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# PROBLEMS OF STORAGE AND ITS COSTS IN ORGANIZATIONS OF THE UNITED NATIONS SYSTEM

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IN ORGANIZATIONS OF THE UNITED NATIONS SYSTEM

Table of contents

# I. INTRODUCTION

1. The question of storage, and particularly that of storage of documents, together with related costs, is one of major importance for the organizations of the United Nations system. Up to now, however, with perhaps the exception of an excellent set of more narrowly defined UNESCO studies carried out by archivists, no known similar study has ever been undertaken to deal with this subject. Now that the financial situation of the organizations has become so critical, all avenues have to be explored to reduce expenses. The purpose of this study therefore is to recommend measures to improve or resolve existing storage problems in the most efficient and economical way.

2. After forty years of existence, the United Nations and its agencies have storage problems of various kinds. Some organizations, such as the United Nations itself and especially its Office at Geneva, as well as FAO and UNESCO, are confronted with an acute shortage of space to store a huge volume of documents and various other stocks. In others, the situation is not so critical, in part because they rent a certain amount of space to keep stocks. Yet other organizations (ILO, for example), have a reserve of storage space for 10 to 15 years to come but would like to improve their storage techniques in order to reduce storage costs and to provide better conference services.

3. It appears impossible to provide exact figures of costs relating to storage, since there is no separately identifiable item covering storage costs in the budgets of the organizations of the United Nations system and they are considered a free-good in some of them. However, it may be unequivocally said that total storage costs, which include staff, maintenance and equipment costs as well as rent, have reached quite substantial proportions. It is not surprising therefore that, at the fortieth session of the General Assembly, interest was expressed in the Joint Inspection Unit carrying out a study of that particular problem. The Inspectors also hope that their endeavours prove to be at least partially responsive to the interest of FAO in records maintenance.

4. Studies or specific documentation on storage problems in the United Nations system being non-existent, the Inspectors carried out their investigation through a detailed questionnaire, which they sent to organizations of the system, and by visits to many of them to make a direct evaluation of the situation. Both exercises, along with the great interest shown by officials concerned, proved very useful, as is confirmed by the replies received and substantive discussions held. The inspection also enabled some organizations to make an assessment of their storage situation for the first time. At this point, the Inspectors would like to thank all the officials concerned for the time they gave and for the care they took in reporting in detail on the situation in their organizations.

5. In the course of their work the Inspectors found that in the United Nations system storage problems rationally divide into two main categories: (a) printed matter, and (b) various non-printed stocks. These are therefore dealt with separately. Because the scope of a full study proved too wide to manage in a reasonable time period, the Inspectors were compelled to isolate certain problems which appeared susceptible of solution:

(a) The increasing volume of documentation and slow application of regulations adopted to reduce it.

(b) Lack in some instances of modern machinery, e.g. compactus equipment, computer systems, etc., designed to reduce manpower, facilitate quicker access to documents, provide better service to users, bring down management costs.

(c) The processing of records and documents in numerous office divisions, sections and units rather than in common registries in central departments.

(d) The critical problems of scarcity of space and scattered storage in UNOG, resulting in high costs and deficiencies in meeting users' needs adequately.

(e) The high costs of United Nations Headquarters' Long Island City and Park Avenue warehouses.

(f) The great amount of space occupied by documentation, publications and libraries which might be considerably reduced by application of the most modern technology, making it possible also to render better and quicker services to users.

6. While preparing their study the Inspectors sought outside expertise on certain specific aspects and increasingly came to believe that the impact of new technology could help the United Nations system cope with the foregoing problems. Thus they visited a number of private companies in France, Switzerland and the USA, specializing both in warehousing of items, (paper, furniture and office supplies similar to those stored in the United Nations) and in mass storage of information. There they were shown new technology used for operating and controlling stocks and modern systems for mass storage, archiving and retrieval of information, which is badly needed in many organizations of the United Nations system. Having carefully examined the performance of modern systems in this field as well as the potential costs involved, the Inspectors became convinced that optical disc technology (which is already available and successfully used in a number of private and public organizations) should be tested in the United Nations, beginning with UNOG where the need appears greatest.

7. The Inspectors are grateful to all those who shared their experiences with them in the field of warehousing. They express their thanks also to the officials of companies producing technology for mass storing, archiving and retrieval of information, which they visited in the above-mentioned countries. These, as well as a number of United Nations and national officials to whom the Inspectors are also indebted, contributed their knowledge of modern technological systems and helped greatly in evaluating possible applications of these systems in organizations of the United Nations family.

## II. WAREHOUSING SITUATION AND RELATED FACTORS

### A. Printed matter

8. As mentioned above, not all organizations in the United Nations system are suffering from shortage of space to store documents, publications, books and other stocks, although some are now facing an approaching crisis in this respect. Firstly, it has to be emphasized that the main physical output of the organizations of the United Nations system is printed matter. Secondly, documents and publications are not just stored for storage sake but must, at all times, be readily available for meetings, secondary distribution requests and sales. Every single document which is stored may need to be accessible at any given time.

#### 1. Organizations experiencing no difficulties for the moment

9. Two organizations in the system, where the warehousing situation is generally satisfactory, are the International Labour Organisation (ILO) and the Universal Postal Union (UPU). There are no major problems as regards space in the first of these organizations because the ILO building is a comparatively recent one (opened in 1974) and its designers, in consultation with ILO officials concerned, provided not only sufficient space for the future, but also rails for compactus (movable shelves) in basement storage, should the Organization need to use this equipment to save space. UPU's present storage capacity for printed matter (1,045 square metres), equally equipped with a compactus installation, is reported to be sufficient for its needs and, if necessary, the Organization can regain part of the space that it lends to outside users.

10. The storage situation of the International Atomic Energy Agency (IAEA), the United Nations Office in Vienna (UNOV) and the United Nations Environment Programme (UNEP) does not pose any particular problem largely because all these organizations like the ILO have moved relatively recently into new buildings providing, for the moment, sufficient space. Moreover, it should also be mentioned that, in the case of IAEA and UNOV, the satisfactory situation with respect to storage space is also due to strict application of guidelines established by the IAEA Board of Governors and the UNOV policy-making organs.

#### 2. Organizations facing minor difficulties

11. Among the organizations having certain storage space problems may be mentioned the International Civil Aviation Organization (ICAO), the International Maritime Organization (IMO), the International Telecommunication Union (ITU), the United Nations Children's Fund (UNICEF), as well as the World Health Organization (WHO), and the World Meteorological Organization (WMO). Although it shares space with IAEA and UNOV in the new VIC premises, UNIDO has reported certain storage problems both in respect of its own activities and with regard to its management and operation of building maintenance on behalf of all three VIC Organizations.

12. Thus, in ICAO, although since 1980 the space occupied by the Organization has substantially increased (from 23,152 to 25,851 square metres), the space designated as storage/warehouse space has remained at 1,361 sq.m.; the most recent additions for storage-related purposes date back to 1980 and include a publications warehouse (260 sq.m.) and the then newly established Archives and Records Management Centre (100 sq.m.). The existing warehousing space, especially in the area of documentation, publications and archives, is nearly filled to capacity. Therefore, a request for additional space is under consideration. The Inspectors suggested that consideration be given to the

installation of compactus equipment on rails in wooden blocks (if floors permitted the weight), as an immediate and relatively inexpensive approach to the space problem at ICAO.

13. In IMO, not enough provision was made in the new building for storage of furniture and office machines and equipment. Therefore, space which is officially allocated for office use or meeting rooms is utilized for that purpose. Nor is there further room for the expansion of filing space for the Documents Section.

14. In ITU, storage space also represents a problem. The storage facilities are located in the basements of the ITU buildings (Tower and Varembé) and at various outside premises not belonging to the Organization. The total area measures 4,000 sq.m., with approximately one-third being set aside for documents, publications and archives. It would certainly be more convenient to have all the stored matter under one roof and at one location, but the present situation does not cause insurmountable difficulties. The outside store places are not manned and do not give rise to staffing or budgetary problems apart from rentals.

15. UNICEF uses a variety of facilities to meet storage needs, including renting some space within the present office premises at Headquarters for storage of documents and records which require fast retrieval. It also shares common storage facilities with the United Nations Headquarters for specific archives records and has recently acquired storage space away from the premises. The present arrangement, which is certainly costly, does not seem to meet the present storage needs of UNICEF, since renting more storage space in Long Island City Warehouse is now being considered.

16. Despite the fact that the VIC buildings are relatively new, the space for storage available to UNIDO cannot be considered as adequate to its needs. There is shortage of space in major registries which serve UNOV and UNIDO. The furniture/equipment storage areas, as well as those of the stationery supplies stores and the spare parts storage, are insufficient. Decentralization of stocks and registries has become unavoidable and management problems have resulted. The space situation in the Documents Control Unit has become worse due to the expanding workload (services rendered both to UNOV and UNIDO). On the other hand, the minor difficulties facing WHO and WIPO have been met for the time being by using rented space. WMO is presently able to meet its storage requirements. However, it may soon have to rent outside warehouse space to store new publications.

