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# TRIP REPORT

INTERNATIONAL DEVELOPMENT RESEARCH CENTER
(IDRC)

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BY

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## I. Purpose of the Visit

To learn about MINISIS as an on-line bibliographic development, maintenance, retrieval and reporting information system, its capabilities, its weaknesses and its usefulness in fulfilling DS/DIU's in-house information processing and retrieval requirements and DS/DIU's information transfer responsibilities to the LDC information organizations.

## II. Organization

### A. International Development Research Center (IDRC)

Staff - 300

Budget - $40 million

Organization - 5 divisions

1. Health Sciences
2. Agriculture, Food and Nutrition Sciences
3. Social Sciences and Human Resources
4. Information Sciences
5. Publications

A public corporation created in 1970 by an Act of the Canadian Parliament. An autonomous body with a 21-member Board of Governors which sets policy guidance and approves individual projects.

Headquarters in Ottawa.

Regional offices in Singapore, Cairo, Bogota, Dakar, and Nairobi

IDRC objectives:

The objectives of the Centre (in the words of the Act) are "to initiate, encourage, support, and conduct research into the problems of the developing regions of the world, and into the means for applying and adapting scientific, technical, and other knowledge to the economic and social advancement of those regions," and "to help developing regions build up their own research capabilities and the innovative skills needed to solve their problems." In order to carry out these objectives, it was empowered to "establish, maintain and operate information and data centres and facilities for research and other activities relevant to its objects" and "initiate and carry out research and technical development, including the establishment and operation of any pilot plan or project, to the point where the appropriate results of such research and development can be applied."

B. Information Sciences Division (approx. 40-45)

1. Library

Staff - 23
- Head Librarian (1)
- Deputy Librarian (1)
- Reference staff (5-6)
- Exchange agreement person (1)
- Cataloguer (1)
- Cataloguer Assistant (1)
- Indexers (5)
- Administrative Assistant (1)
- Microfiche personnel (2)
- Clerical staff (3-4)

Budget - $800,000 project budget

2. Computer Science

Staff - 9
- Professional
  - Outreach group (2)
    - MINISIS Installation and Liaison
  - Systems support group (3)
    - MINISIS Maintenance, Enhancements and Future Systems
- Data entry (2)
  - (1 person substitutes as minicomputer operator)
- Clerical (2)

3. DEVSIS staff (Development Science Information System)

Staff - 2 1/2
- Indexer (1)
- Cataloguer (1/2)
- Project manager (1)

4. PINS (Project Information System)

Staff - 2
- Indexer/Cataloguer (1)
- Project Manager (1)

## III. Systems

### A. ISIS (Integrated Set of Information Systems)

ISIS was developed over a period of years by the International Labour Organization in Geneva. It provided an interactive mode for data entry and retrieval and both functions for library management. It was programmed on a IBM 360 DOS system and today will also run on IBM 360/370 OS systems.

IDRC in 1972 selected ISIS, to be run on commercially-owned equipment based on the following criteria:

(1) to acquire an on-line system that would enable them to computerize library operations;

(2) to build a machine-readable data base of their own development literature;

(3) to work at an international level with other institutions with a view to the development of a cooperative "network" with a "common" system;

(4) to gain experience that would enable IDRC personnel to aid in the establishment of input/output stations in developing regions.

Until last year the International Labour Organization in Geneva, used ISIS. They switched to MINISIS on the HP 3000 system in 1979.

The Swedish Agency for Administrative Development (SAFAD) and United Nations Industrial Development Organization (UNIDO) also operate under ISIS.

B. MINISIS (Minicomputer, Integrated Set of Information Systems)

MINISIS was developed by IDRC in 1976 under a project to redesign IDRC's ISIS applications and implement them on a dedicated in-house minicomputer package that could be offered to developing country institutions engaged in AGRIS/DEVSIS/ISIS applications. MINISIS became operational at IDRC in December 1977.

