INTERNATIONAL DEVELOPMENT RESEARCH CENTRE (IDRC)

PROJECT PROPOSAL

HUMAN SETTLEMENTS INFORMATION SYSTEM

FOR NICARAGUA
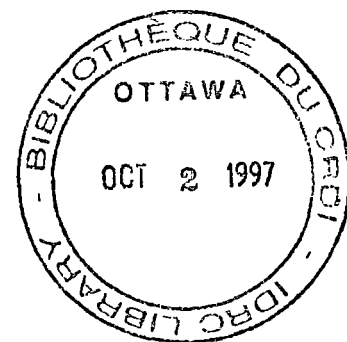
PROPOSAL

Human Settlements Information System -- Nicaragua

BACKGROUND

1.   The Government of Nicaragua faces a critical problem in providing adequate housing for its people throughout the country. In the nine years since the Revolution, the Government has delivered approximately 50,000 housing units of various kinds, with deliveries in 1986 exceeding 7,000 units. But this is not enough to meet the estimated increase in housing demand of about 16,000 per year.[1]

2.   Under the circumstances, it is essential for the Government to ensure that (a) the existing stock of public housing is used as effectively as possible and (b) available resources are used as efficiently as possible to add new housing units to the existing stock.

3.   The Government regards better information about the supply of and demand for housing as being of critical importance to improving the effectiveness and efficiency of its public-housing program. According to the current development plan, more information and more effective use of information play a key role in national development.[2]

4.   The purpose of this project is to assist the Ministerio de Vivienda y Asentamientos Humanos (MINVAH) -- which is the chief government agency responsible for housing and human settlements in Nicaragua -- to strengthen its existing information system. The project involves three main elements: provision of technical assistance, supply of microcomputer equipment, and organization of training. The project is expected to take twenty months to complete; it is divided into two phases, one scheduled to begin in April 1988 and the other in March 1989. Total cost of the project is estimated at CAD 160,000 for IDRC (CAD 89,000 for Phase I and CAD 71,000 for Phase II) and NC$ 365 million at current prices for the Government of Nicaragua.

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1.   Instituto Nicaraguense de Investigaciones Economicas y Sociales (INIES), Plan Economico 1987 (Managua: INIES, May 1987), pp. 108-11.

2.   Op. cit., pp. 38-9.

OBJECTIVES

5.   Six priorities have been identified for strengthening existing
information capabilities in the Ministerio de Vivienda y Asentamientos
(MINVAH).[1] These priorities are:

o management of public housing stock

o bibliographical and other documentary information

o financial planning and analysis

o budgeting and accounting

o computer-aided design, and

o data-processing support services.

6.   The objective of the project is to provide a combination of tech-
nical assistance, computer equipment and training that will enable the
the Ministry to strengthen its capabilities in each of the above areas.
The first phase of the project is intended to provide a level of input
sufficient to bring about demonstrable improvements and to enable the
Ministry to identify more precisely its priorities for the second phase.
On that basis, the second phase will provide further inputs of technical
assistance, computer equipment and training.

RESULTS

7.   The project is expected to have the following results or outputs:

(a) There should be an operational public-housing information sys-
        tem in place, accessible at both the central level (Direccion
        de Operaciones) and (where practicable) in regional offices.
        In the first phase, this may be a pilot operation involving
        only some types of housing units and/or some of the regions;
        but in the second phase, the system should be extended as far
        as practicable to include all housing units managed by the
        Ministry.

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1.   International Development Research Centre, Feasibility Study of a
National Information System on Human Settlements for the Ministerio de
Vivienda y Asentamientos Humanos (Managua: typescript, August 1987).

(b) The Centro de Informacion should have a database on biblio-graphical and other documentary sources of information on human settlements available in MINVAH. In the first phase, the database may be less than complete in respect of its scope and/or its detail; but by the end of the second phase, the database should include information on both public documents and MINVAH archives.

(c) There should be a demonstrable improvement in the quality of both project and sectoral planning. In the first phase, im-provement may be selective; but, by the end of the second phase, improvement should be visible at all stages.

(d) There should be a demonstrable improvement in the quality and quantity of accounting information available to management in the Ministry. In the first phase, improvement may be confined to certain aspects of the accounting process (e.g. payroll); but, by the end of the second phase, there should be improve-ments in all aspects of the accounting process.