### 3. Organizations confronted with serious difficulties

17. A detailed description of the inadequacies in warehousing facilities in such organizations and offices as FAO, UNESCO, UNHQ and UNOG can hardly be accommodated within this report; however, the situation in each case may be summarized as follows: the main building of FAO does not provide sufficient space for publications, and this has meant renting outside warehousing which provides about 63 per cent of all storage space for publications and related materials. In fact, the Organization has approximately 1,500 sq.m. of storage space for publications and documentation inside the FAO building and about 2,500 sq.m. in rented space outside. Storage areas for publications in the main building are, in many cases, offices duly converted. Secondary space, such as cellars and corridors, is also used. Even the staff room was cut down in size, to one-third, while the other two-thirds were converted into paper storage space. In the absence of defined guidelines regarding stock control for printed materials, the storage problem would have been even more serious if the Organization had not pursued a rather strict policy with respect to the volume of documentation.

18. The critical situation of UNESCO with respect to storage seriously affects the activity of such entities as the Division of the General Information Programme (PGI) whose storage problem is probably one of the most acute among the Programme divisions of the secretariat; the Documents Division of the Office of Conferences, Languages and Documents (COL) which lacks sufficient storage space for the documents related to the Executive Board and the General Conference; and the Division of Library, Archives and Documentation Services (LAD), because special requirements for archives repository space were not taken adequately into consideration when construction plans were made. The archives dispose at the moment of 5,477 linear metres of shelving, out of which 4,387 are occupied. The reserve does not exist as such, because around 10-15 per cent is unusable.

19. UNESCO statistics for 1975-1985 show an annual average net growth of 188 linear metres; annual eliminations of records amount to about 50 per cent of annual acquisitions, but there are, in the secretariat units, records that should already be in the archives. Also files destroyed by fire in March 1984, the core of which consisted of official correspondence files after 1967, would have added another 700 linear metres.

20. The problem of office space being used for records and the dissemination of registries is not peculiar to UNESCO, but, as the Inspectors found during their visits to other premises, a frequent one. For instance, officials at UNIDO stated that perhaps their greatest concern was the utilization of office space for such purposes. Such is also the case in FAO, UNICEF, UNOG and UNHQ. IAEA indicated that they exercise strict control of the use of office space and that no one is allowed to store records which can be sent to the specialized archival sections. This sort of control is non-existent in quite a number of organizations due to lack of proper guidelines. Storage of publications and other printed materials in offices and corridors is a common feature in UNESCO. This is mainly because bulk stocks are maintained at the Cachan warehouse (about 20 kilometres from Headquarters), which UNESCO rents at a high cost (see para. 65). Although a daily delivery service is organized between Headquarters and Cachan locations, transportation problems occasionally arise.

21. United Nations Headquarters (New York), besides its own premises, rents about 40,000 square feet (gross) of space for the storage of archives documents in Manhattan, at a total cost of US$ 304,000 per annum; 41,250 square feet (gross) of storage space in Long Island at a total cost of US$ 188,900 per annum, which is used by the Department of Conference Services to store documents and publications; and 8,000 square feet (gross) of storage space in the United Nations DC.2 building at a total cost of US$ 80,000 per annum used by Buildings Management Service as a general storage area for all services.

22. The afore-mentioned rental costs include local real estate taxes, but not the cost of insurance, utilities or maintenance. Although, as follows from the reply of the Office of General Services, the rental of storage space compares favourably with the prevailing rate for storage space in the New York area, the total rental paid by the United Nations in New York (US$ 572,900 per annum) is nevertheless significant.

23. There have, however, been studies recently on ways and means of reducing the cost of storage, which have resulted in the negotiation of a more favourable lease arrangement for the Long Island Warehouse. A further possibility of moving archives from their present location to the United Nations premises has also been examined in detail but is not considered feasible by OGS at this time of financial crisis. But in the Inspectors' view, the financial difficulties in moving the contents of both warehouses to Headquarters could be avoided if the following two solutions prove feasible:

(a) The landlord of the Park Avenue Warehouse would follow up his interest in buying out the contract with the United Nations which expires in 1993, for about US$ 2 million. This amount in cash would be ample not only for moving both warehouses to Headquarters but also for making proper readjustments in its garage so as to accommodate the archives from the Park Avenue premises.

(b) If the buy-out money were to be paid by guaranteed instalments over a period of several years, the Member States might wish to consider advancing the sum for the move with corresponding reimbursement within two or three years.

24. If the warehousing situation of the United Nations Headquarters is judged by the Inspectors to be unsatisfactory largely because of high rental charges, that of UNOG, being absolutely critical, is of another nature. One has to bear in mind that the Palais des Nations is first and foremost a "conference centre", which should ensure the smooth running and servicing of conferences (in 1985, approximately 7,000 meetings took place in Geneva at the Palais des Nations, about the same number as in New York). It would not be an overstatement to say that the shortage of storage space experienced by UNOG jeopardizes the very performance of this function.

25. One example of the situation in UNOG, with respect to storage of printed matter, may be briefly described as follows. Documents and publications of the Distribution and Sales Section are stored in no less than 35 different locations throughout the Palais des Nations and on 10 different floors. The Distribution Unit, which is a part of this section, is scattered in three different buildings, on nine different floors. The Counters and Meetings Sub-Unit has three counters located in two buildings and on three different floors.

26. In addition to management problems, including those of supervision of personnel, posed by the dispersal of stocks and the long distances between them (up to 800 metres), it is worth noting that the magnitude of tonnage of documents moved each year to 35 various storage areas throughout the Palais is approximately 480 tons, of which about 20 per cent is temporarily stored for future meetings, to be moved from one end of the building to another as the date of a conference approaches. After the conference, up to five per cent (24 tons) is again conveyed to various storage areas for stock to meet secondary requests from delegations and Secretariat staff.

27. The wide dispersal of meeting services and documents storage areas has resulted in a duplication of activities and the need to rely on substantial temporary support (20-25 GS employees annually). Over the years, the wide use of temporary assistance funds has been the solution to deal with the problems noted above. A drastic reduction in the funds made available to UNOG in 1986-1987 for the recruitment of temporary assistance for meetings has made it urgently necessary to introduce changes to ensure the proper functioning of the Publishing Service. The Secretary-General's instruction to reduce temporary assistance by 30 per cent has exacerbated an already difficult problem. Immediate action has therefore to be taken to address the situation in all of its ramifications.

28. The warehousing situation in UNOG adversely affects the activities of the Sales Unit, one major aspect of which is the speed of the service provided. In order to achieve cost-efficiency in manpower and speedy order fulfilment the five main areas which make up the sales dispatch should be located near one another. The areas are scattered in different locations and furthermore the receiving area and order processing areas are too small and impractical. In order to be competitive on the market, the Distribution and Sales Section should deal with sales orders in one day. It fails to achieve this desired performance when large book orders must be collected from dozens of distant

shelving areas and stock organization and replenishment take up much more time than necessary owing to dispersal of warehousing areas.

29. As an additional serious problem related to poor warehousing facilities in the Palais, it may be mentioned that large quantities of valuable publications are stored unattended in underground corridors and are thus accessible to the passing public. Merchandise worth thousands of dollars is left virtually unguarded.

B. Office equipment and supplies

30. The problems encountered in the organizations in storing office supplies are somewhat different from the storage of printed matter. Indeed, unlike stocks of printed matter, those of non-printed materials, made up largely of paper for printing, furniture, office equipment (typewriters, photocopiers, calculating machines, etc.) and office supplies, are maintained at a more or less constant level.

31. All the organizations, apart from ILO, indicated that they were either using to their full capacity the space allocated to them to store non-printed materials or renting additional space. The non-printed stocks in UNOG occupy 7,605 sq.m. of space, in FAO - 5,126 sq.m., WHO - 2,589 sq.m., IAEA - 2,169 sq.m., UNESCO - 1,928 sq.m.

(a) Paper for printing

32. Of all the stocks of office equipment supplies, that of paper requires the largest amount of storage space in most organizations (e.g. UPU - 50.7 per cent, IAEA - 34 per cent). On the other hand, in some of them, as in WIPO (12 per cent), WMO (10 per cent), WHO (8.5 per cent), ICAO (7.0 per cent) and UNESCO (about 4 per cent), the space occupied by paper is very small. In this connection, it may be said that the general policy in most organizations is to buy wholesale, through bidding, in order to obtain the best price. If paper is bought in larger quantities and on a common basis between the organizations (e.g. through the Joint Purchase Service in Geneva), larger savings result. Whenever this is not possible owing to lack of space, paper has either to be bought in small quantities, which is more expensive, or stored on premises outside the organizations.

