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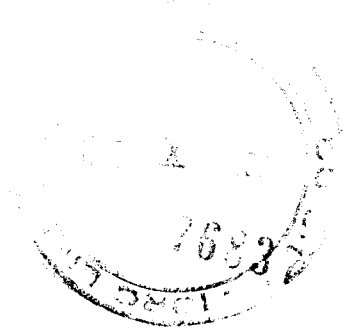
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Information
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Consultancy to the National Library of Jamaica
on the automation of the
National Information System of Jamaica:
Report on the first visit

IDRC-LIB
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Prepared for the National Library of Jamaica
and the
International Development Research Centre



IDRC file number 3-P-83-0239

William L. Newman

19 April 1984

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Introduction

As part of the National Information Network and System Project for Jamaica (Phase II), IDRC file number 3-P-83-0239, the National Library of Canada agreed to make a library automation systems specialist available as a consultant to the National Library of Jamaica (NLJ).

The objectives of the first visit of the consultant to Kingston, 9-12 April 1984, were:

- to get acquainted with the people, their expectations, and what is in place,
- to define the role of the consultant who will liaise with the automation coordinator at NLJ, and,
- to derive agreement on the next steps of the project.

Thanks to good planning by the hosts (Annexes A and B), the first objective was enjoyably accomplished. The second objective is addressed at Annex C section 1, and the third at Annex C section 3.

This report is a summary of the results of the first visit of the consultant, together with information derived from documents given to the consultant during the visit and from subsequent discussions between the consultant and IDRC personnel.

Observations and challenges

There will be three computer assisted networks in Jamaica: 1) the national node: NLJ, the science and technology information network (STIN), the social and economic information network (SECIN), and the legal information network (LINET), the physical planning network, college libraries, and private sector special libraries; 2) the Jamaica Library Service node - supporting public and school library users; and 3) the University of the West Indies node - supporting the UWI Mona Campus requirements. The reasons for the three networks are documented in Kavanagh (1).

The initial automated system implementation at the national node will not be an on-line system. Although Kavanagh (1) and NACOLADS (2) are optimistic concerning the availability of data circuits, the current situation dictates that a batch system be the initial implementation.

NLJ's favoured automated system, ISIS, has both on-line and batch modes of input and output. Thus initial operation at the national node would not only provide experience in the trials and tribulations of automation (with, hopefully, benefits in terms of access to information), but would also directly provide prerequisite experience for eventual on-line operation, when such on-line operation becomes feasible.

Three versions of ISIS are currently available:

- i) MINISIS available from and supported by IDRC. This version runs on Hewlett Packard 3000 series minicomputers.
- ii) CDS/ISIS available from and supported by UNESCO. This version runs on IBM 370 compatible mainframes under any of the OS operating systems. It is written in PL/I and assembler languages.
- iii) The original ISIS available from IDRC but not supported. This version runs on IBM 360 or 370 compatible mainframes under the DOS operating system. It is written in assembler language.

UNESCO reports that a new DOS version of ISIS is being developed in Hungary. It will run on IBM 370 compatible mainframes under the DOS operating system, and will be written in PL/I and assembler languages. UNESCO will support and maintain this version. An estimated date by which the system would be available from UNESCO is the fall of 1985, with distribution and training conditions similar to the CDS/ISIS OS version.

Hewlett Packard hardware is not available to NLJ (nor is HP equipment maintained in Jamaica), so the MINISIS option is not feasible for use in the national node.

The IBM 370 mainframe available to NLJ for systems operation is a portion of an IBM 370/4341 soon to be installed at the National Computer Centre (NCC). The NCC already apparently has a significant software investment in applications running under the DOS operating system, so the IBM 370/4341 will run under DOS. This means that the UNESCO CDS/ISIS version is not feasible for use in the national node.

The original DOS version of ISIS is old, outdated, and not maintained nor supported. For these reasons it is not advisable to attempt implementation of all the programs in this version of the system.

Recommendations

A national node system is required which will, in broad terms, collect bibliographic information in machine-readable form and easily manipulate it for a variety of output products. The recommendations of NACOLADS (2), p. 11-20 towards this and other goals are excellent and should be pursued. The consultant's recommendations are in concert with Kavanagh(1) and NACOLADS(2).