The system was developed as an on-line bibliographic development, maintenance, retrieval and reporting system. The system design was based heavily on the experience with ISIS. MINISIS is compatible with ISIS, but is in no way a rewrite of ISIS. The system design was produced directly with and for IDRC library staff and "library" information system requirements. It presently handles the following application features:

1. Document ordering
2. Document acquisitions
3. Document cataloguing/indexing/abstracting
4. Document retrieval, sorting
5. Report production
6. Multi-lingual thesaurus
7. Mailing lists
8. Other non-bibligraphic applications such as PINS (Project Information System)
9. MINISIS-ISIS information transfer via ISO tape format (International Organization for Standardization)
10. Document circulation system (under development in Netherlands)
11. Selected dissemination information feature

MINISIS handles these application features through six main processors (ENTRY, MODIFY, QUERY, PRINT, INDEX and COMPUTE) and several database administrator processors which permit database definition and user view sub-modeling.

MINISIS is centrally maintained by IDRC staff. IDRC reserves the right to acquire all new application system development from MINISIS system users, which IDRC will then redistribute to all other users.

MINISIS installations currently exist in:

1. Service Presidentiel de l'Informatique (SPI), Kinshasa, Zaire
2. Centre National de Documentation Agricole (CNDA), Tunisia
3. Agricultural University Library, Wageningen, Netherlands
4. International Labor Organization(ILO)
5. Institute of Scientific Information on Social Sciences (INION), Moscow, Russia (Russian equivalent to National Academy of Sciences)
6. Franklin Research Center (Philadelpha, Pennsylvania), a private commercial firm has, until recently, offered MINISIS access to Department of International Economic and Social Affairs, United Nations, (ISU/IGSA) on a contract time-share basis. This UN organization now has its own MINISIS installation.
7. Canadian/U.S. Licensee (Systemhouse Ltd.)
8. French Licensee
9. Netherlands Licensee
10. Morocco (CY 1980 installation)

In addition, a feasibility study is now being conducted for installation of MINISIS in the Sahel Documentation Institute.

C. MINISIS Capabilities and Strengths

1. Implemented on a low-cost minicomputer system, it is cost effective for small to medium sized organizations.
2. Library management, information system and database management functions are all available.
3. User friendly command language is easy to learn.
4. Centrally maintained by IDRC at no cost to AID.
5. Compatible with ISIS and other MINISIS installations
6. Data independent information system. It permits the definition of different user views, i.e. Acquisitions, Cataloguing, Indexing, Abstracting, Reference, etc., of the same database(s).
7. It can be used for a wide variety of applications such as a project information system (PINS) and a mailing list.
8. It has been in use since 1977 and has been field-tested on an international basis.
9. Provides interfaces to other international information systems, e.g. ILO, UNIDO, UNESCO, IDRC, FAO, etc.
10. Upper/lower case characters
11. Thesaurus building application processor which provides structured keyword retrieval in a multi-lingual environment.
12. Application features presently available on MINISIS almost match DS/DIU system requirements.
13. On-line database definition and creation in addition to on-line data entry and modification capability negate the requirement for update and maintenance program development
14. On-line validation of selected data fields against authority files at data entry time.
15. Duplicate document check at data entry time by on-line inversion of any data field such as document title.
16. Suppression or inclusion of diacritical characters during print/retrieval process.
17. Designed on "state of the art" database architecture and computer technology.
18. Work on a cyrillic extension to the multi-lingual thesaurus will begin in the Fall of 1980.

D. MINISIS Limitations and Weaknesses

1. Line by line data entry versus full screen format data entry.
2. No photocomposition capability.
3. Limited thesaurus maintenance capability: an on-line intellectual maintenance task.
4. Hardware dependent: system design uses Hewlett-Packard 3000 series "stack architecture" which is not available on another minicomputer and most larger mainframe computers. Therefore equipment procurement is involved.

E. Information Systems Under MINISIS at IDRC

1. BIBLIO - Library holdings at IDRC (includes 5000 periodicals)

Content Coverage - This data base contains literature collected to service the needs and objectives of the International Development Research Centre as a whole. This literature relates to the economic and social development of the developing world, particularly its rural areas. Topics covered include: demography, urbanization, migration, technology transfer, education, family planning, health, agriculture, nutrition, information systems, development aid and science policy.

