Reference: AUD-8-10: 2 (**0697** /04)   Date: 7 September 2004

To: Mr. Bernard Cochemé
           Chief Executive Officer
           United Nations Joint Staff Pension Fund

From: Patricia Azarias, Director
           Internal Audit Division I
           Office of Internal Oversight Services   *P. Azarias*

Subject: **OIOS Assessment of the internal controls, functionality and technology
           application of PENSYS (AS2004/800/04)**

1.   I am pleased to present to you the final report on the Audit of PENSYS which was conducted at United Nation Headquarters from April –June 2004. The audit was conducted in accordance with the standards for the professional practice of internal auditing in the United Nations organizations.

2.   The report incorporates the comments of the UNJSPF dated 26 July 2004 which are marked in italics. Based on the response, we have closed recommendations 2, 6 and 7. All other recommendations remain open pending receipt of additional documentation and information once action has been completed as described in the comments after each recommendation.

3.   I would like to take this opportunity to thank the management and staff of the UNJSPF for the assistance and cooperation provided to the auditors in connection with this assignment.

Copy to:
UN Board of Auditors
OIOS Programme Officer

United Nations

OFFICE OF INTERNAL OVERSIGHT SERVICES
Internal Audit Division
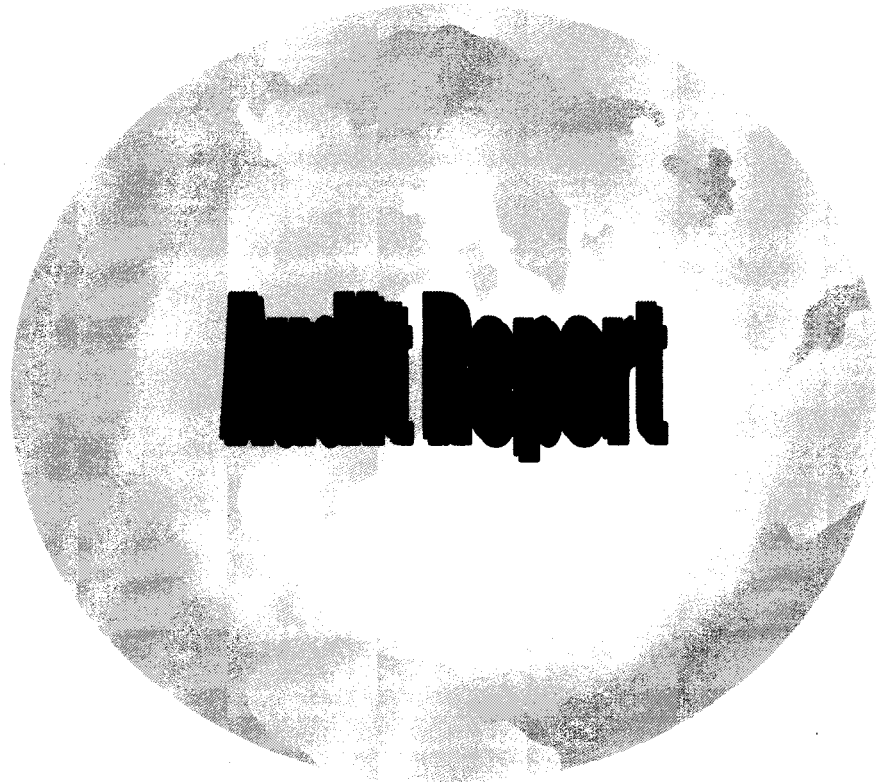
Audit Subject: **Assessment of the Internal Controls, Functionality and Technology Application of PENSYS**

Audit No.: AS2004/800/04

Report date: 17 August 2004

Audit Team:

Auditor-in-Charge: James O'Neill
IT Consultant: Kimondo Karanu
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Audit of the internal control, functionality and technological application of PENSYS - Executive summary

The audit of the integrated computerized system called PENSYS aimed at assessing the effectiveness of internal controls, the operational functionality and the appropriateness of the technological level of PENSYS. It was carried out in May and June 2004 by OIOS with assistance of a consultant. The exercise involved a preliminary risk assessment, interviews with UNJSPF staff and management, system tests, inspections, document reviews, research and a questionnaire circulated to users.