1. A feasible application (e.g. Jamaican National Bibliography: current, or Jamaican National Bibliography: retrospective, or union list of serials) should be selected as the top priority, first application for the national node system. After this application is operational, other applications of the same system will more easily follow.

2. The NLJ should concentrate people and resources on the top-priority application.
3. The NLJ automation coordinator should receive training in EDP project management, systems analysis, and programming. The preferred programming languages are PL/I and IBM 370 assembler (see recommendation 7 below). Details of the training will be determined by NLJ, IDRC, and the consultant.
4. Standards for national node descriptive and subject cataloguing should be settled as soon as possible by the appropriate NACOLADS committee. Obvious candidates (with millions of records already in machine-readable form) are:
descriptive cataloguing: Anglo American Cataloguing
Rules, Second Edition
subject cataloguing: Library of Congress Subject Headings
classification system(s): Library of Congress, Dewey, Universal

The consultant is not necessarily recommending adoption of these candidates as he does not know enough about current Jamaican cataloguing practices.

5. A standard Jamaican national format for intersystem (or internode) communication of machine-readable records should be specified as soon as possible by the appropriate NACOLADS committee. The internal system data base format must provide the capability to store a superset of the intersystem format data climates to enable machine-readable records in the standard format to be generated from the system.

Dierickx(3) page 19 states "...the [standard] communication formats... are meant in the first place to serve as formats for the exchange of bibliographic information... between computerized data bases, but, all three and especially the RM and the AGRIS format can also be used as sources for local rules for bibliographic description". He recommends, for the Caribbean Region, adoption of the Reference Manual (RM) format after having considered the RM format (4), the AGRIS format (5), and the UNIMARC format (6).

The question of a communication format standard can be a complex one. A format can be biased toward bibliographic description rules for bibliographic content normally stored in the format (i.e. LC MARC, CAN/MARC, etc. assume the AACRII concept of main entry even though this concept is largely useless in an automated system). Format content designation (i.e. field indicators, subfield delineation, etc.) can be very detailed and time consuming to manually code then create for each record. Yet some content designation is necessary for sophisticated retrieval of records, for sophisticated sorting of output product indexes, and for sophisticated output product formatting. A standard incorporating a range of content and content designation is perhaps the answer. Where full format records are required (e.g. the

Jamaican National Bibliography), full format records should be created. For other purposes (e.g. union catalogue holdings of ephemeral foreign material), full format records should not have to be created.

6. Given that the new UNESCO DOS ISIS version is the preferred national node system (since it will be operated at the NCC), some alternatives for implementation are:

- i) Implement a batch subset of the IDRC DOS ISIS version on an interim basis to gain experience, start collecting bibliographic records in machine-readable form, and produce an output product (which product would depend on what the top priority is). Move to UNESCO DOS ISIS when it becomes available. This option would require an additional three or four month programmer commitment from the NCC in comparison to alternative ii) below.
- ii) Wait for the UNESCO DOS ISIS then implement it. In the interim, there is much to be accomplished (e.g. see Annex C, section 3).
- iii) Develop and implement, on an interim basis, simple programs to edit and retain in machine-readable form data collected from worksheets. An output product would not be produced. Implement UNESCO DOS ISIS when it becomes available.

The consultant recommends that work proceed as at Annex C section 3, then a decision be taken (likely either option (i) or (ii)) depending on the imminence of the availability of UNESCO DOS ISIS.

7. Given that the UNESCO DOS ISIS version is the preferred national node system and that it will be operated at the NCC, the NCC should acquire and implement a current IBM PL/I compiler. Several man-years of work would be required to convert UNESCO ISIS programs from PL/I to another language (some 30 of the programs are written in PL/I). It is believed that UNESCO would not support a "non-standard" version of ISIS. The PL/I language is a powerful language with extensive character string manipulation facilities which would be difficult to replicate in COBOL. The NCC could build up expertise in PL/I, if it were used in other applications, during the interim until UNESCO DOS ISIS is acquired.