Period of Coverage - 1972 to date

File size - 30,000 document records
Volume - 3,000 - 5,000 documents/year
UNISIST cataloguing rules
UDC classification system
Modified OECD macrothesaurus

Staff - 5 indexers (abstractors)
1 cataloguer
1 assistant cataloguer
1 adminstrative assistant

Produce COM catalogue index from BIBLIO for personal author, corporate author, title author on 6 week cycles. Subject searching done under MINISIS. There are no printed subject or microform subject lists. Several individuals noted that this is a disadvantage to the current system and hope it will be corrected.

2. DEVSIS - Development Science Information System.

Content Coverage - DEVSIS is an international, cooperative information system covering literature on the economic and social aspects of Third World development. At present it is an experimental data base consisting of bibliographic references provided by the following countries: Canada, West Germany,

2. DEVSIS(continued)

Indonesia, Morocco, Netherlands, USSR, Pakistan, and the Philippines. Tunisia is soon to be added. Each country is responsible for documents produced within its own region.

File Size - 3000 document records
Volume - 500 document/year (Canadian 300 docs/year)

Staff - 1 full-time indexer
1 half-time cataloguer
1 full-time project manager

Entries are drawn from journals, monograph series, theses, news releases, unpublished documents, books.
Microfiche backup for documents covers 1975 - 1977

India will be constructing a DEVSIS database of its own soon.

3. SALUS (Rural Health Care - "Barefoot Doctor")

Content Coverage - SALUS is a data base containing literature on low cost rural health care and health manpower training in developing countries.

Period of Coverage - 1970 to date

File size - 4,000 document records
Microfiche copy available

4. PINS (Project Information System)
Content Coverage - Similar to AID's Country Program Data Bank(or PBAR file as known to DS/DIU). Database contains descriptive and budget information on 2-3 year IDRC research grants.

File Size - 800 project records
Volume - 150 projects/year

Staff - 1 indexer/cataloguer
1 project manager

5. ILO (International Labor Organization) System
SDC (LABORDOC)

Content Coverage - Coverage is worldwide geographically of journal and monographic literature in the field of economic and social development and industrial relations including such topics as international relations; economic conditions and policies; demography; management; education; law; agriculture; environment and earth sciences. It contains much information specific to the developing countries, for example: employment creation, labour-intensive manufacturing methods, role of women in development.

Period of Coverage - 1965 to date

Volume - 4800 documents/year

6. FAO Library Documentation Database

Content Coverage - Geographic coverage is worldwide of documents written by or for FAO on such topics as: agricultural chemicals technology; agriculture, farming; agronomy, crops and soil; animal husbandry, livestock farming; botany, ecology; economics, industry and trade; conservation; fishing and fisheries; food and nutrition; human geography; natural resources; physical geography; rock, soil and mineral sciences; zoology and animal biology. Much of the documentation deals with developing countries, the enhancement of food production in these countries and questions of trade in agricultural products between these countries and the rest of the world.

Period of Coverage - 1967 to date

7. UNIDO (U.N. Industrial Development Org.) Database

Content Coverage - This data base includes documents prepared by or for UNIDO concerned with the improvement of industry in developing countries. The literature covers macro- and micro-economic aspects of industrial development, such as: policies; planning; surveys; infrastructure; institutional services; prefeasibility and feasibility of industry or plant; production and productivity; product development and design; technology and techniques; management; marketing; quality control; and research.

Period of Coverage - 1966 to date

8. UNESCO Database

Content Coverage - Worldwide geographic coverage of literature consisting of monographs, serials, reports, proceedings and unpublished documents written by or for UNESCO. These deal with a broad range of educational, scientific and cultural programs with an increasing emphasis on development issues. Topics include: area studies; arts; communication science and technology; economics; industry and trade; education; environment and nature conservation; geography; work and leisure; information sciences and documentation; international law; language, linguistics and literature; legal organizations and procedure; music and the performing arts; political science and politics; psychology; religion and atheism; social sciences, social welfare and relief services.

