

–   training / hands-on exercises (eg, assessing the reliability of computer-based data, accessing and analyzing computer-based data, etc)

–   panel discussion

–   questions / answers

(v)   "Auditing   clients EDP systems - the Life Cycle Approach (Acquisition, Development, Operations, Maintenance and Replacement) and consideration of Security" (Sweden)

(vi)   "Management, institutional, organizational and training Issues related to introducing EDP Technology in an SAI" (UK)

(vii)   Computer auditing at the Netherlands, 35 years of experience

(viii)   "Training Opportunities in EDP Auditing" – panel discussion (INTOSAI, UN, IDI, International Fellowship Programs (US, Canada, etc.), Commonwealth Training Initiative (UK) and others)

3.   Adoption of the Report of the Seminar

Annex II

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Vienna, Austria, 27 May — 4 June 1992

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Annex III

ABBREVIATIONS

AFROSAI	
ASOSAI	
ARABOSAI	
CAROSAI	Carribbean Organisation of Supreme Audit Institutions
CAATS	Computer Assisted Audit Techniques
DESD	United Nations Department of Economic and Social Development
EDP	Electronic Data Processing
EUROSAI	
FAO	Food and Agriculture Organization of the United Nations
GAO	United States General Accounting Office
IDEA	Interactive Data Extraction and Analysis
IDI	INTOSAI Development Initiative
INTOSAI	International Organization of Supreme Audit Institutions
IT	Information Technology
ITC	Philippine Information Technology Center
LAN	Local Area Network
LDC	Lesser Developed Country
NAO	United Kingdom National Audit Office
OAG	Office of the Auditor General of Canada
OLACEFS	Organización Lationamericana y del Caribe de Entidades Fiscalizadoras Superiores
PC	Personal Computer
PFEMB	Public Finance and Enterprise Management Branch
SAI	Supreme Audit Institution
SPASAI	
UN	United Nations
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNIDO	United Nations Industrial Development Organization