Next visit

The next visit of the consultant should be at the convenience of the hosts at NLJ. Presumably it will be after the top priority application is selected and work has begun on the standards issues. This could be as soon as the summer of 1984.

ANNEX A

NATIONAL COUNCIL ON LIBRARIES, ARCHIVES AND DOCUMENTATION SERVICES

NACOLADS/IDRC PROJECT PHASE II

VISIT BY MESSRS. CLAUDE BOIVIN & BILL NEWMAN

APRIL 8-12, 1984

PROGRAMME

Arriving Sunday, April 8, 1984, on Air Canada 0992 at 16:05
to be met by NLJ's Staff

	<u>VISITS TO</u>	<u>PARTICIPANTS</u>
<u>Monday, April 9</u>		
9:00 a.m.	NACOLADS Secretariat Office of the Prime Minister 1 Devon Road Kingston 10	S. Ferguson/H. Brown; D. Douglas/S. Lampart
10:30 a.m.	National Computer Centre 46 Knutsford Blvd. Kingston 5	W. Oliver - Director, NCC NCC Staff - Mr. Townsend S. Ferguson/H. Brown; D. Douglas/S. Lampart
12:30 p.m.	Lunch with -	Mrs. Iton - Acting Director Jamaica Library Service
3:00 p.m.	University Computer Centre University of the W.I. Mona Kingston 7	R. Bailey (UCC) A. Chambers (UWI Lib.) S. Ferguson/H. Brown; D. Douglas/S. Lampart

	<u>VISITS TO</u>	<u>PARTICIPANTS</u>
<u>Tuesday, April 10</u>		
9:00 a.m.	National Library of Ja. 12 East Street Kingston	Director and staff S. Ferguson, H. Brown J. Vernon, J. Aarons
12:30 p.m.	Lunch hosted by NLJ	
2:00 p.m.	Supreme Court Library Public Buildings East Kingston	S. Mitchell, Dir. of Admin Ministry of Justice Y. Lawrence-Lib. (SCL) S. Ferguson/H. Brown; D. Douglas/S. Lampart
3:30 p.m.	National Planning Agency Doc. Centre Barbados Avenue Kingston 5	L. McIntosh; S. Cheddar M. Hazle - Chairman, SECIN A. Ononaiwu, Lib. (NPA) S. Ferguson/H. Brown D. Douglas/S. Lampart
<u>Wednesday, April 11</u>		
9:00 a.m.	College of Arts Science & Technology 237 Old Hope Road Kingston 6	A. Sangster - Principal (CAST) A. Wilson - Head, Comp. Centre L. Gibons H. Salmon - Librarian S. Ferguson/H. Brown D. Douglas/S. Lampart
10:30 a.m.	Scientific Research Council Hope Kingston 6	J. Wright - Head, Inf.Div. M. Smith - Tech. Inf. Off. M. Telesford, H. Carrole S. Ferguson/H. Brown D Douglas/S. Lampart
12:30 p.m.	Lunch with -	Dr. M.O. Hamilton, Executive Director (SRC)

	VISITS TO	PARTICIPANTS
2:00 p.m.	Jamaica Information Service 58a Half-Way-Tree Rd. Kingston 10	Director - JIS Cara-Ann Murray - Lib. S. Ferguson/H. Brown; D. Douglas/S. Lampart
3:30 p.m.	Ministry of Mining & Energy 2 St. Lucia Ave. Kingston 5	V. Scantlebury - Director N. Grant - Dir. Econ. & Planning Div. B. Mullings - Inf. Off/Lib S. Ferguson/H. Brown; D. Douglas/S. Lampart

Thursday, April 12

2:00 p.m.	NACOLADS Secretariat Office of the Prime Min. 1 Devon Rd. Kingston 10	Meeting with Automation Working Party and Specialist Sub-Committee including particularly representatives of libraries involved in NLJ Central Data System.
4:00 p.m.	NACOLADS Secretariat Office of the Prime Min. 1 Devon Rd. Kingston 10	Wrap-up meeting with NACOLADS Executive and Policy and Planning Committees.
7:30 p.m.	5 Millsborough Ave. Kingston 6	Dinner hosted by Chairman, NACOLADS

Friday, April 13

DEPARTURE

SUMMARY OF MEETINGS

1. National Computer Centre (NCC)

- Delivery of a 2 megabyte IBM 370/4341 is expected in the summer of 1984.
- There should be about one-third of the CPU capacity of this machine available for NLJ systems.
- The NCC uses removeable IBM 3344 disks.
- The NCC does not currently have a PL/I compiler.
- The NCC would make a programmer analyst available (after November 1984) to work on NLJ systems for approximately six months.