It is the opinion of OIOS that the internal controls are effective and that the functionality of PENSYS has served the needs of the UNJSPF well. The functionality could however be significantly improved to a higher level by adopting an open client server and web based platform. It is also our opinion that, considering the rich institutional knowledge in IMSS, to couple the structural and functional design of PENSYS with a proven pension fund administration software or enterprise resource planning (ERP) system would obtain UNJSPF the optimum balance of costs, benefits, and risks.

This report provides findings and recommendations that are related to strategic planning, security of intellectual property, technical documentation, quality assurance, self risk assessment, management and operational reporting, data completeness and consistency, personnel resources, and clarity and ease of operating PENSYS. Regarding the internal controls of PENSYS, it is recommended that the strategic plan for IMSS be expanded to provide management with necessary implementation control objectives by detailing the actions, requirements and performance criteria of developing, implementing and maintaining PENSYS. In-house developed software should be secured against unauthorized reproduction and documentation should be maintained and updated for credible reference, a business analysis function developed and the deficiency of personnel addressed. A comprehensive self risk assessment should be carried out periodically. Regarding the operational functionality of PENSYS, it is recommended that a higher flexibility in production and distribution of management and operational reports be attained. Data should be normalized and its consistency ensured across platforms and sub-systems. Regarding the technological level of PENSYS, it is recommended that personnel assigned to PENSYS be trained in new technologies and their number raised to an optimum level. A graphical user interface to improve the clarity and ease of use and a web-based client/server platform to increase flexibility of PENSYS should be adopted in future development.

In the near term, UNJSPF may opt to re-build PENSYS or replace it by customizing a closely fitting software product or implementing a fully fledged ERP system. Since there are IT-related risks and opportunities associated with whichever direction that UNJSPF will choose to follow, a critical assessment of the risks associated with new technologies is required. A brief review of available solutions and sources was carried out as part of this audit. An in-depth study of the business goals and constraints associated with project costs, delivery times and expected benefits, which normally interplay against each other, should be undertaken by UNJSPF.

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I. INTRODUCTION

1.   As part of its programme of work, the OIOS carried out an audit of the information technology application on the integrated computerized system called PENSYS. The audit was primarily to assess the controls, functionality and technology of storage and maintenance of data, benefits processing and payment, and other operational processes involving membership in the Fund, separation from the Fund, restoration and validation of prior contributory service. The audit plan was based on understanding the IT environment, size and complexity of the PENSYS modules and the extent of dependence of management, participants and beneficiaries on the information processed by the system. The audit plan also considered the mission and business objectives of UNJSPF as stated in the Management Charter, the level and manner in which PENSYS supports UNJSPF, and the organizational structure including roles and responsibilities of developing, operating and maintaining PENSYS. The audit was conducted in accordance with the standards for the professional practice of internal auditing in the United Nations organizations.

II. AUDIT OBJECTIVES

2.   The audit of PENSYS aimed at carrying out an independent assessment of the functionality of PENSYS and its operational controls, as well as its technical level in comparison with modern IT technologies. The objective of the audit was to review the functionality of IT applications of PENSYS in order to determine the:

- Adequacy of existing internal controls applied by the UNJSPF in using PENSYS;

- Effectiveness of the operational functions performed by PENSYS; and

- Appropriateness of the technological level of PENSYS in comparison with modern IT technologies supporting similar operational functions.

III. AUDIT SCOPE AND METHODOLOGY

3.   The audit exercise included the following activities:

- Reviewing operational processes supported by PENSYS, complexity of the technology environment, and relation between business objectives and PENSYS by examining procedures and related documentation and interviewing management and operational staff involved.
- Assessing the functionality of PENSYS by reviewing general controls, access control, program and data security, back-up/emergency program maintenance, user-friendliness of the system and the business process controls. It also included review of the risks and related controls in PENSYS, such as program change control, program distribution control, transactional controls and contingency planning. The controls built-in PENSYS modules were also tested.