33. Some organizations, owing to limitations in space allocated for paper storage, only store enough stock for a four-month supply (FAO, ICAO, UNOG, WHO). Others have an agreement with wholesalers who keep part of the annual order in their own warehouse at no cost to the organizations and make deliveries upon request and according to needs (IAEA, ILO, ITU, UNESCO, UNHQ, WIPO, WMO). However, it should be mentioned that some organizations are forced to print documentation in small quantities and reprint later, because of lack of storage space for printing paper near headquarters; this makes production more expensive.

(b) Furniture and stationery

34. As regards other goods, storage capacities are adequate in the sense that, owing to financial restrictions, small stocks are kept for three or four months to accommodate the most immediate needs. In all organizations, the policy regarding the retention and disposal of furniture and equipment is to get rid of very old pieces, which cannot be repaired, through regular sales two or three times a year. In this connection, the Inspectors were made aware of several instances in which overly restrictive disposal regulations caused the costs of mounting a sale to exceed the income from the sale. In these cases, the Inspectors advised that a give-away policy be considered. Purchases of new stocks are made from suppliers charging the lowest price for

comparable quality. In accordance with the financial rules (UNOG), purchases are made, as far as possible, directly from factories, a policy which does away with intermediaries and, obviously, makes substantial economies possible.

C. Libraries, records and archives

35. The main function of library collections and documentation centres is to put information and universal knowledge at the disposal of staff members, missions and other users. As far as records and archives are concerned, they are the result and proof of the activities and institutional memory of the agencies, and are also indispensable working tools. Records are preserved in the Archives services for administrative, financial and legal reasons, for practical information needs and as source material for scientific research. It is clear therefore that organizations should have a well-formulated official archival policy with proper provisions to implement it, as well as an archivist, suitable premises, and clear guidelines regarding what material is to be retained, in what quantities, and how it is to be selected. Books in the libraries and records in the archives are not simply items stored: there are highly intellectual, cultural and legal values attached to them. These observations underline the importance of securing adequate storage for and access to library collections and archives which, in turn, is dependent to some extent on the facilities available.

36. The analysis of the replies received from the organizations shows that only in a few cases may the warehousing situation of libraries and archives be qualified as satisfactory. This is, for example, the case at ILO where, although the central library's annual growth of collections is estimated at about 790 linear metres, there is no real problem as far as the warehousing situation is concerned, because of sufficient space provision and systematic weeding.

37. Sufficient space provision for libraries and archives for the moment is reported by IAEA 1/, UNEP, UPU, WIPO and WMO; IAEA has enough space for the coming three years; however space must continuously be made available by annual pruning of stocks. All other organizations either have no space to expand or are in an extremely difficult situation. Thus the Archives Unit of ICAO reports that all available space has been utilized and that requests for additional records storage cannot be met. UNICEF would like to have more space in the United Nations Archives since it is a more secure area at a reasonable cost. A shortage of space is reported by UNIDO in its major registries. Of all organizations suffering from lack of space for libraries and archives, it is UNESCO which is preoccupied most because of constant increases in the volume of documents and archives. The Library and Archives have been in difficulties, because special requirements for archives repository space were not taken fully into consideration when construction plans were drawn up for the UNESCO building. They dispose at present of 5,477 linear metres of shelving, out of which 4,387 are occupied. There is an annual average net growth of 188 linear metres. Annual elimination of records amounts to about 50 per cent of annual acquisition. The library occupies space of 1,400 sq.m., and has shelving of 4,600 linear metres. There have been no further possibilities of expansion for the last 15 years. There are two main reasons for this: (1) insufficient space in the building, and (2) lack of sufficient resources. Stocks steadily increase: books, 3,200 volumes per year on average; periodicals, 18,800 a year. Only about 10 per cent of books are weeded out each year; the figure for periodicals is about 30 per cent.

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1/ IAEA manages the Vienna International Centre Library (VICL), a joint library serving the IAEA, UNIDO and other United Nations organizations located at the VIC.

38. The storage problems in the UNOG Library have been extensively discussed for many years. The ten floors of stacks contain about one million books and monographs, five million documents (gazettes, parliamentary debates, United Nations specialized agencies collections), periodicals (3,000 - 4,000 collections, depending on the year of inception), the collection of the League of Nations, the newspapers (500 - 600 linear metres), the collection of microfiches and microfilms, and this without taking into account the collections contained in two reference rooms (26,000 volumes), two small storage rooms and the corridors of the Library buildings.

39. In 1982, a Working Group on the Library extension was created in order to study the storage situation. As a result of six meetings held, the Working Group recognized a legitimate need for additional space and considered that the building of an annex for storage was indispensable as a long-term solution. At the same time, the following short-term solutions were recommended: (a) transformation of the Library basement to accommodate the storage of periodicals, archives and other publications; (b) purchase of equipment for internal production of microfiches and microfilms; (c) installation of additional shelving (about 1,000 linear metres to store 30,000 volumes). The Group also recommended that an in-depth study be undertaken on new construction which would allow the Library to have an additional 30,000 linear metres of shelving, capable of storing new acquisitions during the next 30 years. In its report, the Working Group recalled that (a) according to a resolution of ECOSOC and the General Assembly, the United Nations Library should serve as a control library, firstly for the United Nations and specialized agencies and, secondly, for other international organizations, research institutes and students; (b) the acquisitions programme should be maintained to allow the Library to meet its obligations vis-à-vis these users, who considerably depend on that Library, taking into account the shortage of facilities in Geneva compared with those of the Headquarters' Library; (c) the Library books should continue to be stored in the Library of UNOG; (d) no transfer of property of whatever parts of the collections should be undertaken.

40. The Library has not yet (1986) acquired any additional space (construction of a new annex has been abandoned) and its warehousing situation has deteriorated, both because of the increasingly acute shortage of space and the lack of modern technology.

### D. Factors affecting the warehousing situation

The Inspectors have identified the following major factors of storage shortage in the organizations covered by the study.

#### (a) Initial construction of buildings and their physical lay-out

41. Unlike ILO and UPU, where sufficient provision of space has been made by the designers of the buildings to cope with the growing stock increase for the next 15-20 years, the FAO and UNESCO buildings were not designed with such problems in view. As far as the Palais des Nations is concerned, the provision, which was initially made to cover storage needs for 30-35 years, was quite accurate, since the space was totally exhausted by 1975, and now the point of near asphyxia has been reached. In this context, the Inspectors were somewhat surprised to see in the ITU reply to their questionnaire that, in its new building programme, which was to commence in July 1986, the ITU problem of storage (see para. 14) has not yet been adequately taken care of.

42. Physical configuration of buildings resulted in the creation of numerous and scattered storage areas (both horizontally and vertically). This problem is peculiar to UNOG, and to a certain extent to FAO.

(b) Maintenance and security measures

43. The warehousing situation can hardly be objectively evaluated without due attention being paid to security measures. In this connection, the question was put to the organizations as to whether the measures relating to fire, ventilation, sanitary provisions, prevention of theft, were adequate. Many organizations (IAEA (VIC buildings), ICAO, ILO, ITU, UNEP, UNESCO, UNICEF, UNHQ, UPU, WHO, WIPO, WMO) replied that they had adequate provisions which, in some cases, are approved by local authorities. Improvements in this regard have recently been made in ICAO, UNESCO and UNICEF.

44. In FAO, security measures for storage areas of furniture, office supplies, archives, etc., are considered adequate but there is room for improvement, e.g. addition of smoke detectors and automatic sprinklers. To improve the existing security measures in its Library, a study is under way to evaluate the situation and recommend additional measures for the entire Library collection. Because of the limitations and nature of the space available, security provisions in the FAO publications storage are inadequate. UNIDO has ventilation and humidity problems in its furniture storage areas. So far attempts made to reduce the working temperature and increase humidity have not been successful. On the other hand, security measures in archives and records and in the Documents Control areas are adequate.

45. For numerous reasons already dealt with in this report, the security measures at UNOG, and especially in the Distribution and Sales Section, are far from adequate. There are few areas which can be locked. Remote storage areas are particularly vulnerable to theft, as are the tunnel storage areas used owing to the shortage of storage space. Following a report from the Medical Service, one area where United Nations documents are stored is to be vacated, due to unhealthy conditions (absence of proper ventilation and emergency exits, high humidity); staff working in this area cannot stand upright because of a low ceiling. However, in the majority of locations, there are fire alarms, although some do not have automatic sprinkler systems. There are also storage rooms which are dark and accessible only with some difficulty. In the Inspectors' view, even under present austerity measures, as a matter of first priority most careful consideration should be given to solving problems of safety and security in UNOG storage areas.

(c) Increase in the level of activities of organizations

46. This increase, including the number of meetings held annually, together with the introduction of new programmes and official languages, resulted in a considerable growth in the total volume of conference documentation and of publications programmes.

47. The General Assembly of the United Nations and legislative bodies of other organizations have repeatedly considered the problems pertaining to the volume of the documentation produced for meetings and conferences and have issued numerous resolutions, with few marked results. The consequence is that, year after year, thousands of linear metres of shelves have been necessary to store documents, with ever-increasing costs for their maintenance - especially

staff costs - estimated by one source for the United Nations alone to be in the region of US$ 5 million a year. The Joint Inspection Unit has studied this issue in several reports 2/, the latest one being "Control and limitation of documentation in the United Nations system" (JIU/REP/80/12). Other recent JIU reports have also dealt at some length with wider problems and practices 3/.

