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JOINT INSPECTION UNIT

From the optical disc pilot project at the United Nations Office at Geneva to an optical disc system for the United Nations

Note by the Secretary-General

The Secretary-General has the honour to transmit to the General Assembly the comments of the Administrative Committee on Coordination on the report of the Joint Inspection Unit entitled "From the optical disc pilot project at the United Nations Office at Geneva to an optical disc system for the United Nations" (A/44/684).

* A/46/50.

ANNEX

Comments of the Administrative Committee on Coordination

General

1. Participating members of the Administrative Committee on Coordination (ACC) welcomed the information contained in the report of the Joint Inspection Unit (JIU) (see A/44/684) and expressed their awareness of the benefits to be gained through coordination of their own initiatives with those of the United Nations Secretariat on the optical disc technology. Some organizations referred to the work of the Advisory Committee for the Coordination of Information Systems (ACCIS), where a significant amount of study and research has already been done on this technology. Further, by its continuing work, the ACCIS forum was seen as a source of benefit to the United Nations system of organizations on the application of optical disc technology in such areas as archives and administration.

Status of the optical disc technology among international organizations

2. Several organizations have been following developments in the optical disc technology for some time and are considering its use, but only the World Intellectual Property Organization (WIPO) has installed systems utilizing optical disc technology, for which two applications will be operational by the end of 1990. In addition, WIPO has issued tenders to bid for another system to improve its operations under the Patent Cooperation Treaty (PCT).

3. The Food and Agriculture Organization of the United Nations (FAO) and the International Labour Organisation (ILO) have both used CD-ROM as the recording medium for the dissemination of bibliographic and specialized information. ILO has used this technology since 1987 to store a database on occupational safety and health, and is currently building a textual database of ILO Conventions, Recommendations and Jurisprudence of the Freedom of Association Committee of the Governing Body.

4. The participating organizations expressed their high regard for the efforts of the United Nations Office at Geneva concerning the pilot project, and the decision taken by the General Assembly in section XVI, part II, of its resolution 44/201 B of 21 December 1989, to proceed with the development of a United Nations optical disc system. Many are concerned, however, about the optimistic expectation of the Joint Inspection Unit on the cost-effectiveness of the system, before the completion of an analysis on such areas as communications costs, standardization, indexing of the information for later retrieval, value of the information being stored, staffing and the impact that the introduction of the system will have on work performance. It is generally believed that, beyond the savings in storage space, adoption of this technology will bring about a redistribution of costs, thus offsetting the substantial savings anticipated.

Action by the United Nations Secretariat

5. The concerns expressed by the participating organizations are some of the reasons why the Secretary-General recommended a phased implementation approach of the system (see A/44/684/Add.1, annex). An inter-departmental working team, established by the Under-Secretary-General for Conference Services and the Assistant Secretary-General for General Services, has agreed on the functional requirements of the system. With the assistance of external expertise, the technical environment has been defined, including the communications protocols to reflect an open systems architecture, and a request for proposal (RFP) has been distributed to suitable vendors. The goals and expectations by the project team are reflected in the paragraphs that follow. These goals incorporate many of the issues raised by the participating organizations in the ACC.

Goals and expectations of a United Nations optical disc system

6. The concept of a United Nations optical disc system addresses much broader goals than those formulated for the pilot project at the United Nations Office at Geneva and which are expressed by the inspectors of JIU in paragraphs 9 and 10 of their report (A/44/684). As stated in the Secretary-General's comments on that report (A/44/684/Add.1), the use of optical disc technology will also bring benefits in the research, editing, translation and reference processes within the Secretariat and in the reference and research requirements of Member States.

7. For these broader benefits to be realized, the documents must be retrievable through an indexing method that meets the needs of all users of United Nations documents, ranging from the general user to the researcher. The system must be highly reliable so that a shift from the current paper intensive environment might be achieved. The United Nations internal communications network must be stable and have the capacity to handle the large amounts of information that the system will generate. The system must coexist in the United Nations information systems infrastructure with other information systems such as the Integrated Management Information System (IMIS).