- Assessing the technological level of PENSYS in comparison with existing IT applications supporting similar operational functions by carrying out inventory of the hardware and software infrastructure.
- Researching on software available commercially to augment or replace PENSYS and identifying pension fund administration software providers, contacts points, resource requirements and cost estimates.

4.   A preliminary risk assessment was carried out in the beginning to determine the control objectives that the audit would apply. The relative level of IT related risks was determined through a survey of the general controls as well as the controls specific to PENSYS. Detail control objectives were formulated to include risks in the areas of planning, organizing, acquisition, implementation, delivery and support of PENSYS. During the audit, the necessary information on both computerized and manual aspects of using PENSYS was gathered through:

- Study of documentation and written policies and procedures;
- Interviews with personnel at all levels;
- Inspections carried out and observations made at operations sites; and
- Results of system tests.
- Questionnaire distributed to users of PENSYS
- Research on vendor/product websites and other topical publications on pension fund administration software.

IV. OVERALL ASSESSMENT

5.   It is the opinion of OIOS that the application controls that are embedded in PENSYS, coupled with the workflow controls that are practiced in the work processes supported by PENSYS, are effective. UNJSPF however should critically and periodically assess the operational risks of processes supported by PENSYS and also review the internal controls needed to be built into the software in order to mitigate the risks.

6.   The operational functionality of PENSYS satisfactorily serves the processing of participants, benefits, payments and payroll information and meets the requirements of UNJSPF management and system users. However, there is an opportunity for expanding the current functionality of PENSYS to provide flexibility in reporting, satisfy increasing demands for service and meet emerging expectations on user and data interfaces.   It is also the opinion of OIOS that, although the mainframe based infrastructure on which PENSYS operates is very strong on security, it is fairly weak on flexibility. The IT platform should be more open if it is to improve upon the present level of functionality and the resilience of pension information processing.

7.   The staff resources and the technological level of the tools applied in developing PENSYS have significantly regressed with time, which reduces the ease of enhancing its functionality and diminishes the opportunity for leveraging modern technologies. Consequently, the user friendliness and flexibility of PENSYS are limited. The tasks

carried out by PENSYS should be re-built with modern tools and staff trained to enable UNJSPF to take optimum advantage of available IT technologies.

8.　　　There are several options available to UNJSPF to modernize PENSYS. If a decision is reached to replace the current system, there are pension administration software and Enterprise Resource Planning Systems in the market that UNJSPF could acquire and customize to cost-effectively replicate and improve upon the current functionality of PENSYS. Some of these are identified in the report.

V.　AUDIT FINDINGS AND RECOMMENDATIONS

A.　Strategic Planning

9.　　　The stated main objective of PENSYS at its inception was "...to deliver timely, low cost, and quality driven service to our pension customers". Although there is no Strategic Plan per se for PENSYS, there is a document that outlines the Information and Communications Technology (ICT) Strategic Direction for UNJSPF. The document, inter alia, states the commitment to maintain PENSYS and to study its longer-term viability in 2004 – 2005. The goals, objectives and action plan contained in the said document are in accordance with the Management Charter for the 2002-2003 biennium, which identifies support for ongoing applications such as PENSYS to be a mission-critical goal. The Information Management Systems Service (IMSS) has further outlined 13 general goals for the re-writing of PENSYS. The documents however do not provide sufficient detail on which control objectives can be developed for management's performance evaluation and impact assessment and on which auditors can base their measurement criteria in future.

10.　　A long-term strategic plan for development, maintenance and support of PENSYS is required if the plan is to serve as an effective tool for assuring controlled and sustained development of PENSYS. The plan should translate the goals in the Management Charter into objectives and specify the expected results for each objective, key activities to be carried out, resources and inputs required to implement each activity, time-frames, milestones, costs according to a budget, risks requiring consideration and their mitigation, assumptions made, measurable performance indicators and how the performance and impacts would be verified. Annex A is a suggested framework for a detailed action plan.

