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Establishment of the Information Systems Unit in the  
Department of International Economic and Social  
Affairs

Report of the Secretary-General

SUMMARY

This document has been prepared, in accordance with General Assembly resolution 34/233, section I, in order to report on the extended pilot phase of the Development Information System, established within the Information Systems Unit of the Department of International Economic and Social Affairs, and to provide information on the use made of the system, so that the General Assembly may decide at its thirty-fifth session on the continuance or otherwise of the Information Systems Unit.

The Development Information System is a computerized information system designed to provide ready access to the unpublished reports and studies produced by or for the Department of International Economic and Social Affairs, the Department of Technical Co-operation for Development and the United Nations Centre for Human Settlements. The System's data base, which now contains approximately 3,100 references and which is growing steadily, represents an institutional memory of the work carried out by the United Nations in the field of economic and social development.

This document briefly describes the role of information dissemination activities for the effective carrying out of economic and social development programmes, summarizes the methodology used in establishing the system, describes the activities of the Information Systems Unit during the extended period of pilot operation in 1980 and outlines the activities that could be undertaken in 1981-1982, should the General Assembly decide on the continuation of the system. As of the time of writing of this report, no offer of extrabudgetary support has been received for any possible continuation of the operation of the system beyond 1980.

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The report also includes an analysis of the use made of the services provided by the Information Systems Unit during 1980, indicating the level of demand on the part of Governments, as well as institutions concerned with economic and social development, for the information dissemination services provided by Unit ISU.

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Abbreviations and Acronyms

ACABQ	Advisory Committee on Administrative and Budgetary Questions
AGRIS	International Information System for Agricultural Sciences and Technology (FAO)
CEPAL	<u>Comisión Económica para América Latina</u> (Economic Commission for Latin America)
CLADES	<u>Centro Latinamericano de Documentación Económica y Social</u> (Latin American Centre for Economic and Social Documentation, Santiago)
CPC	Committee for Programme and Co-ordination
DEVSIS	Development Sciences Information System
DIESA	Department of International Economic and Social Affairs
DIS	Development Information System (United Nations/DIESA)
DTCD	Department of Technical Co-operation for Development
ECA	Economic Commission for Africa (Addis Ababa)
ECWA	Economic Commission for Western Asia (Baghdad)
ESCAP	Economic and Social Commission for Asia and the Pacific (Bangkok)
FAO	Food and Agriculture Organization of the United Nations (Rome)
IAEA	International Atomic Energy Agency (Vienna)
ICC	International Computing Centre (Geneva)
IDRC	International Development Research Centre (Ottawa)
ILO	International Labour Office (Geneva)
INFOTERRA	International Referral System for Sources of Environmental Information (UNEP)
INIS	International Nuclear Information System (IAEA)
INTIB	Industrial Technological Data Bank (UNIDO)
IOB	Inter-Organization Board for Information Systems (Geneva)
ISB	Information Systems Board
ISIP	Integrated Systems Improvement Project (UNDP)
ISO	International Organization for Standardization (Geneva)
ISU	Information Systems Unit
JIU	Joint Inspection Unit
MINISIS	Minicomputer software package developed by IDRC
OECD	Organization for Economic Co-operation and Development
POPIN	Population Information Network (United Nations)

PPCO	Programme Planning and Co-ordination Office, DIESA
UNBIS	United Nations Bibliographic Information System
UNCHS	United Nations Centre for Human Settlements
UNDP	United Nations Development Programme (New York)
UNEP	United Nations Environment Programme (Nairobi)
UNESCO	United Nations Educational, Scientific and Cultural Organization (Paris)
UNIDO	United Nations Industrial Development Organization (Vienna)
UNISIST	Programme of International Co-operation in Scientific and Technical Information (UNESCO)

## I. BACKGROUND

1. The establishment of the Information Systems Unit 1/ within the Department of International Economic and Social Development was first proposed by the Secretary-General before the Committee on Programme Co ordination (CPC) at its sixteenth session in 1976 in recognition of the need to utilize more effectively the information in the many unpublished reports and studies being generated within the United Nations, in order that the knowledge required for project and programme planning be made available. The wealth of knowledge and experience contained in these unpublished reports cannot be utilized effectively without some means of storing, retrieving and disseminating it widely. The availability of a mechanism to accomplish these tasks would ensure that newly instituted work builds on previous work.

2. The Unit was established for a two-year trial period following the endorsement of the recommendation for its establishment in General Assembly resolution 32/212, section V, in December 1977. It was proposed that the Unit be financed from extrabudgetary resources during the trial period. The Assembly also requested a progress report on the work carried out in 1978 by the Unit, so that it could decide whether the Unit might utilize a computer in 1979.

3. At its thirty-third session, the General Assembly considered the Secretary-General's report (A/C.5/33/4) on the operation of the Unit in 1978 and authorized the use of a computer by the Unit (resolution 33/116 A, sect. II). This resolution called upon the Secretary-General to submit to the thirty-fourth session of the General Assembly a report on the first two years of the operation of ISU, taking into account the conclusions and recommendations of CPC, the Joint Inspection Unit (JIU), and the Advisory Committee on Administrative and Budgetary Questions (ACABQ). The report was also to present the estimated start-up costs of the Unit.