8. The pilot project at the United Nations Office at Geneva demonstrated the possibility of storing and retrieving documents using high-speed telecommunications lines. On the broader scale, a United Nations optical disc system must address the reality that high-speed telecommunications lines are not now and will not be readily available outside Europe and North America. Therefore, the system must be designed to handle a mixed user environment, which includes the regional commissions in Africa, Asia and Latin America and the Caribbean.

9. The system, even in its initial stages, will require the storage of mixed information, i.e., coded text and images or "compound documents", which means that documents that have a combination of text, statistical or financial tables, graphic representations and maps could be stored and retrieved in their entirety. The pilot project at the United Nations Office at Geneva successfully transmitted, stored and retrieved entire documents in image form. It did not, however, include the storage of documents in coded form directly from word processors, nor did it examine in detail the requirements for describing and indexing documents or for

linking the optical disc database to UNBIS. While research has shown that these requirements are achievable, it increases the complexity not only of system software but also of programmatic and management controls to ensure that the stored documents will be:

(a) Retrievable through an indexing scheme that utilizes the United Nations Bibliographic Information System (UNBIS); and

(b) Distributed in a format that resembles the printed United Nations document with appropriate mastheads.

Standardization within the United Nations system

10. The pilot project at the United Nations Office at Geneva demonstrated the practical aspects of electronic storage and retrieval of paper documents and has facilitated the movement towards development of a United Nations optical disc system. At Headquarters, efforts were focused on the technical standards of this new technology and its applicability to different functional areas or operations. As stated in the Secretary-General's comments (see A/44/684/Add.1), the Headquarters team concluded that there is no single solution to all potential applications of this technology.

11. The comments of the other participating organizations to the ACC reflect a similar understanding. Each organization must examine its own requirements of operation and determine the cost-effectiveness of its application. Each organization will closely follow the efforts by the United Nations Secretariat in implementing an optical disc system. The experiences of those organizations that are already in the process of making this technology part of their operations (WIPO and ILO) will be closely followed.

12. While standardization within the United Nations system may not be entirely possible, the adherence to existing international standards and protocols can provide for inter-operability among systems and the minimization of problems related to data exchange.

Specific concerns of participating organizations

13. The appendix below provides details on the specific concerns of participating organizations in response to recommendations 1, 2, and 3 of the JIU report (A/44/684, sect. V).

APPENDIX

1. The following specific comments have been presented by the participating organizations regarding:

(a) Their own initiatives in optical disc technology and the comments in the JIU report (see A/44/684) relating to those initiatives;

(b) Recommendations 1 and 2 of the JIU to implement a United Nations optical disc system;

(c) Recommendation 3 regarding compatibility with systems installed in the United Nations Secretariat and the permanent missions of Member States.

The Secretary-General's comments on the JIU recommendations are contained in document A/44/684/Add.1.

Recommendation 1

2. The scale of development proposed by JIU for 1990-1991 does not seem appropriate at this stage. The Secretary-General, nevertheless, believes that it would be appropriate to proceed with a more measured development of the system in order to resolve the problems inevitably encountered when introducing new systems. Based on the experience of this phase, further implementation of the system will be integrated into the proposals for technological innovations to be included in the proposed programme budget for the biennium 1992-1993.

3. The Secretary-General considers that the phased introduction of optical disc technology can proceed at the first stage with the gathering of full technical documentation and the identification of the communications protocols to be utilized by the system, both among devices dedicated to the optical disc system and those required for networking with other systems. In addition, hardware configuration possibilities will be further analysed to take into account continuing developments of this new technology, for example, where storage devices should ultimately be located. Existing network management software packages will also be reviewed, in order to assess their applicability to the system, as will those which might be of use for the indexing. Emphasis will initially be placed on the storage and retrieval of current parliamentary documentation at the United Nations Office at Geneva, although parliamentary documents produced in New York would also be stored in the system and a limited retrieval capability would be established for United Nations Headquarters. As a parallel activity, the Department of Conference Services and the library services at Headquarters, will take measures to enhance UNBIS within the larger context of a library information system. The activities of the Office of General Services will include research into new technologies, as well as measures relating to the establishment of local computer networks and telecommunications links.