Recommendation 1

OIOS recommends that IMSS should prepare a longer term strategic plan that is supported by detailed action plans for development and maintenance of PENSYS (AS2004/800/04/01).

11.　　*The UNJSPF replied that at its session in July 2003, the Standing Committee of the Pension Board had provided funding for a study to determine the longer-term direction of PENSYS. This study will be completed in May 2005 for presentation to the Standing Committee in July 2005.* This recommendation will remain open pending the completion

of the above-mentioned study scheduled for May 2005.

B. Security of Intellectual Property

12. Although PENSYS is developed, maintained and supported solely by in-house personnel, UNJSPF management does not have a policy or mechanism in place for securing the designs, software modules, documents, charts, etc., against unauthorized reproduction or re-use. The absence of such a policy places the intellectual assets of UNJSPF in significant vulnerability.

Recommendation 2

OIOS recommends that a mechanism be established to secure the intellectual assets of PENSYS as property of the UNJSPF (AS2004/800/04/02).

13. *The UNJSPF replied that all future contracts related to PENSYS will include provisions aimed at protecting the intellectual assets of the system.* Based on the comments provided, OIOS considers this recommendation to be implemented.

C. Technical Documentation

14. A comprehensive set of documents was developed during the conception, business analysis, system design, and implementation phases of PENSYS in accordance with the System Development Methodology (SDM). Responsibility for updating the documentation to reflect post-production changes was left with the programmers who implement the changes. The documentation, especially of the Operations Control Module, has not been updated consistently and there is no mechanism in practice to establish the extent of incompleteness and inaccuracy. For example, in Screen # CT55M01 (Withdrawal Settlement Screen), changes in the word "Settlement" on the screen title, the data field BEN TP and the two command options F13 (Release) and F14 (Unrelease), are not updated in the documentation. Some users have resorted to personal notes for reference on benefits calculation rules and operating procedures. The inaccurate and incomplete documentation has therefore impacted adversely upon the quality of reference material for purposes of training, operational support and software maintenance. UNJSPF needs to consider acquiring the services of a Technical Writer to develop and maintain documentation, and to develop on-line CBT (Computer Based Training) and help facility to augment the training and operation manuals.

Recommendation 3

OIOS recommends that the responsibility for technical documentation and training materials of PENSYS be clarified and assigned to the responsible staff in IMSS (AS2004/800/04/03).

15. *The UNJSPF replied that the development and maintenance of technical documentation has been the responsibility of each programmer and analyst assigned to system projects. All necessary updates to all existing PENSYS documentation will be*

completed by the Information Systems Unit (ISU). IMSS will also request the creation of a new "Technical Writer" post for the biennium 2006-2007. This new post will have responsibilities for documenting all software changes and for preparing training manuals. This recommendation will remain open pending the assignment of a technical writer responsible for documentation of software changes.

D. Self-Risk Assessment

16. The mainframe platform on which PENSYS runs provides a very secure environment for operation and data storage. However, vulnerability such as to cyber crime is expected to dramatically increase if PENSYS is replaced with a web-based system. It is therefore necessary to carry out periodic and consistent self-risk assessments on PENSYS and related processes. UNJSPF should consider the "Control Objectives for Information and related Technology - COBIT" methodology that has been developed by the IT Governance Institute and promulgated by the Information Systems Audit and Control Association should a web-based system replace PENSYS.

Recommendation 4

OIOS recommends that UNJSPF management should implement, within the framework of the existing ICT Security Policy, a self risk assessment methodology (AS2004/800/04/04).

17. *The UNJSPF replied that it was the intention of IMSS to employ a self risk assessment methodology for all ICT applications by August 2005.* This recommendation remains open and will be closed upon the implementation of risk assessment methodology to ICT applications, including PENSYS, scheduled to be completed by August 2005.