4. CPC, at its eighteenth session in September 1978, considered the Development Information System in connexion with the medium-term plan for the period 1980-1983 and noted that, although continuation of DIS was contingent upon a decision by the General Assembly in 1979, its activities and those of the Department of Technical Co-operation for Development, involving the dissemination of technical co-operation project reports, were complementary and should be co-ordinated or integrated. 2/

5. JIU conducted its study of the Unit's work in April 1979. 3/ JIU suggested that the most critical issue was the assessment of the need for the computerized

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1/ Formerly called Information Services Unit.

2/ Official Records of the General Assembly, Thirty-third Session, Supplement No. 33 (A/33/38), para. 671.

3/ Report on Information Services Unit, Department of International Economic and Social Affairs (JIU/REP/79/12).

Development Information System (DIS), which had been established by the Unit to provide ready access to the unpublished reports and studies concerned with economic and social development generated by or for the United Nations. JIU concluded that a further one-year period of pilot operation was necessary before the need for DIS could be demonstrated on the basis of the use made of it and suggested that such use be carefully monitored by valid statistical methods, so that the results could be presented to the General Assembly. JIU also suggested that it would be useful for the system to be presented to the Inter-Organization Board for Information Systems (IOB) for review and comment.

6. At its thirty-fourth session, the General Assembly considered the reports of the Secretary-General, 4/ of ICAB 5/ and of JIU on the establishment of the Information Systems Unit in the Department of International Economic and Social Affairs and decided in its resolution 34/233 I that, subject to the availability of additional voluntary funds, the pilot operation of the Development Information System should be extended for a further year, that the use of the system should be monitored by valid statistical methods and that the system should be submitted to the Inter-Organization Board for Information Systems for review and comment and a report thereon circulated to delegations no later than 1 August 1980, so that the General Assembly might pronounce itself, at its thirty-fifth session, on the continuance, or otherwise, of the Information Systems Unit.

7. Although, as noted above, the General Assembly has decided that 'the system be submitted to the Inter-Organization Board for Information Systems for review and comment', it was not possible for the Board to include such a review in its work programme for 1980, because it has not met since the resolution was passed by the General Assembly. It would only be possible for the IOB to consider this matter at its next meeting to be held on 26-28 November 1980 in Geneva. 6/ However, in order to meet the General Assembly's wish to have an independent evaluation of DIS in terms of its appropriateness to fulfill its aims and in terms of its compatibility with other systems with similar aims, the Secretary-General requested UNESCO to carry out such an evaluation of DIS, since the UNESCO General Information Programme has carried out evaluations of other information systems in the United Nations family, such as AGRIS and INFOTERRA. The conclusions of the UNESCO evaluation report are summarized in an annex to the present report. The full report is available to all interested Member States.

8. The following paragraphs describe the activities of the Information Systems Unit in the context of information dissemination for the effective planning and execution of United Nations programmes for economic and social development. Included is a presentation of the responses to a questionnaire designed to determine the potential levels and kinds of use of DIS.

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4/ A/C.5/34/5.

5/ A/34/7/Add.2.

6/ Noted at the meeting of the Organizational Committee of the Administrative Committee on Co-ordination in March 1980 (ACC/1980/25, para. 2 (c)).

## II. ROLE OF INFORMATION SYSTEMS FOR INTERNATIONAL DEVELOPMENT

9. Governments and international bodies are becoming increasingly aware of the importance of facilitating access to specialized information necessary for the success of international development programmes. For example, exchange and dissemination of information was one of the priority areas recommended at Habitat: United Nations Conference on Human Settlements, the United Nations Conference on Technical Co-operation among Developing Countries and the United Nations Conference on Science and Technology for Development. 7/

10. On the national and regional level, the recognition of the need for information relating specifically to development issues has led to the establishment of several mission-oriented information systems. For example, CEPAL is working on a pilot programme that would link the information units in ministries of planning in Latin America in a decentralized network co-ordinated by the Latin American Centre for Economic and Social Documentation (CLADES). In Canada, the International Development Research Centre has established the Development Sciences Information System (DEVSIIS). The DEVSIIS data base contains references to development-related literature from Canada, the Federal Republic of Germany, the USSR, Indonesia, Morocco and the Netherlands. In Asia, Pakistan and the Philippines are establishing development information systems modelled on DEVSIIS. In Africa, an information system for obtaining rapid access to development-related literature, based on DEVSIIS methodology, is planned by ECA (the DEVSIIS Africa programme), while ECWA is considering a similar system for the West Asia region.

11. In addition to their involvement in international information exchange and dissemination activities, organizations are also becoming aware of the need to streamline their internal mechanisms to make better use of the documents they collect and generate, for without a means to recall and use their own internal memories, these organizations cannot hope to be effective in carrying out their programmes. DIS represents an example of an effort on the part of DIESA to establish an institutional memory of its international development activities.

## III. ESTABLISHMENT OF THE INFORMATION SYSTEMS UNIT

12. This section of the report summarizes the steps taken to set up the Unit and the methodology used. ISU was established in March 1978 in the Office of the Under-Secretary-General of the Department of Economic and Social Affairs and later transferred to the Office of the Assistant Secretary-General for Programme Planning and Co-ordination in the Department of International Economic and Social Affairs, which had been given special responsibility for the carrying out of United Nations-wide programme planning and programme co-ordination.