48. The JIU report on "Control and limitation of documentation" noted that the number of page impressions in the United Nations (New York and Geneva alone) in 1979 reached 920 million and, if one added the documentation produced by other United Nations organizations, the total would exceed 1.5 billion page impressions. In 1986, needless to say, a new study would show a substantial increase in that volume. As pointed out in the comments made by the organizations, although stock levels have been reduced, the number of different documents continues to increase, thus quickly filling the space saved and requiring more space. For example, in the United Nations from 1980 to 1985, about 1,500 new symbol series have been added to the stock, this in addition to increases of approximately 600 more symbols to the existing series of documents. In IAEA, publications increased in number by 26 per cent between 1980 and 1984 (mainly due to the introduction of new series). In ICAO, there has been a gradual increase of stocks in recent years, specifically in the area of publications and documentation. This increase can be attributed to the number of new publications issued, wider application of official languages and the adoption of additional official languages. At the same time, it has to be mentioned that there are some organizations (e.g. WHO) where there has been no major increase in volume of publications owing to their strict application of the zero growth budget concept. UNIDO is the only organization reporting a decrease in documentation and publications stocks over the past five years (resulting both from budget reductions and general trimming of distribution patterns/totals of copies available).

(d) Policy guidelines

49. There is a lack of proper policy guidelines regarding print runs and the retention and weeding of stocks of printed matter. Despite the fact that, since 1950, the General Assembly and other bodies have adopted numerous resolutions pertaining to the ever-increasing volume of documentation, analysis shows that only in some organizations are strict regulations applied, while in others they are apparently non-existent. Thus the extremely critical situation with respect to storage space in UNOG, in addition to existing rules and guidelines, has compelled the officials concerned to suggest reducing stocks of documents to an absolute minimum after two years instead of three.

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2/ "Report on documentation" (JIU/REP/68/5), "Report on a rationalization of the proceedings and documentation of the General Conference of UNESCO" (JIU/REP/69/4), "Report on the use of minutes instead of summary records" (JIU/REP/69/10), "Report on a rationalization of the proceedings and documentation of the Conference of FAO" (JIU/REP/70/1), "Report on a rationalization of the proceedings and documentation of the World Health Assembly (JIU/REP/70/8), "Report on the United Nations documentation and on the organization of the proceedings of the General Assembly and its main bodies" (JIU/REP/71/4), "Report on the implications of additional languages in the United Nations system" (JIU/REP/77/5), Report on "The evaluation of the translation process in the United Nations system" (JIU/REP/80/7).

3/ "Publications policy and practice in the United Nations system" (JIU/REP/84/5),"Reporting to the Economic and Social Council"(JIU/REP/84/7).

50. In IAEA, in order to exercise control over stocks of publications, an overall annual inventory is taken and write-off actions of surplus stock carried out. Documents are stored for two years in full quantity. Thereafter, stocks are reduced to 30 copies in English and ten in other languages. These reduced stocks are kept for an additional five years, after which documents are available in the VIC Library for archives purposes. Exempted from the reduction are "best-sellers" like annual reports, budget documents and the like. Master files are kept of all documents. In ICAO, the stock of printed matter is governed by procedures and guidelines concerning the storage of files and records in individual offices, the Central Registry and in the archives through retention schedules and by specific policies set out in the ICAO General Secretariat instructions. Print runs for publications, documents and reprints are calculated to cover, on the average, periods not exceeding three years. ILO aims to print, for the first impression, sufficient copies of documents to cover also a three-year demand. In IMO, after the initial distribution of documentation, the balance is retained for one to two years as background material for other meetings, then transferred onto microfiche. In UNIDO, the Documents Control stocks are maintained at a minimum. When necessary, reprinting is initiated by the Documents Unit, in consultation with the concerned officials. Stocks are normally discarded after two years and only a master copy is retained in a central file. In WHO, stocks of official documents are kept for a maximum of five years, as stipulated in the WHO Manual. In WIPO, annual reductions of stocks of periodicals are made in order to create space for storage of new periodicals (e.g. stocks of monthly periodicals are reduced to a fixed level after five years; stocks of patent applications under the Patent Cooperation Treaty are reduced after three years). Stocks of documents are reduced, according to needs for space, taking into account the nature and topicality of the subjects dealt with.

51. However, as mentioned above, in some of the organizations, including those with serious warehousing problems, there are no strict or specific guidelines concerning stock control of printed matter. Thus, in UNESCO, they exist only for a quarterly control of stocks of periodicals. In addition, the Bureau of Conferences, Languages and Documents (COL) reviews the existing stocks of Executive Board and General Conference documents every three years to reduce stocks, while the General Information Programme (PGI) reviews its stock situation annually. As far as UNESCO publications are concerned, the majority of sales are made during the two years after the publication is printed. For a number of years, it has been the practice to ask National Commissions if they would wish to receive publications which are no longer selling well. The Commissions specify their areas of interest (science, culture, etc.) as well as languages desired. In FAO, guidelines exist for record files (which are reviewed every 4-5 years) and the Library stocks, while in ILO, IMO, ITU, UNEP, UNICEF, and UNIDO (apart from the guidelines for the Inventory Control Unit), there seem to be no guidelines at all. In FAO, the storage problem would have been even more serious if the Organization had not pursued a rather strict policy with respect to the volume of documentation. In the absence of written guidelines, ILO carries out an intensive programme of stock reduction of periodicals. IMO reviews its stocks once a year in order to keep them to a bare minimum. In WMO, there is an annual reduction of stocks of publications which have been left over after some time, to make space for newly printed publications.

52. Although relevant instructions, wherever they exist in the organizations covered by the present report, appear relatively simple, their application is not easy because of the great amount of work involved. The task of checking large quantities of information could very well be handled by computer. However, only a few organizations are equipped with computer techniques for stock control (IAEA, ILO, UNESCO, UNIDO, WHO, WIPO). Computerized stock control is non-existent in the United Nations, where its introduction would permit managers to have an immediate idea of the situation of stocks and be able to take quick action.

(e) Technology and machinery

53. Technology is one of the major factors and perhaps the weakest point in the United Nations system, affecting the warehousing situation and the efficiency of the services concerned. Thus, compactuses (movable shelves, the use of which is justified for stored items and archives but very little in systematic distribution units because of the necessity of working on both sides of the shelves) allow utilization of 90-95 per cent of space available for storage and save up to 50 per cent of space as compared with traditional shelving systems. Another very important space-saver is the use of microforms. To this, one can add that computer control of stocks makes it possible to reduce these to a bare minimum as well as the time needed to service these stocks. On the contrary, in the absence of a clearly defined storage system for the identification and retrieval of stocks, their volume tends to grow and servicing becomes more time-consuming. Storage can also hardly function without adequate transportation equipment.

54. As far as conventional equipment is concerned, all the organizations widely use open and movable shelves, pallets, barrows, gravity rollers, forklifts, and trucks. However, it should be mentioned that small organizations have less variety of equipment at their disposal than large organizations, and wider use of movable shelves is sometimes hampered by the low weight capacity of floors (e.g. UNESCO, UNOG). Nevertheless, some efficiencies and economies can be achieved without large expenditures and special physical characteristics. In rapidly distributing materials (thus somewhat relieving its storage problem), UNIDO uses a rather simple and inexpensive piece of equipment, an electronic precision balance machine, costing about US$ 1,500, that counts pieces of documentation almost instantaneously and saves about 20 per cent of the manual workload.

55. In connection with the utilization of non-conventional equipment, it may be mentioned that the FAO Library uses up-to-date professional methods and technologies, such as UDC classification and retrieval, AGROVOC for indexing and microform for long-term storage and dissemination. IAEA applies a computer-assisted location system to control the status and flow of records and to facilitate full use of storage capacity. It has started micro-processing and computer-indexing its parliamentary documents. In ICAO, the stock control system is both manual and computerized. Inventory control of publications has been largely automated and full automation should be achieved by the end of 1986. As for inventory control of furniture and equipment, this was automated more than ten years ago. At present, a feasibility study is under way to computerize the control of stocks at the Central Registry and Archives. Recently, the Organization has made available a computer-on-line service for one of its publications, which enables customers to retrieve technical information electronically.

56. In ILO, the Library is fully computerized. A feasibility study is being undertaken to extend the computerized stock control system to documentation (at present card-index systems are in use) and equipment storage control. The Division of the UNESCO Library, Archives and Documentation Services (LAD) is fully computerized and has its own data bases. In this connection, it may be noted that this Division is responsible not only for maintaining documentation and providing the services of a documentation centre but also for running an integrated documentation network which includes all UNESCO sectors each with their specialized stocks, and its regional offices. The integrated system is based on the same methodology of processing documentation (total computerization apart from some of the regional offices) and uses the same technology. At UNHQ, a computer system for Maintenance and Operations Section/BMS is currently being installed. This will permit, inter alia, access to information on the current levels of building stock parts and equipment. It will also help to maintain better control over both the amounts of stock to order and store, as

well as an improved balance between them. In UNIDO, all furniture/equipment records are now computerized, allowing better management of stocks. A computerized bar-code system is being developed at present for the stationery supplies, spare parts and catering stores.