Recommendation 2

4. The Secretary-General will take due account of this recommendation, relating to contracting out the inputting on optical discs of all existing United Nations documentation, when formulating his proposals for the programme budget for the biennium 1992-1993.

Recommendation 3

5. The Secretary-General is committed to full cooperation, through the machinery of the Administrative Committee on Coordination (ACC), with other organizations of the United Nations system that may embark on similar applications of optical disc technology, so as to ensure technical compatibility.

Food and Agriculture Organization of the United Nations

6. The results of the pilot project at the United Nations Office at Geneva appear useful and promising. While some aspects remain to be studied, such as the use of optical disc as an adequate media for archiving, the report of JIU presents improvements that the technology may bring in printing and distribution costs and in facilitating access to conference documents by the permanent missions.

7. Events relating to the optical disc system at the United Nations Office at Geneva will be closely followed, since FAO has not yet developed sufficient experience with the technology, although it has already implemented CD-ROM as the storage medium for bibliographic databases and is currently studying the feasibility of publishing major reference material in this form.

8. The work of ACCIS on the far-reaching consequences of a shift from paper to electronic records management, which this technology will bring about, will also be closely followed.

International Civil Aviation Organization

9. The JIU report covers financial justification of the project, but does not address staffing needs - i.e., the nature and range of skills essential to its successful operation. Consequently, attention must be given to the development of a training and staffing plan. The changes in staff abilities necessary for the satisfactory performance of a new system present important issues that must be resolved in the context of specific implementation constraints.

10. The results of the project at the United Nations Office at Geneva are interesting and will be taken into account. As a result of work being undertaken by a working group on imaging technology, budgetary requests will be submitted to the General Assembly of the International Civil Aviation Organization (ICAO) for the 1993-1995 triennium.

11. On the compatibility and integration issues, the primary focus will be on internal technical standards, local networks and the ICAO world-wide network of regional offices. If the studies indicate the necessity, accessibility will be

given to the configuration installed in the United Nations Secretariat. Compatibility with equipment of contracting Member States will be considered in the study.

International Fund for Agricultural Development

12. The International Fund for Agricultural Development (IFAD) is not a particpating agency in JIU, but it has provided the following comments on the report of JIU.

13. In previous years, studies on the technology conducted by IFAD had shown that the technology was not then cost effective. However, the JIU report points out recent cost decreases in products and therefore the pilot project at the United Nations Office at Geneva is taken as an indication of its feasibility.

14. The conclusions and recommendations made in the JIU report are supported. The experience of the pilot project at the United Nations Office at Geneva is viewed as a positive indication that the technology can be employed in IFAD in the near future, particularly in the registry area.

International Labour Organisation

15. Section IV of the report of JIU (A/44/684) referred to the ILO merely in passing. However, ILO has pioneered the use of CD/ROM technology since 1987 for the dissemination of specialized information on occupational safety and health. Further, some experience is being gained with the initial stages of this technology through the development of a full text database of ILO conventions, recommendations and five years of jurisprudence of the Freedom of Association Committee of the ILO Governing Body. The long-term objective is to produce machine-readable and printed versions of publications and eventually specialized databases on CD/ROM on particular subjects.

16. The storage of information for archiving purposes is distinguished from that for information dissemination and retrieval. The United Nations project has considerable potential benefit for production, storage and use of United Nations documentation, and coordination is more relevant to this type of archival system than to those used for the dissemination of specialized information. However, the JIU report provides very little technical information if compatible inter-agency systems were to be developed as recommended.