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7/ As reported in document A/C.5/34/5, paras. 12-13, awareness of the need for specialized information systems has led to the establishment of such systems as INFOTERRA (UNEP), AGRIS (FAO), INIS (IAEA), INTIB (UNIDO), ISIP (UNDP) and POPIT.



13. The activities of the Unit were concentrated in two areas: (a) the establishment of an information system to provide access to the unpublished reports and studies related to development produced by or for the United Nations - the Development Information System 8/ and (b) co-ordination and co-operation with substantive units involved in information analysis and dissemination activities.

1. Establishment of the Development Information System

14. In the establishment of DIS, a special effort was made to capitalize on already tried and proven techniques and methods by taking advantage of relevant studies, such as the feasibility study carried out for DEVSIS by a team of international experts who determined the data elements required for such an information system and the method by which such elements should be handled. 9/

15. In order to observe consistency within the United Nations family and achieve compatibility with relevant systems, international guidelines and standards, such as the UNISIST Reference Manual for Machine-Readable Bibliographic Descriptions and ISO standards for geographical coding, were adopted.

(a) Selection and collection of documents

16. In selecting documents suitable for the system, the main determining factors were (a) that the documents be unpublished, so that the activities of ISU would complement the activities of the Dag Hammarskjold Library, which collects and disseminates published material, and (b) that there should be a potential demand for the documents included in the system, based on the value and extent of the information contained therein. It was envisaged that the potential users of the documents would be United Nations officials and consultants carrying out substantive activities in specialized fields or regions, regional commissions, other United Nations family organizations and Governments.

17. To ensure that selection focused on the most important work of each contributing office, it was decided that selection should be carried out by the divisions or units under whose aegis the reports were written. Routines for collection of the documents were established, on the understanding that they would be processed as speedily as possible and returned to the originating officer. The information selected for inclusion in the system is contained mostly in technical papers, studies, mission reports and project reports.

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8/ Approved by ISB on 23 June 1977.

9/ DEVSIS: The preliminary design of an international information system for the development sciences, prepared by the DEVSIS study team on behalf of its sponsors: IDRC, ILO, OECD, UNDP, UNESCO and the United Nations.

(b) Thesaurus of indexing terms

18. A thesaurus of retrieval terms is one of the key elements in ensuring effectiveness of a system and compatibility among relevant information storage and retrieval systems. In order to minimize the resources required to start up the project and to ensure the greatest degree of compatibility with other systems from the outset, it was decided to use the Macrothesaurus: A Basic List of Economic and Social Development Terms, developed by OECD and widely used within the United Nations family, as well as in national institutions. <sup>10/</sup>

19. In making that decision, it had been ascertained, on the basis of a review of the contents of approximately 1,000 documents selected for DIS, that the terms contained in the Macrothesaurus were appropriate for DIS. Moreover, gaps in coverage were identified and submitted for inclusion in the revised version of the Macrothesaurus, entitled Macrothesaurus for Information Processing in the Field of Economic and Social Development, which was prepared and published early in 1979 by OECD with the collaboration of ISU and other United Nations-related institutions, including ILO, UNIDO, UNDP and CLADES. As a result, the retrieval terms used for DIS are compatible with all the systems established by users of the Macrothesaurus, such as the ILO LABORDOC. Most of the terms in the Macrothesaurus have been included in the newly established UUBIS draft list of descriptors.

20. An additional advantage of the Macrothesaurus is that it is multilingual and thus useful for indexing in four official languages of the United Nations - English, French, Spanish and Arabic - a distinct advantage for a system intended to serve all Member States of the United Nations.

(c) System adaptation and implementation

21. Rather than designing a completely new format for DIS, existing systems were assessed, and the experience gained by other successful systems was taken into account. In order for the system to provide rapid retrieval service and in order for it to be connected efficiently with other relevant systems, it was decided that the system should be computerized.

22. A computerized bibliographic data base management system, MINISIS, recently developed by the International Development Research Centre (IDRC) in Canada for use on a minicomputer, was tested in the context of the Development Information System project and was found to be appropriate. MINISIS is already in use at the International Labour Office in Geneva and is in the process of being installed in the Economic Commission for Africa. It is also in use in a number of national development institutions in both developed and developing countries.

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<sup>10/</sup> Such as FAO, ILO, UNIDO, UNDP, ECA, CEPAL, ESCAP, OECD, as well as institutions in Argentina, Canada, Egypt, the Federal Republic of Germany, Guatemala, Peru, Uruguay and Venezuela.

23. The computerized system was fully installed in mid-May 1979, using a leased printer-terminal linked by a telephone line to a minicomputer on a "time-shared" basis.

(d) Establishment and utilization of computerized files

24. Each document selected for inclusion in the system is described by means of retrieval elements such as author, organization to which the author is affiliated, title, conference or meeting, subject areas covered, country, language of the document, project number, project cost, location of the document and an abstract of 100-150 words. Abstracting and indexing are carried out by trained staff members of the Unit. Although a system of having the abstract written in conjunction with the report itself is gradually being implemented, the Unit will still be required to prepare abstracts where these do not already exist and to assign suitable descriptors. The data is computerized, using an on-line computer terminal. Complete bibliographic information, including the abstract, can be entered at a speed of 10-12 records per hour.

25. The computerized data is used for on-line search and retrieval, as well as for producing such services as (a) indexes to the literature by such elements as subject, author, title, project number, and country; (b) specialized bibliographies; (c) a current awareness service; and (d) referral or non-bibliographic information.