Period of Coverage - 1973 to date

F. Minicomputer Installation at IDRC

HP 3000 Series III consisting of:

1. 512K Memory.
2. 50 Megabyte Virtual Storage/Memory
3 450 Megabyte Disk Drive Storage
4. 15 On-line TTY terminals
5. 450 Line/Minute Printer (Upper/lower case)
6. 32 communications ports (4 dial-up Datapak ports)
7. 1 Daisy-wheel printer (low speed)
8. 1 Console typewriter
9. Systems Programming Language Compiler

Purchase price is $275,000 Canadian; lease price is $7500/month or $90,000/year Canadian.

G. IDRC Proposed Minimum HP 3000 System Configuration for DS/DIU Information System.

HEWLETT-PACKARD 3000 EQUIPMENT

| Model Number | Description | US $ List Price |
|---|---|---|
| 32430B/201 | HP 3000 Series 30 Computer System (256K Memory) | $28,950.00 |
| 30079A/030 | General I/O Channel | 1,800.00 |
| 7920M/102 | 50 MB Master Disc Drive | 19,000.00 |
| 13394A | Disc Pack | 525.00 |
| 7970E/426 | Digital Magnetic Tape Unit | 12,585.00 |
| 2631A/333 | 180 CPS Printer | 3,890.00 |
| 26098A/000/002 | Pedestal for 2631A | 340.00 |
| 2621A | Interactive CRT Terminal | 1,495.00 |
| 2621P | Interactive CRT Terminal w/ Integral Thermal Printer (120 CPS) | 2.650.00 |
| 2649E | Console for HP 3000 | 6,350.00 |
| 13222N | Modem Cable (2 @ $75.00 ea.) | 150.00 |
| | TOTAL | $77,735.00 |

1. HP 2608 dot matrix printer to replace HP 2631 costs additional $5,000 (approx.)

2. HP 7925 Disc Drive (120 MB) costs $25,000 (approx.)

IV. AID-IDRC Discussions and Agreements

A. The most important discussions at IDRC were those held with Terry Gavin and Robert Valentine of the Computer Science Division. They provided the best, most detailed information on MINISIS and its operations.

B. The current exchange agreement between AID and IDRC was discussed, reviewed, and expanded to include automatic distribution of two copies of all IDRC generated publications to AID and, in return, on-request distribution of AID documents to IDRC. The RANDD document title list was left at IDRC for their use. IDRC has since been added to the automatic RANDD title distribution list.

C. IDRC provided access to MINISIS system and their own databases, i.e. BIBLIO, DEVSIS, and SALUS. They provided preliminary command language training for MINISIS, access to the QUERY processor only (for MINISIS database reference work) and have sent full MINISIS documentation.

D. Potential access to FAO/AGRIS, UNIDO, and UNESCO databases was offered pending permission granted by the database originator organizations.

E. IDRC will provide MINISIS software free to AID including installation and training.

F. AID received magnetic tape of the OECD Macrothesaurus to be used in AID's thesaurus construction study.

G. IDRC expressed a strong desire for an AID funding commitment to supply HP 3000 minicomputer systems to LDC institutions on a selected basis as a means for information transfer and infrastructure development within the developing country. IDRC would provide MINISIS software, installation, training and maintenance.

I. IDRC outlined a possible HP3000 series configuration to meet existing AID information system requirements. Purchase cost would be 75,000 - 90,000 U.S. dollars.

J. AID offered to send IDRC the RANDD database on magnetic tape which IDRC will use for in-house reference work.

## V. Documents, Forms, and Database Descriptions Received

The Design and Implementation of a Database System for Bibliographic Applications on a Minicomputer

Information Retrieval and Library Management: An Interactive Minicomputer System

An Introduction to Minisis

International Development Research Center Projects, 1970 - 1978

International Standard (ISO) 2709 Tape Format Specification.

MINISIS - Multilingual Thesaurus Option

Query User Manual for the Query Processor of the MINISIS Systems

User Manual, Draft Copy, May 26, 1980

MINISIS documentation manual

IDRC, Information Sciences Division Telephone Directory for Key Personnel

Current MINISIS Licenses

IDRC Cataloguing Worksheets for BIBLIO (13 examples)

DEVSIS Worksheet

IDRC Thesaurus

IDRC DEVSIS

IDRC PINS