International Maritime Organization

17. No comments were made on the report of JIU.

International Monetary Fund

18. The proposals in the JIU report should not be implemented at this time. Instead, an expanded pilot should be undertaken to test areas omitted in the pilot project at the United Nations Office at Geneva. ACCIS should participate in

evaluation of the results of this expanded pilot and in the preparation of proposals for eventual implementation.

19. The pilot project demonstrated potential savings in storage space at the United Nations Office at Geneva, but not the potential viability of a United Nations system, since it did not test:

(a) Linking of the UNBIS indexing information to the stored documents;

(b) Downloading of documents in coded form to optical disc; and

(c) Retrieval of documents with mastheads in a format suitable for referencing.

20. The JIU report did not include information on the United Nations telecommunications capabilities to handle the volume of traffic anticipated. Major expenses such as transmission and operating costs were not considered and there was no supporting information on claims of potential savings in printing ($520,000), and retrieval and distribution costs ($571,000). If a cost/benefit analysis were done, the redistribution of costs would offset certain expected savings, for example, costs of decentralized printing needs to be offset against savings expected in the centralized printing facilities.

21. The views of professionals in other areas, such as archives, records management and administration should be solicited and coordination with other initiatives currently under way within the United Nations system should be undertaken.

International Telecommunication Union

22. The findings and recommendations of the Inspectors are quite interesting, since in general the use of modern technology that brings dividends in terms of cost savings and increased efficiency should be encouraged.

23. The use of the optical disc technology has been under consideration for some time now, but the long-term aspects of its application is of concern. This relates to the lack of standards for either the recording medium or the recording and playback technology, and the inaccessibility in a direct way of documents stored strictly as scanned images.

24. The lack of standards inevitably leads to added costs in the event of updating to new models of equipment when there is a need to re-record formerly stored information, a problem which early implementors of the technology are already experiencing. In terms of accessibility, documents should be stored in revisable form to avoid conversion costs. Otherwise, the very expensive costs of computing and human resources must be justifiable.

United Nations Development Programme

25. The laser disc technology and high-speed data transmission have the potential to provide enormous benefits to the United Nations system. While the technology cannot be considered mature, the direction is clear and the project carried out by the United Nations Office at Geneva is to be applauded.

26. The JIU report is over-optimistic in terms of the speed of installation of the Integrated Service Digital Network (ISDN) networks outside of Europe and North America. In addition, costs of such networks beyond these areas cannot yet be estimated.

27. The assumptions of cost benefits with respect to printing and storage costs can be offset by increases in photocopying and decentralized printing, as has been experienced with the introduction of microcomputers. Again, experience with the introduction of simple-to-use technology such as FAX, electronic-mail and satellite communication has shown a significant increase in telecommunications traffic. Therefore, analysis of communications costs and the value of the data to be sent should precede the development of a network as proposed by JIU.

28. The report of JIU omits the problem of indexing, classification and records management, areas where the technology has far outrun the development of standard protocols, software and management techniques.

United Nations Educational, Scientific and Cultural Organization

29. The potential for the use of the optical disc technology in archival and administrative applications is recognized, but its introduction will require careful consideration of costs. The Director-General of the United Nations Educational, Scientific and Cultural Organization (UNESCO) intends to examine the matter during the preparation of an informatics and telecommunications plan to be submitted to the General Conference at its twenty-sixth session.

30. The United Nations project will be followed so that, in the event of a decision to implement a UNESCO system, it should be compatible with the United Nations system, to the extent that it is cost-effective.

United Nations Population Fund

31. The problems of storage and distribution of documents have always faced the United Nations and its family of agencies and the results of the pilot project are very encouraging. The technology can now be considered as a potential alternative for documents and records management systems.

32. United Nations Population Fund has not yet started any project study, but is pleased to note that it can benefit from the knowledge gained in the United Nations Office at Geneva project.

Office of the United Nations High Commissioner for Refugees

33. The Office of the United Nations High Commissioner for Refugees (UNHCR) would like to be connected to the United Nations system, and believes that integration of the system with the UNBIS reference database would be of great value.