2. Provision of information expertise for information dissemination activities

26. The Unit contributed its expertise to several activities related to information systems within the Department, including the study on the technological information network carried out in preparation for the United Nations Conference on Science and Technology and the design and implementation of the Population Information Network.

27. Assistance was also provided to UNEP for evaluating its system for INFOTERRA and to the working group for the evaluation of the work programme of the Centre for Transnational Corporations. The Unit also contributed towards the DEVSIS/Africa Study as a member of the study team. Close relations were maintained with CLADES, which already has a computerized information system compatible with that of ISU.

28. In recognition of the importance placed by Governments on interorganization co-operation in information systems activities, the Unit co-operated with the United Nations Centre for Human Settlements (Habitat) in its effort to computerize its document collection. The first major output from this data base was the Bibliography of Reports and Films, which was presented to the Commission on Human Settlements and distributed by the Centre to Member Governments. The Bibliography contained approximately 1,200 items and included author, subject, institution and geographic indexes to the reports referenced.

29. Compatibility between the information dissemination activities of DIESA and UNCHS has thus been assured, providing both organizations with the ability to have ready access to the results of each other's work.

#### IV. ACTIVITIES UNDERTAKEN DURING 1980

30. In 1980 the Unit concentrated its activities on the Development Information System. Owing to a reduction in professional staff at the beginning of 1980, the ISU responsibilities for providing expertise for information systems activities within the Department and for interorganization co-operation activities were scaled down. Arrangements for future support of such activities will be made once a decision has been reached on the future of ISU.

31. The Unit's activities during 1980 were concentrated in the following areas:

- (a) The collection and computerization of material from DIESA and DTCD;
- (b) Dissemination of information about DIS and its services through the distribution of an information package and system demonstrations;
- (c) The provision of services based on the system and measurement of the use of the system as requested by the General Assembly.

(a) Collection and computerization of DIESA and DTCD material

32. The mechanism previously established for collecting material for computerization has now become a regular procedure, providing a continuous work flow through the Unit. A large part of the DIS data base consists of references to the many reports produced by or for DTCD in such fields as mineral and water resources exploration and utilization, public administration, energy resources and transportation. These reports are mainly the results of UNDP-funded projects. Using the material computerized, computer outputs sorted by region, country, project number and subject have been produced according to the requirements of DTCD, in order to provide the Department with a tool for more effective programme planning.

33. In addition to the material from DTCD, suitable unpublished material from the Population Division, the Ocean Economics and Technology Branch and the Statistical Office is also included in the system. In order to streamline the computerization process, an experiment is being carried out with the Statistical Office in which abstracts of reports produced within the Statistical Office are written by staff members of the Office, rather than by staff members of ISU. So far, these have been found to be of high quality, indicating that this approach to rationalizing the preparation of input into the system is feasible. Based on this experience, it is intended that other divisions and offices contributing to the data base will write their own abstracts for DIS.

(b) Dissemination of information about DIS

34. In order to disseminate information about the services provided by the DIS, an information package - comprising a printed brochure, a sample issue of Development Information Abstracts and a questionnaire - was produced and distributed to all missions to the United Nations, all UNDP resident representatives, the regional commissions, interested substantive officers in the Secretariat, the United Nations family organizations, Member Governments and a large number of research institutions

around the world concerned with economic and social development. About 1,500 copies of the information package were distributed. The questionnaire asked whether the recipient wished to become part of the distribution network for the system and receive future issues of Development Information Abstracts, specialized bibliographies or a copy of the data base in machine-readable form.

35. Another effective means of disseminating information about the system has been through demonstrations of its on-line retrieval capabilities. The system was demonstrated as widely as possible to government representatives and researchers. Demonstrations were also held for staff of organizations, such as ESCAP, ECA, UNICEF, the United Nations University, World Bank, UNDP, UNFPA and the United Nations Secretariat.

(c) Provision of services and measurement of system use

36. In response to General Assembly resolution 34/233, section I, a record has been kept of the use made of the system and the services provided by ISU during the four months since the information package was distributed in early May 1980. As of 1 September 1980, approximately 400 of the 1,000 specialized bibliographies requested by the respondents to the questionnaire have been produced by computer and mailed. Each bibliography contains an average of 35 references and includes an abstract of 100-150 words for each document referenced. In addition, well over 100 documents have been distributed to users on request, a figure that is expected to increase greatly in the near future when the recipients of specialized bibliographies request the documents listed in their bibliographies. The remaining 600 requests are being processed at the rate of approximately 75 requests per week. Without computer assistance, the task of compiling 1,000 specialized bibliographies could require as many as 40 professional work years (approximately 2 weeks per bibliography).

37. Through the distribution of the questionnaire, the Unit has been able to determine the kind and level of potential use of DIS and to establish user profiles. The responses to the questionnaire have enabled the Unit to establish a mailing list of approximately 500 institutions around the world for the distribution of Development Information Abstracts. A summary of the findings of the survey is provided in section V. The results indicate a steady growth in the interest demonstrated by users in these services.

## V. USER PROFILES

38. User profiles were established (a) through the distribution of a questionnaire, (b) through system demonstrations, and (c) through meetings with visitors to the Unit.