57. Again, from the point of view of utilization of modern technology, it is UNHQ (with the exception of the Library) and UNOG which are in the most unfavourable situation. This may be summarized as follows: (a) supplies stock is not computerized; (b) furniture stocks are checked on the basis of computerized reports by the vendor; (c) UNHQ Purchase Management Unit (PMU) maintains a computerized inventory; and (d) UNHQ Purchasing and Transportation Section (PTS) only intends to conduct a pilot project for the possible setting-up of a computerized purchase system. In UNOG, neither in the Library nor in other storage places has new technology so far been adopted. Somewhat encouraging, however, is the fact that a study is under way in collaboration with the Management Systems Section which, in the near future, will allow computerized management of PTISS storage stocks. Extensive programmes of microfiching and microfilming have been implemented, although it has to be mentioned that, in the UNOG Library, the microfiches cannot be used because of the lack of microfiche readers (there is only one which was bought in 1969). However, in UNOG, because of deferment of funds, microfiching activities are at present suspended.

## III. STORAGE COSTS

58. Estimating storage costs has proved a major difficulty encountered in the course of preparing the present study because, as a general rule, organizations' budgets do not include a special item entitled "storage costs". In their replies to the questionnaire, FAO, ILO, IMO, UNEP, UNIDO, UPU, WHO, WIPO, WMO, and UNOG stated that there was no separate provision for storage costs in their budgets. IAEA noted that maintenance costs were part of the overall VIC operating costs shared by UNIDO, UNOV and IAEA and that its share of the costs was 45.5 per cent. ICAO replied that it was difficult to separate the cost of office space and meeting rooms used for actual storage or warehouse purposes. IMO provided partial costs, namely for storage of publications (US$ 12,800 for 1985). Only ITU and UNESCO were able to make available a breakdown of such costs. In view of the fragmentary information received, a comparative system-wide table on storage costs cannot be included in this report.

59. Therefore, through their questionnaire, the Inspectors attempted at least to identify and extract, whenever possible, components which added together could indicate the size of storage expenditures. It appeared that the major components of these expenditures were staff costs, rentals paid for outside premises, maintenance (including insurance, power and light, cleaning and upkeep). These components may be qualified as direct costs, in contrast with other costs incurred by the organizations because of insufficient space facilities, which can be termed as indirect costs, these being virtually non-identifiable.

### A. Direct costs

#### (a) Staffing and staff costs

60. Storage costs, even though they are difficult to establish, are made up largely, if not in fact mainly, of staff costs. Here also the Inspectors had difficulty in establishing a clear-cut image of the staff wholly involved in storage operations and the real amount of expenditure incurred. Comparisons between organizations are not realistic, in the sense that many elements intervene in that evaluation, e.g. the configuration of buildings, the volume of stocks being manipulated, whether storage is inside or outside premises - or both - and the technologies used to perform various tasks.

61. The type of contract varies also from one organization to another: permanent, fixed-term, short-term, temporary. Several organizations stated that 100 per cent of that staff's time is not devoted solely to storage tasks. On the other hand, some organizations mentioned that, besides the number of staff indicated in the reply, there were others who were in some way involved in storage operations but who could not be added because their part could not be quantified. It can then reasonably be estimated that staffing costs are higher than indicated in the replies.

62. For the reasons set forth in the preceding two paragraphs, the Inspectors have decided against providing a table of staffing related to storage in the organizations. Although the organizations have provided data to the best of their ability, it is clear that situations are simply not comparable between organizations.

63. A number of remarks were made by organizations in the replies to questions on determining the number of staff needed. All stated that staff requirements are based on the workloads, and that staff time is used rationally. IAEA indicated that no temporary assistance is employed for storage. On the other hand, FAO regretted that lack of proper storage space and facilities for

publications made efficiency and output difficult to evaluate. ICAO noted that, although the work performed by the staff of Archives may be interpreted as a basic storage and warehousing function, the majority of time is actually spent compiling records, providing services to customers and microfilming. It underlined also that lack of space in the publications and documents warehouse has resulted in complaints concerning inaccessibility and double handling of stocks. ILO is very careful in employing temporary staff which it calls upon to avoid increasing the number of permanent staff, and this only on an ad hoc basis. ITU underlined that difficulties can arise in staff absences but that for the most part these have been overcome economically. At peak demand periods, storage space may be inadequate. Temporary staff may be used to meet short emergencies. UNEP said that there is overlapping of duties in connection with internal control measures that requires division of labour. No temporary staff has been needed so far. Here also, UNESCO is facing a problem which stems directly from the scattering of its storage places. It requires more staff to deal with the various warehouses located away from the main building. The introduction of new technologies and redeployment will necessitate a new distribution of duties. Moreover, in the filing section, owing to recent austerity measures, staff is insufficient and this, unfortunately, will transform the original activity of the section into that of a simple depot for pending files. As appears from the general answers given by UNESCO, the Organization has severe staffing problems in many other sections. An interesting feature at WHO and IAEA is that several similarly qualified staff are rotated among posts to familiarize them with each other's duties in order to cope with leave, illness, etc. Temporary staff are not employed on a regular basis but only under exceptional circumstances. At UNOG, the wide dispersal of meeting services and of documents storage areas has resulted in the duplication of activities and the need for temporary assistance at the three counters and to service the diverse 35 locations for storage. Even before the financial crisis, the resources of the United Nations were being strained by this spread of services and activities. According to the Publishing Service, austerity measures will probably reduce temporary assistance funds further, and with the present structure this can only result in fewer services being rendered to users.

(b) Rentals

64. An easily identifiable item of direct storage costs is rental of premises. As follows from the information provided by the organizations, quite a number of them rent premises for stocks, paying in total about US$ 930,000 annually. Organizations such as IAEA, ILO, IMO, UNEP, UNIDO and UPU, because of sufficient space provision, do not rent any outside premises and neither do WMO and UNOG despite insufficient space provision. All space rented by ICAO is subsidized by the Canadian Government, with only 25 per cent being charged to ICAO.

65. Other organizations report annual rental as follows:

| | US$ |
|---|---|
| FAO | 126,100 |
| ITU | 33,000 |
| UNESCO | 59,642 |
| UNICEF | 80,676 |
| WHO | 25,900 |
| WIPO | 30,000 |
| UNHQ | 572,900 |
| | US$928,218 |

66. The above table indicates that UNHQ is paying about 61.7 per cent of the total rental costs, followed by FAO (13.6 per cent) and UNICEF (8.7 per cent).

B. Indirect costs

67. In addition to the costs identified above, the organizations incur additional expenditure not directly related to storage, but nevertheless resulting from insufficient space facilities. These, for example, include the costs of transportation of stocks from outside premises to main buildings. Owing to lack of space, paper for printing and other items may have to be bought in small quantities, which is more expensive and more time-consuming for staff because of duplication of purchase orders and deliveries. For the same reasons documentation is sometimes printed in small quantities and re-rolled later, with the result that production is less cost-effective.

## IV. POSSIBLE SOLUTIONS FOR IMPROVING THE STORAGE SITUATION

### A. Limitation of documentation

68. As mentioned in paragraph 48, despite the numerous resolutions of the General Assembly and other bodies dealing with a reduction in the level of documentation, the volume of documentation continues to increase. During their visit to the VIC, Inspectors learned that UNIDO had taken measures to print documents with two columns instead of one, using smaller print, similar to that of newspapers. The envisioned economy is interesting both from the point of view of reducing paper costs and the volume of documents to be stored. Samples are shown in the annex.

69. Another way of bringing down costs would be to reduce the number of copies produced, and to make delegates aware of the need to keep the production of documents at the lowest possible level. In the Inspectors' opinion the practice of FAO and IMO of printing a notice 4/ on the cover page of each document is a good example to follow, as is ICAO's policy of charging its Member States for copies of publications in excess of the free quota.

### B. Relocation

70. Re-allocation of space to provide more efficient services proved to be of only limited utility in most of the organizations and offices of the United Nations system, with the exception of UNOG. There, several meetings were initiated by the JIU in which key officials of the services concerned participated. The problem of storage was discussed in detail and as a result a short-term solution for relocation was found to meet the urgent needs of the Publishing Service, whose warehousing situation, as described earlier (see para. 25), was the most critical. UNOG Administration is willing to act in this matter and the sooner this solution is implemented, the sooner users will begin to benefit from improved services.