34. The United Nations should closely follow developments and application of the technology outside the area of conference documents which the report of JIU (A/44/684, paras. 27-32) shows as technically feasible. However, current indications are that other technologies are still more cost-effective in areas like registry.

United Nations Industrial Development Organization

35. A correction to paragraph 47 of the JIU report is submitted, in order to reflect the situation that the United Nations Industrial Development Organization (UNIDO) is only now exploring the possibility of establishing an optical disc-based document imaging system and has not made any budgetary allocation for its purchase and installation.

36. As stated in the JIU report, the joint United Nations/UNIDO Languages and Documentation Services would benefit from an optical disc document storage system. A savings in staff resources is anticipated where such resources are used primarily for paper handling.

37. UNIDO would seek a maximum degree of coordination with the United Nations Secretariat during implementation phases of the project.

38. The archives and registry areas could also benefit from the technology. However, savings in staff resources are not anticipated, since reassignment of functions is expected. The long-distance, high-speed transmission of documents and the contractual imaging of conference documents has little impact for the Archives and Records Management Unit. However, that archives unit would like in the future to be linked to other archives in the United Nations Secretariat and specialized agencies.

39. Correction must also be made to paragraph 46 of the inspector's report (A/44/684). The reference to the work of a UNIDO consultant should be corrected to show that the consultant is a professional archivist who is advising on the Archives and Registry System of UNIDO, and that he is not a specialist advising on optical disc systems.

40. The UNIDO Management Information Technical Committee is actively studying the technology and will consult with those responsible for the pilot at the United Nations Office at Geneva.

World Bank

41. The principal idea is supported, since the optical technology holds a major promise to help manage the ever-increasing number of documents. However, since the

pilot project may not have given sufficient attention to certain factors, it is recommended that implementation be done in phases so that they can be explored. These factors are:

(a) Indexing: the success of document retrieval depends upon the methodology employed. This is a major component of total costs, and it is not clear how it was accomplished by the pilot and how it could be done in a United Nations-wide system. Manual indexing and full-text indexing should be compared. If the UNBIS system were to be employed, a redesign and retrofit would be required;

(b) United Nations communications network: the impact of moving images, particularly from the desktop work-station of staff, across the network has been underestimated. It is widely viewed that existing networks severely restrict the potential number of users for this type of application, and therefore, requirements to upgrade the United Nations network should be taken into account;

(c) The disposition of original paper documents must be resolved. The costs of storage of paper documents in addition to images for reasons of security, legal and archival, should be taken into account. Further, it is recommended that implementation include only current and future documents, because of the expense involved in converting large back files of documents that are not very active;

(d) The obsolescence of scanned images must be addressed, since they are subject to hardware and software obsolescence and may require major conversions when moving to new platforms.

World Food Programme

42. The recommendations of the JIU report are supported.

World Health Organization

43. The issues on the use of optical disc technology are well presented and the recommendations useful.

44. In 1987, a major study by the World Health Organization (WHO) on the use of optical disc proved that the technology at that time was too costly and new for implementation. However, assessment of the cost benefits of the technology continues for specific applications, such as records management, and a printing-on-demand capability as an alternative to the storage of copies of documents.

45. The cost/benefit analyses comply fully with recommendation 3 of the JIU report.

World Intellectual Property Organization

46. Agreement is expressed with the contents of paragraphs 48-57 of the report of JIU (A/44/684), and updated information on the systems mentioned therein is reflected below.

47. The trademarks optical disc sub-system, which was installed in October 1989, and the electronic publishing sub-system, which was installed in July 1990, are expected to be operational by the end of 1990. Also, tenders to bid have been sent out for another optical disc system to improve the operations under the Patent Cooperation Treaty (PCT).

World Meteorological Organization

48. The problem of storage and retrieval of documentation is being studied. The information provided in the report of JIU has been noted and will be considered in due course.