(a) Questionnaire

39. The questionnaire sent out to approximately 1,500 institutions around the world in early May 1980 was designed to measure the amount of interest in the Development Information System and the services provided by ISU, and to obtain information about

the kinds of information and the kinds of services required by users. In order to obtain an over-all view of the potential users of the system, the 318 replies that had been received by 1 July 1980 were surveyed according to:

- (a) Type of institution responding;
- (b) Subjects of interest to the respondent,
- (c) Types of service required;
- (d) Region of residence of the respondent.

Type of institution

40. A strong interest in the exchange of the results of development activities on the part of intergovernmental organizations is apparent. Responses received from UNDP resident representatives, regional commissions of the United Nations, and headquarters and regional offices of United Nations family organizations comprised approximately one third of the total received (102). There was considerable interest at a high level in government ministries. Responses from government ministries and from missions to the United Nations totalled 72. The number of responding research institutes (79) included many established specifically to study development problems. The number of responses from universities and other teaching institutions (65) would seem to indicate a desire on the part of theoreticians to improve their knowledge of practical applications of development sciences.

Subjects of interest to the respondent

41. Approximately one third of the respondents declared their interest in all aspects of economic and social development issues. The remaining respondents listed several subjects each, almost all of which are covered in the DIS data base. (For example, the DIS data base does not cover subjects related to political issues.) The subject areas in which respondents appeared to have the greatest need for information were.

Agriculture (including forestry, fisheries, agricultural economics, agricultural development, agro-industry)	45
Economic issues (including economic planning, economic integration, new international economic order)	40
Appropriate technology and technology transfer	38
Information systems and services (including information systems for science and technology and development issues)	36
Education and vocational training	35
Rural development	33

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Population and demography	30
Human settlements (including housing and urbanization)	30
Social questions (including sociology, social welfare, youth, children, rehabilitation, poverty)	30
Energy	29
Industrial development	29
Urban, regional and national planning	28
Development planning, strategy and management	25
Water supply and sanitation	20

42. Other subjects of interest included statistics (18), food supply (18), health and nutrition (15), labour and employment (14), environment (14), project management and evaluation (13), financing and banking (12), women (12), transport and communications (12), trade and commerce (10), computer technology (9), public administration (8), natural resources (8), transnational corporations (8), science and technology policy and research (7) and migration (6).

#### Types of service required

43. All of the respondents wished to be placed on the mailing list for future issues of Development Information Abstracts. More than 1,000 requests for specialized bibliographies were received (265 respondents each requested several bibliographies in their subject areas). There was a surprisingly large number of requests (58) for a copy of the data base on machine-readable tape and an additional 133 respondents indicated that they would be interested in receiving a tape in the future. Four respondents, all in North America, indicated that they would be interested in having on-line access to the data base via telephone link.

44. As reported in paragraph 36, one of the services required by users is the provision of copies of the documents referenced in the data base. The future level of demand for copies will guide the Unit in a study of the means to provide an efficient document delivery service.

#### Region of residence

45. The survey of responses according to region of residence of respondent was carried out on the basis of the percentage of questionnaires that had received replies by 1 July. The areas where there was highest interest were Asia and the Pacific (with 38 per cent response rate) and Latin America (26 per cent). The response rate for the other areas was Europe, 20 per cent; North America, 19 per cent; Africa, 18 per cent; and the Middle East, 5 per cent.

(b) Demonstrations and interviews

46. Demonstrations were held for departmental and divisional chiefs within the United Nations Secretariat. These officials generally felt that the system provided a useful tool for the performance of the activities of their respective divisions. Demonstrations were also held for government representatives both in New York and at the third session of the Commission on Human Settlements in Mexico City in May. Here, also, interest was expressed in receiving regular output from the data base; many have expressed an interest in establishing similar systems in their own countries in order to facilitate access to information on development activities at the national level.

47. As a result of the exercise to disseminate information about the Development Information System, ISU is now well informed of the needs of its potential users. The Unit is confident that it can meet these needs by concentrating its efforts on increasing the size and coverage of the data base, distributing regularly as a current awareness tool its Development Information Abstracts and providing other information services, such as on-line searching and the production of specialized bibliographies.

## VI. ASSESSMENT

48. The following paragraphs present a summary of the efforts made by ISU to ensure that the aims of DIS would be met in a cost-effective and efficient manner. The system components are reviewed according to established criteria for evaluation of information systems, namely (a) cost effectiveness, (b) compatibility with related systems, (c) reliability of system components, and (d) appropriateness to the needs of the user community.

(a) Cost effectiveness

49. Software. The software package, MINISIS, used by ISU to manage DIS, was selected as one of the most effective and economical bibliographical data base management systems designed for a minicomputer. In addition, as use of this software package was given free of charge to the United Nations, and as it required no adaption, no costs were incurred for system development.

50. Hardware. DIS is run on inexpensive minicomputer equipment. Many organizations with small information dissemination services have found that acquiring a minicomputer is much more cost effective than using the services of a large computer. The cost of time-shared use of a large computer for DIS has been estimated at about \$40,000 per year. The cost of purchasing a suitable minicomputer would be approximately \$75,000, or \$15,000 per year over a five-year period. As this kind of equipment does not require specialized computer personnel to maintain it, savings are also made in staffing. A sophisticated text editing facility is available for the equipment selected for ISU, thus saving over \$7,000 per year on the rent of a word-processor.