### C. New construction

71. In investigating ways and means of solving the increasing problem of shortage of storage space, only a few organizations estimated that the building of new premises could be a major solution. In fact, only in UNOG had this question been seriously considered. Even there the idea of building new premises (the cost of which was estimated to be in the region of 2 to 4 million US dollars) has apparently been abandoned because of current financial difficulties. In the near future the FAO warehousing situation will only substantially improve when the Purchasing and Control Branch moves back to the main building complex in Via delle Terme di Caracalla, once additions to FAO are completed in about five years' time. Considerable cash savings are expected (see para. 65) as rent would no longer be payable. On the other hand, the Inspectors were not provided with evidence that in ITU, where the new construction programme is being implemented and will take two years to complete, the warehousing situation will improve as a result.

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4/ The IMO notice says: "For reasons of economy, this document is printed in limited number. Delegates are kindly asked to bring their copies to meetings and not to request additional copies."

D. Introduction of new technology

72. In the process of studying the storage problems the Inspectors felt that limitation of documentation, relocation of space and even new construction, while being necessary in some cases, did not give the complete answer to these problems. The replies received from the organizations suggest that the storage problems encountered are in part a result of the organizations of the United Nations system not being equipped with the facilities for massive storage and quick and efficient retrieval of the information contained in the libraries, archives, documentation and publications services. Therefore, many showed a keen interest in applying modern technology which would be cost beneficial and allow them to provide efficient professional services. Although some of them already use microfilm and microfiche systems, it was stated that these have certain drawbacks under conditions of heavy usage. On the other hand, a number of experts advised against introducing automation for the sake of automation without first solving the problems of information handling. The Inspectors agree that automation is not desirable for its own sake but is only called for when it can be demonstrated that it produces efficiency and savings.

73. ICAO said that the area that promises the greatest saving of storage space is the complete automation of the production cycle on magnetic media and the use of laser printing technology to produce what is required on a daily basis. This process would dramatically reduce warehousing requirements. A feasibility study on adopting this method of production is scheduled for the next triennium. ILO stated that the next innovation to be examined will no doubt be the use of optical laser discs for storage control. For UNESCO, the use of modern technology is seen as inevitable, as well as the growth in archives. It would welcome a study on the introduction of new electronic media. UNIDO shares this view, believing that without the introduction of modern technology, the organizations of the United Nations system will have increasing costs and difficulties. WIPO is continually examining the possibilities of using advanced technologies to improve all operations. As for UNHQ, its estimation is that in the future, optical laser discs will be the most economic and efficient storage medium, provided this technique is used from the beginning of the life-cycle of records. An obvious consequence would be a dramatic reduction in space needed for storage and efficient retrieval of information, reducing the need for unqualified staff. In this connection, the Secretary-General of the United Nations has recently established the Technological Innovations Board chaired by the Under-Secretary-General for Administration and Management and an Office Automation Section, so that the benefits of technological innovations can be applied to the United Nations as expeditiously as possible. UNOG is obviously very interested in solving its space problem and a solution can perhaps be found in modern technologies: microfiches, laser printers and optical discs, since the United Nations institutional memory cannot be preserved on paper alone without risks. However, joint efforts in acquiring future storage media for the United Nations will be necessary rather than individual efforts carried out by different entities of the United Nations family.

74. In this context, an extensive inquiry into new methods of digital storage, including visits to private companies and governmental agencies, was initiated by the JIU in collaboration with knowledgeable UNOG Secretariat staff. As a result of this inquiry it was concluded that an optical-disc-based storage and retrieval system may be an answer to information and document storage and retrieval problems. The technical description, characteristics, applications and implementation of this system follow below. A detailed comparison has to be made once the project has been approved; a preliminary review of several systems which are available on the market has been made within the framework of the present inquiry but any decision in this area must be made by management acting in accord with the authorization of its relevant governing body.

1. Technical description

75. The system consists of the following components:

(a) The optical disc which has a diameter of 12 inches and a capacity of 2 gigabytes (2,000,000,000 bytes). This represents a capacity of 40 - 60,000 A4 pages (the size of the page of the present document) stored in image form. A higher capacity (up to 10 times) could be achieved if the documents are stored as coded text instead of image form, e.g. through direct input from a word processor. Laser technology today allows writing on optical discs only once, but reading without limitation. This means that information written once cannot be altered. This, in fact, presents an advantage for the storage of United Nations documents, as these cannot be changed once they have passed the translation and typing processes. Additions, corrigenda and revisions can be stored as separate documents.

(b) The optical disc drive which provides the means to write onto and to read the discs.

(c) The juke-box, a mechanical, robotized device which can store and read up to 100 discs. This would make all discs always accessible without the manual intervention of an operator to turn or change discs. A juke-box of 100 discs which has the size of a cupboard could hold 10 years of all Geneva produced documents.

(d) The scanner which scans the documents with a speed of 10 to 30 pages a minute and with a resolution of 200 to 400 dots per inch. Most scanners are able to scan A4 and A3 pages (double the size of an A4). An automatic feeding device can be attached to the scanner.

(e) The image display unit to display an image (i) to be checked for correctness and quality after it has been scanned and (ii) as a result of a retrieval before it is printed. These units have a high resolution of 2 to 4 million picture elements per screen (100 to 200 dots per inch). Some units are able to display 2 A4 pages per screen, and can blow-up (zoom), rotate images, "cut" the sides and overlap images. Images are called up from the disc within 2 seconds, or within 15 seconds if a disc change is required in the juke-box; if no juke-box is installed, manual intervention is necessary to either turn a disc or insert another one.

(f) The work station which serves as an input station for the operating, indexing and retrieval commands. The documents are indexed using keywords (e.g. in the case of United Nations documents, using the document symbols, the language symbols and other relevant keywords related to the topic of the document). At any time, the document can be retrieved using these keywords. The retrieved document can be displayed on the image display unit (e) or printed (g). In several systems the units described in (e) and (f) can be the same using window capabilities.

(g) The printer, to print a retrieved document which is either a facsimile or laser printer, which has the speed of 10 to 20 pages per minute and a resolution of 100 to 300 dots per inch. Thus a higher quality of printed documents can be achieved. As the documents are stored electronically, this quality would not decrease even after many years and this is a bonus for the marketability of the documents. Documents can be reproduced without any difficulties. In fact, as printers should be installed at users' sites, like in the Library and eventually at missions, the reproduction of documents can be done by the users themselves, in the same way as photocopies are produced nowadays. As the optical-disc-based systems are relatively user friendly, only very little training will be necessary for the end users.

(h) The computer which handles all aspects of system control, administration, management, communication and user system conversation like indexing and retrieval; connected to it is a magnetic disc drive to store the scanned images before they are written onto the optical disc and the retrieved images before they are printed.

(i) Cabling and networks. Many systems work through a Local Area Network, which enables the attachment of a higher number of peripherals to the central system without great limitations of distance. Optical-disc-based systems can be connected to telecommunications networks thus giving access from terminals in remote locations such as missions and other organizations.

2. Applications

76. An optical-disc-based system could be utilized for the following applications:

(a) Storage and archiving of United Nations documents in all languages which (i) are at present produced on word-processing equipment, and (ii) were produced prior to the installation of the word processors and are stored as paper copies. It would no longer be necessary to store documents at several locations and to print a high quantity of initial copies as is done today. Therefore, savings can be made in storage and reproduction. One study in the USA resulted in the following estimates: the yearly storage cost per page is US$ 0.27 for a paper-based system, and US$0.03 for an optical-disc-based system[5/] In 1985, some 450,000 original pages were produced in Geneva, representing 4,000 documents per language to be controlled and indexed. These documents could be stored on 10 optical discs in image form or one disc in coded form. The present storage at UNOG consists of 17.5 km of shelves; it used to be 40 km before storage of multiple copies was limited to the previous three years. It has now been decided to reduce storage to two years. With the optical-disc-based system such a limitation would not be necessary.

(b) Storage of United Nations publications and "publishing on demand"

(c) Storage of fragile archive documents such as League of Nations documents and maps. This would provide access to those documents by users without the necessity of touching fragile documents.

(d) Retrieval of documents: The first stage should provide the facility for in-house access to the above-stored documents, i.e. access by United Nations staff, delegates and other non-United Nations staff from in-house terminals with the possibility of printing retrieved documents. The second stage should provide access to the above stored documents through telecommunication links to missions, governments, universities, libraries, field offices, other organizations, etc. As all documents will be stored on-line - they are at any time immediately accessible - and as the search for documents which are in the juke-box is done in seconds, users will have much quicker access to a document. It would not be necessary to collect documents from remote storage rooms. Therefore, service at the counter can be improved by providing a copy of a short document instantaneously and of larger documents depending on the availability of the printers.

(e) Document transmission to other locations, which would not only provide the exchange of documents between locations like Geneva, New York and Vienna, but could eventually replace facsimile transmission and its storage. The speed of document transmission to remote locations could be drastically increased and the printed output at the receiving end would be of the same quality as the original.

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5/ See documentation of National Computer Conference, Las Vegas, June 1986.