E. Reporting for Management and Operations

18. PENSYS provides a set of management reports that are automatically generated periodically and made available to management on the application itself and on the UNJSPF web-site. The mainframe platform however inhibits the flexibility needed to enhance reporting detail such as content and format, with ease and adequate responsiveness to varying managers' needs. For example, the "User Work Queue Screen" displays the details of open cases by work type. There is no feature to combine work types and work queues in a single report. In an effort to bridge the flexibility gap IMSS downloads a data file daily for Pension Entitlements & Client Services (PECS) to upload into an MS-Excel based system, named Operational Information System, that analyses the data to produce additional supervisory and management reports.

Recommendation 5

OIOS recommends that the reporting functionality of PENSYS be expanded to address the varying needs of a wider diversity of users (AS2004/800/04/05).

19. *The UNJSPF replied that it intends to install a Data Warehouse as a means to*

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facilitate improved management reporting and analysis. This project should be completed by December 2005. This recommendation remains open and will be closed upon confirmation of installation of a data warehouse planned for completion by December 2005.

F. Completeness and Consistency of Data

20.   An inspection of participant data revealed missing or "dummy" data elements. The phenomenon arises from non-existent data that was not available electronically when the manual system was first computerized to PENSYS in the early 1990's. In addition, joining data from multiple databases that are not similarly updated causes data mismatches, especially when processing name searches. For example, (Pens#019956) the "date of birth" field is blank on the Participant Basic Data Maintenance Screen and 01/01/1900 (a dummy datum) on the OCS Cross Reference Screen. While it is appreciated that a cut-off date for data conversion was necessary during the system migration, it was advisable to continue converting the back data into electronic form and to check for integrity and credibility of the data. This undertaking seems feasible when considering the success of the Optical Based Imaging System (OBIS) with which UNJSPF has converted information, contained in over 4 million documents and spanning 50 years.

Recommendation 6

OIOS recommends that, in consideration of available tools for converting data from paper to electronic form, converting key data to the fullest extent feasible and incorporating it into a single normalized relational database should be undertaken by IMSS (AS2004/800/04/06).

21.   *The UNJSPF replied that, in the future, under the new PENSYS application and the Data Warehouse, it will be the intention to expand the amount of historical data available for viewing and reporting.* Based on the information provided, OIOS considers this recommendation to be implemented.

G. Quality Control

22.   According to IMSS management, the workforce currently assigned to development and support of PENSYS is not sufficient to contain normal workloads and to enable an effective demarcation of responsibilities. As a result thereof, the staff has to put in substantial extra time in order to deliver assignments and to simultaneously carry out multiple tasks, such as analysis, design, programming, documentation, training, testing, etc. To assure quality in work products and to enable objective measurement of performance by management, these tasks need to be delineated. Although the current staff of IMSS comprises only 13 per cent of the UNJSPF workforce, those responsible for the leadership, development, maintenance and technical support of PENSYS nevertheless demonstrated a high standard of competence, integrity and motivation, which has sustained the service level and reliability of PENSYS. To alleviate the staff deficiency in the near term, UNJSPF should consider filling the positions currently occupied by

consultants and training the staff assigned to PENSYS in utilizing newer technologies for software development and database management.

23.   The users of PENSYS demonstrate a high level of knowledge of the system and excellent operating skills.   They are also proactively involved in system enhancements and upgrades.   Their involvement in development activities such as business analysis, requirements specification, system testing, data maintenance and risk assessment is however hampered by their day-to-day workload.   The situation leaves the onus on IT personnel, which could lead to gradual deterioration in the quality control and service level of PENSYS. Quality control of needs analysis, and of the software products and services required to meet them, can be enhanced by acquiring the services of a Business Analyst.   A job analysis to match work responsibilities with required competencies would establish the optimum mix of staff numbers, cadres and skills that IMSS needs to adequately support PENSYS.

Recommendation 7

OIOS recommends that UNJSPF reconsider the continued use of consultants, and that it train key core personnel assigned to PENSYS (AS2004/800/04/07).