51. Indexing and retrieval language. ISU avoided the cost involved in establishing a thesaurus of retrieval terms by adopting the Macrothesaurus, which is already in use by many other institutions concerned with international development. A copy of the Macrothesaurus in machine-readable form was made available to ISU by OECD.

52. Data elements included in computerized records. The UNISIST Reference Manual for Machine-Readable Bibliographic Descriptions, as implemented for DEVSIS, was adopted for the bibliographic description of reports referenced in the DIS data base. No costs were involved, therefore, in defining appropriate data elements.

(b) Compatibility

53. Software. The number of organizations both within and outside the United Nations family using the software package (MINISIS) selected by ISU, or software that is compatible with it (ISIS), is growing steadily. Within the United Nations family, these organizations include ILO and ECA (MINISIS) and UNESCO, FAO, ICC, UNIDO and CEPAL (ISIS). Exchange of data between these systems and ISU has been facilitated by the selection of MINISIS for DIS. Exchange of information with other systems can also be carried out, with very little programming, through the medium of magnetic tape, in a manner conforming to standards laid down by the International Organization for Standardization. For example, such a tape was transmitted to the Dag Hammarskjold Library and was converted to be read by UNBIS. It is planned to provide such tapes to the Dag Hammarskjold Library on a regular basis.

54. Indexing and retrieval language. ISU chose the Macrothesaurus in order to be compatible with its many other users active in the field of economic and social development (see para. 18, foot-note 9). Most of the terms in the Macrothesaurus are included in the UNBIS Draft List of Descriptors, thus facilitating exchange of information between UNBIS and DIS.

55. Data elements included in computerized records. The UNISIST Reference Manual for Machine-Readable Bibliographic Descriptions was designed for computerized information systems such as DIS. The international information community, under the leadership of UNESCO, is presently attempting to establish an internationally acceptable common bibliographic exchange format, taking into consideration the needs of both libraries and information services. When such a format has been agreed upon, ISU is prepared to make any necessary changes to the format presently used in DIS in order to be compatible with the new format.

(c) Reliability

56. Software. MINISIS had already been tested thoroughly before its implementation by ISU and had been found to be reliable. This finding has been confirmed by ISU through its own experience with the software.

57. Indexing and retrieval language. One of the attributes to be considered when evaluating a thesaurus is the mechanism for its maintenance and updating. The

addition of new terms to the Macrothesaurus is carried out through the agreement of all of its users, based on their experience in indexing a wide variety of current economic and social development literature.

(d) Appropriateness

58. Software. MINISIS has been found to be appropriate for the management of an information retrieval system such as the DIS because of its extensive on-line retrieval capabilities, its ability to produce printed output in any form, and its ease of use. The system was designed to be appropriate for installation in the developing countries, where use of minicomputers can minimize the problems inherent in the application of technology requiring sophisticated maintenance.

59. Hardware. With the advent of minicomputers, more institutions in the developing countries are able to establish their own computerized information systems in specialized subject fields. The experience acquired by ISU in the operation of a minicomputer-based information system is relevant for the developing countries who might choose to use such a system.

60. Indexing and retrieval language. The Macrothesaurus was created especially for the indexing of economic and social development literature. As reported in paragraph 19, it was selected for the indexing of the material for DIS after a review of the material revealed its appropriateness for that kind of literature.

61. Data elements included in computerized records. Appropriate data elements for an information system such as DIS were recommended by the DEVSIS study team, which included international experts with experience in planning international information systems. These data elements have been found to be appropriate for the description of the material included in DIS.

(e) Summary

62. The primary aim of DIS is to capitalize on United Nations expenditures on research and technical co-operation projects by facilitating access to the vast store of information about activities already carried out, so that newly initiated work may draw on completed work and so that future activities may build on past experience, providing a cumulation rather than a repetition of effort.

63. An attempt has been made to keep costs to a minimum (by using already existing components and by using minicomputer technology) and to achieve compatibility with other information systems with similar aims (by using components, such as software, indexing and retrieval language, and data elements that are already widely in use).

64. As the material included in the DIS data base is not to be found in any other computerized data base, information activities undertaken elsewhere are not duplicated by DIS. ISU does not aim to carry out the functions of a library, but rather to provide access to documents that are housed in various offices throughout DIESA, DTCD and UNCHS. An on-line information retrieval system of the type implemented is therefore considered the most appropriate to user needs. Through the use of a common system and a pool of common data bases, information generated by and for various substantive offices of the United Nations can be readily accessed and shared.

## VII. POSSIBLE ACTIVITIES IN 1981-1982

65. Bearing in mind that the General Assembly decided in its resolution 34/233, section I, to pronounce itself, at its thirty-fifth session, on the continuance, or otherwise, of the Information Systems Unit, the following paragraphs outline possible activities that could be undertaken in 1981-1982, should the General Assembly decide affirmatively.