(f) Production of information on different media and their distribution, including media such as compact discs, microfiches and diskettes. These media might be produced directly from the optical-disc-storage system. Organizations could sell documentation on discs, at a profit. 6/

(g) Documents control system, which at present is a manual system, could be linked to the storage and archiving system if all the relevant information needed for Documents Controlwere included in the indexing.

(h) Documents produced in the typing pools on word processing equipment are at present archived on removable magnetic disc, tape cartridge or diskette systems. If documents are archived on optical discs, the present archiving method would be superfluous, and time and costs would be saved in the pools.

(i) Storage of contents of periodicals received by the Library, in order to accelerate the circulation of hard copies and to save space. This will also ensure the completeness of the collections and will result in no more missing issues. However, copyright implications need to be further explored before an optical-disc-based system is used for this purpose.

(j) Potential future extensions:

- eventual unification of terminology in all United Nations organizations;
- use by translators and editors to check references and to incorporate already stored texts in new documents;
- facilitate the creation of common registries in departments;
- file services;
- administrative services, such as personnel, payroll, insurance purchasing, cash management, etc.;
- electronic publishing, i.e. paperless publications;
- computer-aided training.

3. Implementation

77. As the installation of an optical-disc-based system will have a tremendous effect on storage space, staff, operation, document retrieval and communication with other locations, to mention only a few areas, a thorough test should be carried out with the proper configuration. It will be necessary to test it in one organization and spread the experience to other organizations. In order to avoid unnecessary expenses while undertaking such new projects, it will also be necessary to select the system which could interface not only the technology already existing in the organizations of the United Nations system but with other similar systems as well. In order to improve the situation in UNOG, which is the worst, and to co-operate closely with other Geneva-based agencies who are interested in this technology, it is recommended conducting the test at UNOG. To test the document transmission via telecommunication links, some facilities to input, retrieve and print documents should be installed at the same time in New York.

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6/ This has been announced, for instance, by the Canadian Government for their terminology data bank TERMIUM, and the US National Air and Space Museum of the Smithsonian Institution is currently selling video discs.

78. Many suppliers offer hardware only. In this case, it will be necessary to find a software company to tailor the software for application. As the test installation will be used for straightforward document capture, storage and retrieval, it is recommended choosing a supplier who offers a complete system.

79. Technology is moving rapidly, and systems which are on the market today may be outdated in a couple of years. Therefore, a system should be chosen from a reliable company which has a commitment to its customers to upgrade installed systems when new technologies in that field will be on the market, and which will ensure that new office automation systems are able to interface with the chosen optical-disc-based system.

80. As an initial installation the following three alternatives are proposed:

(a) A minimum configuration consisting of the computer, one optical disc drive, one scanner, one display unit and one printer. This would cost around US$ 200,000.

(b) A configuration, which would serve both the Library and Publications and therefore would test the real life situation, should consist of the computer, two optical disc drives, three scanners (one in the Library for Periodicals, two in Publications), four display units and printers (in the Library: one for non-United Nations and one for United Nations documents, in Publications: one at the counter and one with the scanners). This would cost around US$ 350,000.

(c) The same configuration as (b) but including a juke-box, to test this type of equipment and to give constant instantaneous access to all stored documents. This would cost around US$ 550,000.

81. The installations suggested in (b) and (c) would, in the Inspectors' view, provide UNOG with a configuration which would be sufficient for several years of full operation.

82. Most systems do not need special air-conditioning. They can work in an environment in which data or word-processing peripherals normally operate. An air-conditioned room with a raised floor for cabling, however, is available in the Palais des Nations for the central equipment. This room is used at present for the word-processing equipment of the Conference Services Division and has enough space to accommodate an optical-disc-based system.

83. As the proposed installation of an optical-disc-based system would completely change many operations in the Conference Services Division, it is recommended that resources already approved in the 1986-1987 budget be redeployed for the acquisition and operation of the above-mentioned equipment.

### 4. Observations

84. (a) The estimated lifetime of optical discs is at least 10 years. Manufacturers expect soon a lifetime of 30 years. The discs can be copied before this period expires without any difficulties to provide an unlimited lifetime of a document. It can be argued that the technology is too new, that the lifetime of optical discs is not known yet, and that the United Nations should not be the leader in such a new technology. However, the discs have been tested sufficiently to predict their longevity by means of copying systems which are already in use world-wide, in East and West, in governmental and private sectors. Examples of installations are: Library of Congress (USA), TASS (USSR); Gruner und Jahr (one of the largest publishing houses in FRG); The International Olympic Committee; The Central Computer and Telecommunications Agency (CCTA) (United Kingdom); The Patent Office (Australia).

(b) It is possible to secure selected documents or entire discs to provide full confidentiality.

(c) The fact that optical discs are not erasable and that in normal operations two copies are produced on different optical discs (so-called backup) provides full safety in the sense that documents cannot be deleted or lost, accidentally or intentionally. If the backup copy is stored at a remote location, e.g. Geneva-produced documents in New York and vice versa, this would provide the United Nations with a facility to have all its documents still available after any kind of disaster.

(d) Erasable discs are beginning to appear on the market. These could be used for applications where modifications of the documents are necessary.

(e) Manufacturers expect to have available by next year a relatively low-cost modification to a personal computer, which can be connected to an optical-disc-based system and which can retrieve and print stored documents.

(f) One alternative to an optical-disc-based system would be a magnetic disc system. This, however, provides a much lower storage capacity and shorter lifetime, and is much more receptive to errors, by which even the content of whole discs can be lost (e.g. so-called head crashes).

(g) Another alternative would be a compact disc (CD) system, using 5 1/4 inch discs, which use the same laser technology as the 12 inch discs. This alternative has not been considered, as the volume of stored documentation and the instantaneous access to it could not be handled with such a system. However, such systems should be further explored and considered for independent archiving applications.

(h) Vendors estimate that 2 to 5 pages could be scanned and indexed per minute. Taking an average of 3 to 4 pages per minute, a 6-hour day and 22 working days per month, approximately 300,000 pages per year could be entered by one operator using one scanner.

(i) Savings could be made in terms of postage for the mailing of documents and income generated by charging users for extra copies beyond their initial allocation.

(j) Many of the above advantages can result in a reduction of manpower at present needed for storage, retrieval and distribution of documents. These savings will be determined during the test period, and exact figures will be available after the initial installation is tested and when the whole system is implemented. However, during the initial period, both systems - the existing one and the new one - will have to be used concurrently, hence an initial increase of expenditure and staff. As the collection, indexing and maintenance of the system will need additional staff, whereas staff at present used for storing, moving, stock-keeping, etc., will be redundant, the magnitude of savings will be different for the organizations, depending on the present use of staff, location of storage rooms, existing indexing methods, etc. Companies in the United States, however, have experienced that the pay-back period is less than 18 months. A recent survey undertaken in the United Kingdom after a one-year experiment in a large company showed a saving of 90 per cent of the year's expenses on storage costs.

(k) The possibility of leasing instead of purchasing the equipment should also be considered.

(1) The authorities responsible for the test should also determine:

- the detailed needs and information on the configuration and costs for a system-wide application;
- technical modifications and extensions of software and hardware to suit the needs of the United Nations;
- the acceptance of the users;
- the immediate and ultimate savings.

## V. CONCLUSIONS AND RECOMMENDATIONS

85. Although internal and external audits have seldom recommended any action on storage questions, the Inspectors conclude that the United Nations and its agencies have storage problems of various degrees of seriousness. Some organizations, such as the United Nations itself and especially its Office at Geneva, as well as FAO and UNESCO, are confronted with an acute shortage of space. Moreover, it appeared that storage problems are not given adequate priority in some organizations, although, during the interviews held with the Inspectors, the overwhelming majority of officials concerned manifested their preoccupation with those problems. The Inspectors are somewhat encouraged by the fact that these meetings made the organizations sensitive to storage problems and provoked some of them into undertaking internal reviews of their warehousing situation.

86. The replies received from the organizations suggest that none of them has ever before tried to estimate the totality of storage costs. Those (staff costs and rentals) reflected in the present report are only a part of direct costs related to storage to which significant indirect costs have to be added. Also very important is the fact that, in a number of organizations and offices, in UNESCO and UNOG especially where the situation is critical, storage problems seriously affect the quality of services provided and considerably increase storage costs. Therefore, the Inspectors believe that the organizations and offices of the United Nations system should give more careful consideration to storage problems, including both direct and indirect costs, as well as the consequences they entail for the functioning of substantive services.

87. The Inspectors have also identified factors affecting the warehousing situation of the organizations. Insufficient provision of space at the stage of initial construction and inadequacies in physical layout affect FAO, UNESCO, UNHQ and UNOG. Increasing the level of activities and, as a consequence, that of the volume of documentation is a factor which is common to all organizations. Despite numerous resolutions on reducing the volume of documentation, there is a constant increase of documents issued and stored due to frequent demands for extra copies. Therefore, the needs for documentation should be more precisely determined and controlled.