24.   *The UNJSPF replied that technical staff and contractors employed by the UNJSPF are sufficient to support the current operating environment of PENSYS. For the 2006-2007 biennium, however, it would review staffing requirements and address the viability of adding Business Analysts to coordinate ICT and Operations automation activities.* Based on the comments provided, OIOS considers this recommendation to be implemented.

H. Limitations in Clarity and Ease of Use

25.   The user screens of PENSYS are on a black background with green, white, yellow and blue lettering. As a result, the distinction between data, labels and other screen contents is not clear. Although veteran users have become well accustomed, movement around the screens and selecting menu choices is tedious for beginners. For example, the cursor is controlled with the "tab" key, which moves the cursor through unnecessary points en-route to the required destination – the "command line". It is also not possible to open several windows to compare or validate data from multiple sources and displays. Features that would   alleviate the strenuousness of user screens are a graphical user interface (GUI) and utilizing a pointing tool such as the 'mouse' to improve versatility of movement and increase the efficiency of navigation, data entry and overall execution of processes.

26.   In the current mainframe environment of PENSYS, routing print jobs is fixed to certain printers and is inflexible without specialized programming support. Users are not enabled to route print jobs according to their best operational needs.   For example, although users of the payroll module are located on the 7th floor, they have to collect print-outs from the 19th floor of Secretariat Building. Application of a client server and

web-based platform can enable users to share resources, such as printers and information, more effectively.

I. The Way Forward

27.   Depending on the strategic direction that UNJSPF will adopt in re-writing or replacing PENSYS, the areas of impact will generally be the cost of acquisition and/or development, cost of continuing maintenance and later upgrades, duration from inception to production, resilience of the new system to constant change, scalability, security, portability, development of an internal knowledge base and the ability to benchmark with systems supporting similar functions. The customary high total cost and large up-front cash outlay associated with acquiring turnkey projects could outweigh the benefits that are realized in the short-run. On the other hand, due to the lengthy time to production and the support vulnerability that characterizes in-house software development, a hybrid option in the form of customizing a closely fitting product, such as a dedicated pension system or an Enterprise Resource Planning system with a pension management module, seems more desirable. Annex B summarizes the general risk probabilities of each of the above options. However, analyzing these options will require a comprehensive approach and is beyond the scope of this review. UNJSPF has planned an in-depth study in 2004-2005 to establish available alternative systems, their implementation and migration approaches, and the costs and associated resources required to modernize PENSYS with a view to advising management on the direction that would obtain UNJSPF the optimum mix of costs, benefits and risks.

Recommendation 8

OIOS recommends that the UNJSPF should immediately embark on its planned in-depth study of PENSYS redevelopment (AS2004/800/04/08).

28.   *The UNJSPF replied that it will complete a study to determine future requirements for system functions currently performed by PENSYS.   The study is scheduled to be completed in May 2005 and presented to the UNJSPF Standing Committee in July 2005.* This recommendation will remain open pending the completion of the study mentioned above in May 2005.

VI.   Research on Comparable Systems

A.   Acquisition Methods

Re-write PENSYS solely by IMSS staff

29.   IMSS has developed and retained a rich knowledge base among the developers and users, who can be utilized to re-develop PENSYS in-house. However, they would require some training to bring them up to speed on new programming languages and on open-architecture hardware platforms that will be critical in future development, maintenance, operation, distribution and support of PENSYS.

Re-write PENSYS with UN "Economy of Skill"

30.   PENSYS could be re-written using current UNJSPF expertise, utilizing the users in the analysis and design and testing phases. Expertise could also be tapped from other IT services in the UN system with the aim of achieving "economics of skill", a favorable lesson demonstrated by development of the Galaxy e-staffing system in a joint effort between DPKO, ICC and OHRM. Although the delivery of a new PENSYS by this option could be drawn out due to the extensive coordination required, all knowledge is retained with UN employees and future changes would be inexpensive to implement.