(a) The enlarging of the DIS data base to increase the coverage of the unpublished materials in the field of economic and social development produced by or for DIWSA, DTCU and UNCHS, with the aim of providing comprehensive coverage of development activities;

(b) The increase of services in accordance with the user profiles established through analysis of the responses to the questionnaires;

(c) The regular preparation and distribution of Development Information Abstracts as a current awareness service to United Nations family staff, Governments and research institutions;

(d) The strengthening of co-operative links with the regional commissions to promote the exchange of information between DIS and the computerized information systems established or being established in the regional commissions;

(e) The continuation of the project to assist UNCHS in the production of regular bibliographies of human settlements reports;

(f) Provision of on-line access to the data base (using telecommunications technology) to interested organizations, in view of the interest expressed by potential users in having such access;

(g) The carrying out of a study to determine the best means of providing copies of documents to user (Unless an information system is supported by an adequate document delivery system, user needs are not fully met. The initial proposal concerning the establishment of ISU included provision for microfiching the documents referenced in the data base. 11/ A recent example of the level of document delivery demanded of ISU was the request of a government minister who is planning a large-scale, low-cost housing project for his country and who required a copy of all of the numerous documents on the subject referenced in the data base.);

(h) Establishment of a closer working relationship with other United Nations bodies to contribute towards the goal of attaining better knowledge and understanding of United Nations development activities;

(i) Provision of assistance to PPCO by computerizing the data collected for reports on cross-organizational activities. A test data base for this purpose has already been successfully established.

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11/ A/C.5/31/69, para. 11.

## VIII. COST ESTIMATES

### 1. Estimated expenditures during 1980

66. The cost estimates in paragraphs 71-75 below have been prepared for the information of the General Assembly when it considers the question of whether or not to continue the operation of the system. These cost estimates are based on the estimated expenditure during 1980, which are reported below.

67. As of the time of the writing of this report, no offer of extrabudgetary support has been received to finance the continuation of the operation of the system beyond 1980.

68. The cost estimate for the operation of the Unit for 1980, as reported in document A/C.5/34/5, page 23, was \$192,900. Based on figures available up to the end of July, actual expenditures for the operation of the Unit during 1980 are estimated to be approximately \$167,000.

69. The Unit began 1980 with a balance of approximately \$85,000 remaining from 1978-1979 allocation. In addition, a sum of \$25,000 was received from Sweden, and approximately \$26,000 was donated by Canada to cover the cost of leasing computer equipment. A pledge of \$57,000 has been made by Japan, making a total of funds available in 1980 of \$193,000, of which \$167,000 were in liquid funds.

70. The Department of Technical Co-operation for Development, in implementing the policies of UNDP with regard to project reporting, has requested the Office of Financial Services to allocate \$20,000 from extrabudgetary resources available to the United Nations for the information storage and retrieval functions performed by ISU during 1980-1981. For its part ISU, in response to a request by the General Assembly (resolution 33/116 A, sect. II, para. 2) that unpublished material in the files of DTCD be fully utilized through appropriate arrangements with ISU, has computerized a large number of such reports for DTCD, thus providing the Department with a useful working tool for rapid retrieval of these reports.

COST ESTIMATES AND EXPENDITURES: 1980

	<u>Cost</u> <u>estimate</u> <u>a/</u>	<u>Revised</u> <u>estimate</u>
1. <u>Staff</u>		
Salaries and common staff costs for 2 Professionals (1 P-5 and 1 P-3) and 2 General Service (1 G-5 and 1 G-4)	139 900	124 000 <u>b/</u>
2. <u>Travel</u>	4 000	1 360
3. <u>Equipment</u>		
(a) Data processing equipment	26 000	5 940 (26 000) <u>c/</u>
(b) Lease of word processor	6 000	9 600 <u>d/</u>
4. Specialized services and materials	4 500	7 000 <u>e/</u>
5. Services and supplies	<u>12 500</u>	<u>19 000</u> <u>f/</u>
Grand total	<u>192 900</u>	<u>166 900</u>

a/ These cost estimates were provided in the report of the Secretary-General to the General Assembly at its thirty-fourth session (A/C.5/34/5).

b/ P-5 position left vacant during 1980. Includes temporary assistance for eight months at P-2 level and common staff costs carried over from 1979.

c/ In order to obtain access to computer equipment during 1980, several alternatives, including time-sharing, leasing and outright purchase of equipment, were considered. As time-sharing was considered to be too expensive and as the Unit could not commit itself beyond the end of 1980, it was decided that the most effective and economical manner of obtaining access to computer equipment would be the leasing of equipment with an option to either cancel or to purchase outright. The cost of a lease/purchase arrangement was met by Canada. The ISU outlay was for equipment maintenance and for rent of terminal and communications line.

d/ Includes carry-over cost of \$6,000 from 1979 and cost for first six months of 1980.

e/ Including printing and postage of the information package and of two issues of Development Information Abstracts.

f/ Revised estimates reflect increase in prices.

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## 2. Cost estimates for 1981

71. JIU, in its report JIU/REP/79/12, estimated that the annual cost of the operation of the Unit would be \$250,000. However, under either of the two options presented in paragraph 74 below, the estimated cost would be less than that figure. Two options are presented for the future costs of the Unit. Option A assumes the outright purchase of computer equipment at the beginning of 1981, and option B is based on the continuation of the present lease agreement for equipment at \$26,000 per year for five years. Under option A, approximately \$210,500 has been estimated to be required for the year 1981. Under this option, the cost of operating the Unit in 1982 and in subsequent years would be expected to fall to a level of about \$145,000 at constant prices, as no further costs would be incurred for the acquisition of equipment. Under option B, the estimated cost for 1981 is \$171,000. At constant prices, the Unit's budget would remain at this level until 1986, when the equipment would be paid for under the lease/purchase agreement, after which the operating costs would fall back to approximately \$145,000 at constant prices. The following is an explanation of the estimated cost of operation of the Unit in 1981.