88. It is apparent that the organizations of the United Nations system are making efforts to cope with their storage problems individually without relying on experience to be gained both inside and outside of the system. Along with the organizations, the Inspectors believe that introducing modern technological means already available on the world market would create the possibility of resolving storage problems in a co-ordinated manner, system-wide, of substantially reducing storage costs and improving the quality of services provided in the United Nations system. It would also contribute to solving records management problems. With the above general conclusions in mind, the Inspectors are advancing the following recommendations:

Volume of documentation (paras. 44-48, 68, 69)

RECOMMENDATION 1: The organizations of the United Nations system should strictly apply the resolutions of their legislative bodies pertaining to the limitation of documentation. Wherever applicable they should also consider the following additional measures so as to reduce initial press-runs and stocks of documentation:

(a) Sending letters to Member States and other addressees, inviting them to reconsider both the number of items and copies they receive with a view to reducing them.

(b) Introducing two-column printing of documents using smaller print similar to newspapers.

(c) Inserting a note on the covering page of all documents issued, informing delegations of the limited production of documentation for reasons of economy and inviting them not to request additional copies.

(d) Charging Member States and other users of documents for copies requested above the established quota.

Management of storage and records (paras. 49-52)

RECOMMENDATION 2: Strict regulations outlining policies for stock review and disposal of surplus of mimeographed documents, official records and publications should be enforced in the organizations where these exist and established and applied where they do not.

RECOMMENDATION 3: Strict regulations should be established and implemented to create common registries in departments Archives should be sent to a common Archives Centre, instead of being housed in offices. Such Archives Centres should be under the jurisdiction of traired archivists.

Management of space (paras. 21-23, 70)

RECOMMENDATION 4: For financial as well as for safety reasons, the UNHQ warehouses in Long Island City and Park Avenue should be vacated and stocks moved to the United Nations garage.

RECOMMENDATION 5: The relocation of numerous storage places at UNOG, already agreed upon between Publishing and General Services, should be implemented as rapidly as possible.

Customary and advanced technology and machinery (paras. 53-57, 72-84)

RECOMMENDATION 6: In the organizations where efficiency and cost-savings can be achieved through such means, compactus equipment, microform storage, computer-based systems and other applications of automation should be introduced and utilized for storage purposes.

RECOMMENDATION 7: The optical-disc-based system being most promising in resolving the problems of storage and retrieval of documentation, a test project of this system should be initiated as soon as possible. To achieve maximum efficiency and savings, this project should be authorized for UNOG, both in the Publications and Library Services where the storage facilities are the most deplorable.

RECOMMENDATION 8: The organizations of the United Nations system should temporarily postpone acquiring optical-disc technology, especially in the field of storage and retrieval, so as to see the results of a test project at UNOG in order to acquire a system which can interface existing and future technologies and permit using documentation and facilities of other organizations.

Funding (paras. 23, 83)

RECOMMENDATION 9

(a) For UNOG, authorization should be given to finance this test project (acquisition, installation, maintenance and operation of the equipment) by redeploying resources within the 1986-1987 budget and by not applying to the

Publishing Service and Library any new cut or deferment in the approved 1986-1987 appropriations, should such measures be deemed necessary again in 1987 to cope with the financial crisis of the Organization.

(b) The agreement should be made with the Park Avenue Warehouse landlord to secure the buy-out money for moving it and the Long Island City Warehouse to the Headquarters.

(c) An appeal should be launched to Member States, either to make advance contributions to the regular budget (to be deducted from their future contributions) or voluntary contributions for the purpose of introducing the optical-disc-based system.

ANNEX

Sample pages on the reduction of the size of documentation

(photographic reduction)

| Sample pages | Page original | Page original reduced to | Maximum number of | | | Possible reduction* |
|---|---|---|---|---|---|---|
| | | | lines/page | characters/ line | characters/ line | |
| A | Regular, one column | - | 60 | 77 | 4,620 | - |
| B | Oversized, two columns | 84% | 2 x 69 | 49 | 6,762 | up to 31% |
| C | Oversized, two columns | 81% | 2 x 72 | 51 | 7,344 | up to 36% |
| D | Oversized, two columns | 78% | 2 x 75 | 53 | 7,950 | up to 41% |

* In the number of pages of a given United Nations document of 8 pages or more; sample pages B, C and D in comparison with sample page A.

Zambia, to consider the situation in southern Africa, had reaffirmed their condemnation of apartheid and called for its total elimination in the interests of peace and stability in southern Africa. Being convinced of the importance of the measures against South Africa announced by the European Community and the Commonwealth, they had welcomed in particular the designation of the Commonwealth Eminent Persons Group and had urged the Government of South Africa to co-operate with that Group. The United Kingdom and its European and Commonwealth partners had opted for contact and dialogue rather than ostracism since they believed that economic links with South Africa could be used to bring about change. In 1977, however, the United Kingdom had taken the lead in drawing up a European Community Voluntary Code of Conduct for companies with interests in South Africa.

4. He also recalled that, in 1979, his Government had launched an aid programme for black South Africans which consisted largely in providing post-graduate scholarships for blacks to study in the United Kingdom. Moreover, his Government was supporting regional co-operation for economic development among the States of southern Africa and had pledged a contribution of £12 million towards the Southern African Development Co-ordination Conference in addition to the bilateral aid that it was providing for individual countries of the region.

5. He was aware that some other delegations did not agree with his Government's policy of maintaining contacts with South Africa in order to promote a peaceful settlement of the problem. However, he wished to reaffirm that his Government was firmly opposed to general economic and trade boycotts which, in its opinion, would impede the achievement of the desired objectives and merely stiffen resistance to change. It was also evident that the black population would suffer most from such economic sanctions which would lead to an escalation of the cycle of violence and repression and undermine the process of economic development. His country saw no reason to inflict damage on its own economy, and even more serious damage on the economies of many central and southern African countries, in pursuit of a policy of coercion that, in its opinion, would not achieve the expected results. In that respect, he pointed out that document E/CN.4/Sub.2/1985/8 and its addenda, submitted under agenda item 7, contained a preposterously selective and incomplete list of companies maintaining contacts with South Africa. Consequently, his country would have no hesitation in voting against any resolutions relating to that list which constituted a highly biased instrument of propaganda. Many countries other than those mentioned on the list had economic links with South Africa and the Special Rapporteur had once again failed to make use of such basic sources as IMF trade statistics. His country regretted that the reforms recently announced by the South African Government had no bearing on the question that lay at the heart of the problem, namely the political rights of South African blacks and the total abandonment of apartheid. However, his Government welcomed the potentially positive aspects in President Botha's speech.

6. His country was opposed to the illegal occupation of Namibia and deplored the extension of apartheid to that territory and the detention of political opponents. His country would continue to advocate a peaceful solution to that problem, based on Security Council resolution 435 (1978).

7. With regard to agenda item 17 (b), it was obvious that his country, being committed to the elimination of racial discrimination, would do everything in its power to ensure the success of the Second Decade to Combat Racism and Racial Discrimination. His delegation welcomed the constructive features of the new Programme of Action drawn up for the Second Decade, but regretted that his country was unable to accept calls for mandatory economic sanctions or recommendations concerning the organization of additional meetings and

SAMPLE B
84 o/o reduction of original

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8. Mr. MONTE MAYOR CANTU (Mexico) said that the activities relating to items 6, 7, 16 and 17 on the Commission's agenda had the common objective of eliminating apartheid and racial discrimination in southern Africa and, in general, putting an end to the violations of human rights that were constantly being committed by the South African régime.

9. The report submitted by the Ad Hoc Working Group of Experts on southern Africa once again confirmed that concerted international action was essential to put an end to the acts of violence and systematic violations of the human rights of the population in South Africa. Moreover, the updated annual reports submitted by Mr. Khalifa no longer left any doubt concerning the identity of the allies of the apartheid régime who, in their own interest, were protecting and maintaining in power a régime that was openly exploiting and enslaving an entire people. The argument that the transnational corporations established in South Africa had no nationality or that respect for individual and collective freedoms precluded closer control of the activities of those corporations was totally invalid. All transnational and other corporations were run by men and women who held a specific nationality and it was they, together with the States that permitted such collaboration, who were guilty of

SAMPLE C
81 °/o reduction of original

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10. It so happened that many of the States which were maintaining relations with South Africa or which were directly or indirectly supporting the racist régime in that country had not yet signed the International Convention on the Suppression and Punishment of the Crime of Apartheid.

SAMPLE D
78 °/o reduction of original

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10. It so happened that many of the States which were maintaining relations with South Africa or which were directly or indirectly supporting the racist régime in that country had not yet signed the International Convention on the Suppression and Punishment of the Crime of Apartheid. Moreover, the Programme of Action for the Second Decade to Combat Racism and Racial Discrimination could not be implemented while some countries were continuing to support and collaborate with the régime in Pretoria.

11. The situation in southern Africa had been steadily deteriorating. It was time for the international community to assume its responsibilities at last and undertake concerted action to put an end to apartheid, racism, racial discrimination and the unending violation of human rights in southern Africa since the judgement of history was implacable.