2. Jamaica Library Service (JLS)

- The size and operation of JLS were overviewed.

3. University of the West Indies (UWI), Mona Campus

- The Rush report provided a five year plan for automation of the three UWI campuses.
- The first priority for automation is cataloguing, the second is circulation.
- The Mona Campus will coordinate standards for cataloguing and indexing with the other campuses, but work toward automation of other systems (e.g. circulation) will be local.
- An experiment will be conducted with OCLC with the objective of obtaining catalogue cards and determining costs and benefits. Searches would be conducted from another campus that has Tymnet access. For matches, catalogue cards would be returned to Mona; for non-matches, worksheets will be prepared, sent to the University of Florida for input, then catalogue cards obtained. Currently, negotiations with OCLC are underway and card profiles are being prepared. The trial could start by June 1984.
- Blackwell North America will also be investigated for the purpose of obtaining catalogue cards and creating machine-readable records.
- A telefacsimile link exists between UWI campuses.
- The use of a micro is being investigated for indexing West Indiana (IBM PC, dBaseII data manager).
- Mona has a large reserve collection with heavy use.
- A campus serials list exists.
- The priority of the Mona Campus Computer Centre appears to be with academic applications rather than administrative ones. For this reason, and because DOS is the operating system, it is unlikely that ISIS could be implemented on the campus as recommended in the Rush report.

4. National Library of Jamaica

- Current automation efforts include an index to the Gleaner (run at the IBM Service Bureau); a union list of serials with indexes by title, issuing body, and holding library (operation is being phased in); and a historical research project to have an index dating from 1937 (in development stage).
- The proposed organization structure of the Automated Systems Development of NLJ was described.
- The NLJ collection was overviewed.
- Candidates for automation priorities for the national node were discussed (see Annex C).

5. Supreme Court Library

- The Supreme Court Library is the focal point of the legal information network.
- The problems and workload of the legal information network were discussed.

6. National Planning Agency (NPA)

- NPA is the focal point of SECIN.
- Preparations are underway for SECIN input to the union list of serials.
- NPA performs abstracting and indexing of local periodicals.
- NPA publishes SECIN Abstracts which is also input to Carisplan. The methodology is based on DEVSIS.

7. College of Arts, Science and Technology (CAST)

- Library automation projects are being carried out by students as part of their academic work.
- An inventory of journals project, for 300 journals, giving journal name, reorder date, etc. has been developed. It is operated on an IBM PC.
- A machine-readable masterfile of book library holdings (24,000 items) is being established. It is based on AACR2. Worksheets are used for input (this methodology may be changed). The masterfile will be printed about yearly. The system operates on an ICL 1901 being upgraded to an ICL 2903.
- It is hoped that programs will be developed to convert the machine-readable records to a communications format standard so that these records can be incorporated into the national node data base.

8. Scientific Research Council (SRC)

- SRC is the focal point of STIN.
- SRC is collecting information from libraries for STIN input to the union list of serials.

- SRC would like to create union list information on a micro, then forward it to NLJ (on diskettes?) rather than using worksheets.
- Automation, employing micros, is well underway in several STIN libraries.
- SRC is developing a national scientific and technical information policy.
- SRC conducted a scientific research and development survey in order to generate an inventory of research and development equipment, and a skills bank.
- Preliminary discussions have been held regarding the establishment of STIN desks through the JLS.

9. Visits to the Jamaica Information Service and the Ministry of Mining and Energy were cancelled in order to allow time for preparation of handouts and typing for the NACOLADS Automation Working Party.