72. Staff. Cost estimates for staffing are based on the minimum level of staffing required to maintain the Development Information System. However, the Unit had originally been conceived as an instrument for the improvement of co-ordination of information systems matters within the Department. Should it be decided to place these activities back in the Unit, an additional post would be required to deal with this important aspect of the Unit's responsibilities.

73. Travel. Budget estimates for travel include only those trips essential to promote compatibility between DIS and information systems in the regional commissions in order to contribute towards the goal of sharing knowledge between the Secretariat and the regional commissions. One trip to each regional commission is projected for 1981. Where feasible and economical, visits to different regional commissions would be made in a single trip.

74. Data processing equipment. Two options are open to ISU for obtaining access to computer equipment for the maintenance of DIS: (a) outright purchase of equipment, and (b) leasing of minicomputer equipment, with an option to purchase. As the financing cost at the current interest rates of a lease/purchase arrangement over five years would be approximately 12.5 per cent, outright purchase of the equipment would seem to be the most economical option. The cost of computerization of DIS after 1981 would thus be limited to a small annual equipment maintenance fee. The following is a comparative table showing total costs (including both acquisition of equipment and equipment maintenance costs) under the two options over a period of five years.

	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>Total</u>
OPTION A Purchase	73,500					73,500
Maintenance	<u>9,500</u>	<u>9,500</u>	<u>9,500</u>	<u>9,500</u>	<u>9,500</u>	<u>47,500</u>
Total	<u>83,000</u>	<u>9,500</u>	<u>9,500</u>	<u>9,500</u>	<u>9,500</u>	<u>121,000</u>
OPTION B Lease	26,000	26,000	26,000	26,000	26,000	130,000
Maintenance	<u>9,500</u>	<u>9,500</u>	<u>9,500</u>	<u>9,500</u>	<u>9,500</u>	<u>47,500</u>
Total	<u>35,500</u>	<u>35,500</u>	<u>35,500</u>	<u>35,500</u>	<u>35,500</u>	<u>177,500</u>

The cost of outright purchase of equipment in 1981 would be \$73,500, whereas the total cost of acquiring the equipment, if payments were spread out over a five-year period, would be \$130,000.

75. Following are the cost estimates for 1981 in the event that the General Assembly decides to continue the operation of the system.

	OPTION A \$	OPTION B \$
1. Staff		
Salaries of two Professionals (1 P-4, 1 P-2) and two General Service (1 principal level and 1 other level), including common staff costs	120,500	120,500
2. Travel		
Consultations with agencies and regional commissions	4,000	4,000
3. Equipment		
(a) Data processing equipment		
Minicomputer equipment Purchase	73,500	Lease 26,000
Maintenance at \$790/month	<u>9,500</u>	<u>9,500</u>
Subtotal	<u>83,000</u>	<u>35,500</u>
4. Specialized services and materials		
Reference sources	1,000	1,000
Software update fee	2,500	2,500
Data processing supplies	1,500	1,500
Reproduction of abstract journal	<u>6,000</u>	<u>6,000</u>
Subtotal	<u>11,000</u>	<u>11,000</u>
Total budget	<u>218,500</u>	<u>171,400</u>





Annex

SUMMARY AND CONCLUSIONS OF THE UNESCO EVALUATION REPORT  
ON THE DEVELOPMENT INFORMATION SYSTEM

The study described in this report was undertaken by an independent evaluator for UNESCO. UNESCO has performed a similar role in the evaluation of other systems in the United Nations family, AGRIS and INFOTERRA.

The investigation was undertaken to give the General Assembly some guidance on whether the Development Information System (DIS) should be continued. The system was considered in terms of its achievements so far, its value, support and demand for the system, and its relationship (including compatibility considerations) with other information processing activities in the United Nations and elsewhere.

From a strictly technical point of view, little wrong can be found with the system. Decisions made on DIS, including format of the data base and mode of implementation, were technically sound, and the quality of cataloging, indexing and abstracting is good enough to allow the subject matter of items in the data base to be accessed effectively.

The decisions made to seek compatibility with other systems providing access to development literature were judged to be sound, even if such compatibility was achieved at the expense of a reduced level of compatibility with UNBIS.

The documents made accessible by the system report investigations conducted at very considerable expense to the United Nations. This data base is judged to have great potential value, especially to the developing countries. Much of the information made accessible would not otherwise be widely disseminated or known. Moreover, the cost of the system is only a small fraction of the cost of generating the information it provides access to.

Evidence of support for and interest in DIS does exist within various segments of the United Nations, in some Member Governments and in other international agencies.

While the system has great potential value, the present limited scope of the data base, and limited mandate of the Unit, tend to place restrictions on the size of the potential audience. The limited scope and mandate present problems of "visibility" and "image" for the system. To counteract this, active promotion may be necessary. In terms of actual service, the Unit has not achieved as much in the past 2 1/2 years as one would have hoped for. It must, therefore, be evaluated more in terms of its promise than its actual accomplishments thus far.

The Development Information System does have potential value, but its value might be greatly enhanced were it to become an integral and central component of a worldwide network of sources of development information. A major justification for continued support of the Unit may be the role it could play in providing the leadership and technical expertise needed to establish and maintain an effective network providing comprehensive access to the information resources of economic and social development.

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