Re-write PENSYS with consultants

31.   Re-writing PENSYS will extensively apply new programming tools and skills. This option would require UNJSPF to procure external expertise for only the duration, activity and skill required during the project cycle, thus obtaining better value for money. Organizing the project into teams that involve both external and internal resources would ensure transfer of knowledge; a crucial success factor for future enhancements and system maintenance. Application of the prototyping system development methodology, or the "extreme programming" technique of software development, would significantly shorten the time to production.

Customize a market product

32.   While we appreciate that the clientele of UNJSPF is diverse in the currencies of payments and benefits, range of geographical locations and many nationalities and residencies, and also appreciate that the diversity poses a unique challenge to the UNJSPF compared to other pension fund administrations, we note that the key functionalities of PENSYS such as participation, calculating benefits, contributions, payroll, etc. are common across the systems available in the market. With customization and acquisition of the source code, internal resources in IMSS could work hand-in-hand with vendor personnel so that they can remain to perform future fine-tuning and maintenance.

Turnkey Project

33. In a turnkey project, UNJSPF would out-source implementation of the entire project to an external firm, which would provide the infrastructure, personnel and software. This being a ready-made product implemented by experienced people, the production time could be fairly short. In such projects however, there would be minimal transfer of knowledge because the UNJSPF staff would not be actively involved in the implementation. System maintenance and future changes to turnkey projects could turn out to be expensive in the long-term because the changes and enhancements, if not built into the maintenance agreement, could be costly mini-projects.

Outsource the Services

34. An external firm could be contracted that has the necessary experience and capacity of setting up and operating pension information management solutions similar to PENSYS. Internal staff resources could then serve as project managers and quality controllers. Under such an arrangement, the contracted firm would also be responsible for business continuity plans, software maintenance and upgrades, user training and technical documentation.

B. Management Considerations

35. Before deciding on how to re-build or replace PENSYS, UNJSPF will need to consider the following issues:

- Cost of acquisition and maintenance of the new system
- Approach to system integration and migration
- System and work organization
- System administration and security
- Benefits expected to accrue from the new system

System Acquisition and Maintenance

36. An improved pension administration solution should provide the flexibility for customizing it to fit the unique requirements of UNJSPF while leveraging modern software development tools. Integrating business process designs and packaging modules available in the market are features that PENSYS could benefit from towards effectively responding to growing service demands.

System Integration and Interface

37. The resulting system should allow easy integration of multiple technologies that provide such specialized functionalities as data warehousing, document image management, work process tracking, interactive voice response, and internet connectivity. It should also interface seamlessly with other third party accounting (Lawson), document imaging (OBIS) and payroll systems (IMIS) with which data will be interchanged.

System and Work Organization

38. A system comparable to PENSYS should provide a set of integrated modules that include benefits calculation, benefit payments, refund processing, participant and organization maintenance, contribution accounting, customer service and other miscellaneous transactions. Business processes supported by the system should allow retention to the extent possible, and give opportunity for strengthening, the desirable existing workflow procedures that PECS have institutionalized.

System Administration and Security

39.   The administrative services of a system comparable to PENSYS should enable sufficient security controls that effectively mitigate environmental and operational risks and enable batch processing as well as centralized server administration for New York and Geneva. Tools that ease administration of interfaces and management of profiles for all categories of users (calculators, auditors, releasers, managers, accountants, cashiers, participants, beneficiaries, etc.) should also be provided.

Expected Benefits

40.   An initiative to replace PENSYS with a comparable system should aim at providing lower costs of development and maintenance, easier management of change and configuration, enhanced capacity to handle increasing insecurity and processing volumes, better functionality for distributed databases and processing, as well as improved availability on the Web.

C. Salient Features of Pension Software

41.   The increasing number of participants and beneficiaries of UNJSPF (currently at 3.3 per cent per year), higher demands on client communication and interfaces, larger processing demands, together with increased data transmission volumes have resulted in additional demand for client services. In order to respond effectively, a refurbished or replacement PENSYS should provide the following salient features.