Presentation to NACOLADS Automation Working Party
and Specialist Sub-Committee

1. Background of the project and terms of reference of the consultant -
presented by Claude Paul Boivin (IDRC)

After reviewing the background of the "Development of a National Documentation, Information, and Library System for Jamaica 1984-1987, Phase II Project", the terms of reference of the technical advisor, or consultant, were described as follows.

Generally to advise and assist the National Library of Jamaica in the design and creation of an automated national information system. Specifically -

- a) to examine available hardware and the proposed software packages and advise NLJ on their suitability and the implications of implementation.
- b) to advise NLJ on type of short term training (one month) required for the person who will act as "Automation Project Co-ordinator".
- c) to assist NLJ in developing an overall strategy for implementing the Automation Project.
- d) to advise NLJ in the preparation of a work plan; initially for the first year of the project.
- e) to periodically review the work accomplished within the automation project and to recommend adjustments when necessary.
- f) subsequent to every mission to Jamaica, to prepare a report reviewing and assessing the advancement of the automation project and recommending future course of action.

The Consultant will interface with NLJ and specifically with the Automation Project Co-ordinator acting as an advisor. He will not be assuming the leadership of this automation project, nor will he be responsible for implementation, this being the responsibility of NLJ and the Automation Project Co-ordinator.

2. Observations - presented by William Newman (National Library of Canada)

We realize that the overall goal (yours and mine) of this automation project is to work toward broad access to a national information system with its bibliographic data base. In other words, this project

must contribute to getting the information where it's needed when it's needed as effectively and efficiently as possible. We therefore need integrated access to information covering all sectors within the NLJ central system. You must create a long term plan to get all the functions contributing to a national information system in place. This does not say that individual institutions or sectors cannot or should not undertake individual or focal point automation efforts. There must, however, be communication, standards, co-operation, and exchange of both human readable and machine readable information between the central focal point (NLJ) and other libraries so that overall national goals can be achieved.

We have selected the following options as functions which clearly contribute to a national information system. The question then is, where do we start? The list may not be exhaustive, but the major functional components are covered. In this list, we are not yet differentiating or going into detail in regard to coverage of different forms of material in the data base (e.g. printed, maps, a.v., etc.); nor on cataloguing versus indexing; nor on standards for cataloguing; nor on actual work flow or modus operandi.

When we first started talking about pros and cons of the various options on the list, we put down most thoughts that came to mind. However, we soon realized that we should stick to the feasibility of automation rather than making value judgements on these options. Thus the list of pros and cons in our handout is short.

Under all options, we realize the desirability of having on-line access to the information as a longer term goal. But, initially it appears that data base update will be a batch process and data base inquiry will be via output products from the data base. This is due to resource constraints.

Claude Paul and I are not here to set priorities, nor will they be set today; this is the job of NACOLADS and the committees involved in automation. You must choose one as the starting point.

So, here's the list. No matter which project is chosen, we all have a big challenge and a lot of work ahead of us. I look forward to working with you.

3. The NLJ automation coordinator - presented by Hyacinth Brown (National Library of Jamaica)

The NLJ automation coordinator will lead the automation project. Some tasks to be planned, responsibilities allocated, and accomplished are:

- i) concerning the system:
 - a) to conduct inquiries on the availability of DOS versions of ISIS,
 - b) to continue investigating other systems and their applicability to Jamaica,
 - c) to decide on a system and a strategy for implementing it,
 - d) to begin the process of acquiring the system;
- ii) concerning computing location:
 - a) to conduct negotiations with the NCC on the implementation and operation of the system at the NCC,
 - b) to obtain training in the use of NCC facilities;
- iii) concerning standards:
 - a) to determine national node cataloguing standards and practices,
 - b) to determine the intersystem/internode machine-readable communication format,
 - c) to determine thesauri for name and subject authorities;
- iv) concerning system implementation:
 - a) to consult with other institutions who have implemented the system,
 - b) if ISIS is selected, to determine and define the database,
 - c) to determine output product requirements and format,
 - d) to determine workflow,
 - e) to design worksheets for input,
 - f) to determine user documentation requirements.

4. Handouts

NATIONAL LIBRARY OF JAMAICA

Functions to be allocated a priority in the development of
a National Information System

1. Jamaican National Bibliography: current

- Material published in and about Jamaica and by Jamaicans - monographs, serials, unconventional materials.
- Would be expanded from present form to include coverage of materials held in libraries other than just NLJ.
- Could start the data base with descriptions of material for JNB and publish JNB as a product from the data base.

2. Jamaican National Bibliography: retrospective

- As above, but retrospective material rather than current.

3. Union List of Serials

- Would include current and retrospective serials held in Jamaican libraries.
- Would enhance the current automated system and build upon the data already gathered.
- Could start the national data base with descriptions of serials and publish the union list as a product.

4. Union Catalogue of monographs (current)

5. Union Catalogue of mongoraphs (retrospective)

6. Shared cataloguing

- Would provide individual library products such as catalogue cards, accessions lists, serials lists.
- Would build a union catalogue from shared cataloguing.

7. Build interfaces with local library systems

- Would provide interfaces and information to local systems
 - cooperative acquisitions
 - local cataloguing
 - circulation
 - serials control
- Would draw information from the national data base.
- This is not an option for starting.

-6-

NATIONAL LIBRARY OF JAMAICA

Functions to be allocated a priority in the development
of a National Information System

OPTIONS	SIZE	PROS	CONS
1. JNB (c)	2,000 - 3,000 p.a.	Books, serials already catalogued up to date at NLJ. Not much staff needed. University already contributing.	Machinery for collecting material not in place. Different cataloguing system input.
2. JNB (r)	40,000 approx. p.a.	as above	Much staff needed for data input. Different cataloguing systems input.
3. ULS	10,000 approx. with 1,000 approx. updates p.a.	Two data bases already begun. Reduced workload	
4. Union Catalogue Mono (c)	50,000 approx. p.a.	Data could be captured without work sheets. Lower initial volume than Union Catalogue (r)	Many not catalogued. High cost.
5. Union Catalogue Mono (r)	greater than 300,000		As above. Heavy work load. High cost.
6. Shared Catalogue	50,000 approx. p.a.	Shared and reduced individual library cataloguing work load. Automatic union catalogue.	Heavy coordination. High cost Different cataloguing system input.

ANNEX D

Documents received during the visit and references

- Kavanagh, Rosemay. Review of the 1977 Plan for a National Documentation Information and Library System for Jamaica. Kingston, Jamaica, NACOLADS, 1983, pp12-53.
2. NACOLADS. Revised Report of the Working Party on Databanks and Automation in Libraries. Kingston, Jamaica. NACOLADS, April 1983, 33p.
 3. Dierickx, Harold. Caribbean Region. A Proposed Common Format for Existing and Projected Computerized Bibliographic Information Systems. Paris, UNESCO, 1982, 78 p. (FMR/PGI/82/159).
 4. UNIBID. Reference Manual for Machine-Readable Bibliographic Descriptions. Second revised edition (loose-leaf). Paris, UNESCO, 1981, v.p. (PGI-81/WS/22).
 5. United Nations Food and Agriculture Organization. Guidelines for Bibliographic Description and Input Sheet Preparation. Second revised edition. Rome, AGRIS Coordinating Centre, 1979, v.p. (FAO-AGRIS,4).
 6. International Federation of Library Associations and Institutions. UNIMARC: Universal MARC Format. Second edition revised. IFLA International Office for UBC, London, 1980, 142p.
 7. National Computer Centre. NCC Computer Configuration as at 01/01/84. Kingston, Jamaica, NCC, 1984, 3p.
 8. National Library of Jamaica. Various documents including: overview of general and functional requirements of the automated system; description of the Jamaican National Bibliography publication; synopsis of focal point libraries and networks; and proposed structure of the automated systems department of NLJ.
 9. Douglas, Daphne. Automation of Regional Bibliographic Tools and the Question of Standardization. Paper prepared for the CARICOM Meeting on the Regional Bibliography, 19-23 October 1981, Bridgetown, Barbados. October 1981, 17 p.
 10. Correspondence among Stephney Ferguson (Director, NLJ), Giampalo Del Bigio (Deputy Chief, Division of the UNESCO Library), Winston Oliver (Director, NCC), and Richard Lee (IDRC) concerning ISIS and its potential operation in Jamaica.