Management of Data

42.   It will be important to leverage the capabilities of the other interdependent systems (OBIS, IMIS, Lawson, payrolls of other UN Agencies) to integrate pension relevant data. This will enable UNJSPF to track participants' employment status, account for pension contributions, and track all payees (retirees, beneficiaries, and alternate payees) in a centralized information resource system.

Management of Calculation Rules

43.   Determining benefits involves complex calculations and regulations. The system should therefore enable:

- Establishing rules for all foreseeable kind of benefits, eligibility, participation, compensation, contributions, refunds, restoration and validation, optional forms of payment, early retirement and grandfathering.
- Producing worksheets with estimates and accrued benefit information for participants.
- Enabling participants, beneficiaries and retirees to project pension benefits via the Internet by using a self-service estimating function.

Providers of Pension Fund Administration Software

44.   There are a number of firms that provide software solutions in the form of implementation services, software supply and customization, application development, or turn-key systems, which seem worthy of exploration for information. The listing in Annex C is for information purposes only and does not imply any preference or suggest appropriateness of any product or firm.

VII.   ACKNOWLEDGEMENT

45.   We wish to express our appreciation for the assistance and cooperation extended to the auditors by the UNJSPF.

Patricia Azarias, Director
Internal Audit Division I, OIOS

Action-Plan Framework for PENSYS
(For discussion purposes only)

	PURPOSE OF ACTION	PERFORMANCE INDICATORS	EVALUATION CRITERIA	ASSUMPTIONS
I. Overall objectives (as per UNJSPF Management Charter)	A. Overall broader objectives to which the action will contribute	B. Key indicators related to the overall objectives	C. Sources of information and criteria of measuring these indicators	D. Necessary factors beyond UNJSPF responsibility and the general risks considered
II. Specific objective (as per the IMSS Action Plan)	E. Specific objective the action is intended to achieve to contribute to the overall objective	F. Indicators that show the objective of the action has been achieved	G. Sources of information and the methods required to get the information	H. Necessary factors beyond IMSS responsibility and the specific risks considered
III. Expected results (outcomes, benefits, etc)	I. Envisaged outputs that will achieve the specific objective	J. Indicators to measure whether and to what extent the action achieves the expected results	K. Sources of information for these indicators	L. External conditions that must be met to obtain the expected results on schedule
IV. Tasks (Description, Resources and Costs)	M. Description of key activities to be carried out (in sequence) in order to produce the expected results	N. Resources required to completely implement these activities (personnel, equipment, training, studies, supplies, facilities, etc.)	O. Sources of information about progress of work	P. Cost of these actions and how they are categorized

Cost-Benefit-Risk Optimization Probabilities for PENSYS
(For discussion purposes only)

	RISKS		COSTS		TIME		B
	Scalability	Security	Acquisition	Maintenance	To Production	Adaptability	In-house Knowledge Base
I. Customize market product or ERP	*High*	*High*	*Medium*	*Low*	*Short*	*Short*	*High*
II. Re-write with Consultants	*Medium*	*Medium*	*Medium*	*Low*	*Medium*	*Medium*	*High*
III. Re-write with skills in UN system	*Medium*	*Medium*	*Low*	*Low*	*Medium*	*Short*	*High*
IV. Re-write with IMSS staff only	*Low*	*Low*	*Low*	*Low*	*Long*	*High*	*High*
V. Turnkey Project	*High*	*High*	*High*	*High*	*Medium*	*Medium*	*Low*
VI. Outsourcing	*Medium*	*High*	*High*	*High*	*Medium*	*Low*	*Low*

Sample of Pension Fund Administration Solution Providers
Annex C

(For research information purposes only)

BeneSoft, Inc.
41 Village Lane, Ste. B, Bethany, CT 06524
Tel: 203-393-0320   Fax: 203-393-0325
Web Site: www.benesoft.com
CEO: Faisal A. Saleh/President
Operations: Steve Froebel/Vice President

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Tel: 1-866-438-2727 within North America.
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DATAIR Employee Benefit Systems, Inc.
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