(e) The specification and pricing system (CPCE) currently used by EPROVIN in designing housing units and housing projects should be enhanced by the addition of computer-aided design capabili-ties. This would mean that a great many more housing models could be designed, specified and priced than is now possible by hand. In the first phase, priority should be given to adapting the CAD system to the building components used in the CPCE system; then in the second phase, the two systems should be interfaced with each other so that the CPCE system can work directly from the CAD screen.

(f) There should be a measurable increase in computer literacy and computer use in MINVAH as a result of the project. This will result in a qualitative as well as quantitative change in the role of Infor BAVINIC and its staff, as they become less and less a supplier of data-processing services and more and more a source of advice and training for users who are doing their own data-processing.

8. In addition, Phase I will result in a report summarizing and eva-luating the effects of Phase I and including specific recommendations as to the nature and distribution of inputs required for Phase II -- techn-ical assistance, computer equipment and training. (See also paragraph 13 below.)

9. Similarly, Phase II will be followed by a report on the entire project. This report should not only evaluate the strengths and weak-nesses of the projecty from the point of view of MINVAH but also discuss whether and, if so, to what extent this project might serve as a model for the application of advanced technology to the problems of developing countries.

BENEFICIARIES

10.   Immediate beneficiaries of the project will be those people who
are currently clients of MINVAH public-housing programs. Better inform-
ation about existing housing stock will help MINVAH improve its services
to occupants and homeowners alike: for example, it will increase secu-
rity of tenure, reduce conflicts over occupancy, and improve financial
record-keeping.   Moreover, the bibliographical information system will
form part of the Centro de Informacion and (at least insofar as public
documents are concerned) will be available to researchers in other agen-
cies in the public and private sectors. Finally, MINVAH staff will also
be immediate beneficiaries of the project, since it will assist them to
do their jobs better -- thereby raising morale, improving motivation and
generally contributing to institution-building in MINVAH.

11.   Ultimate beneficiaries of the project will be the people of
Nicaragua, who will benefit from a more effective and efficient use of
national resources; and in particular those who are eligible for public-
housing assistance.   Better management and a larger stock of housing
will improve the level of service provided to disadvantaged groups such
as the urban poor, subsistence farmers, victims of the war, women and
single heads-of-families, etc.; it will help reduce the drift from rural
to urban areas; and it will help reduce disparities in living standards
throughout the country.

METHODOLOGY

12.   The project consists of the application of technical assistance,
computer equipment and computer training in each of the five areas iden-
tified above: namely, management of public housing stock; bibliographi-
cal and other documentary information; financial planning and analysis:
budgeting and accounting; computer-aided design; and data-processing
support services.

13.   Broadly speaking, inputs for the project are as follows:

	Phase I	Phase II
Technical assistance (work-months)	3	3
Computer equipment (units)	18	12-18
Training (person-courses)	50-75	30-60

The exact distribution of these inputs among the five objectives should
probably be left to the discretion of those responsible for implementing
the project. For information, however, Table A describes what might be
an appropriate allocation of resources in Phase I. As noted above (see
paragraph 8), one of the outputs of Phase I might be a table similar to
Table A describing the resources required for Phase II.

Table A

PROJECT METHODOLOGY -- ANTICIPATED ALLOCATION OF INPUTS IN PHASE I

Objective	Responsible Directorates & Agencies in MINVAH	Nature and Extent of Technical Assistance Likely to Be Required	Computer Equipment	Training Needs
Management of Public Housing Stock	Dir de Operaciones Delegaciones Regionales	Major input required to assist in design of databases, review of office procedures in regions and communication procedures between centre and regions.	1 AT + 1 PC 1 AT + 3 PC	18 Level I 4 Level II
Bibliographical and Other Documentary Information	Centro de Informacion	Minimal input required to review database design and operating procedures.	1 AT + 1 PC	6 Level I 1 Level II
Financial Planning and Analysis	Dir Planificacion Sectorial DISCEP	Minimal input required to assist in design of templates, etc. for spreadsheet program.	0 AT + 2 PC 0 AT + 2 PC	12 Level I 2 Level II
Budgeting and Accounting	Dir de Finanzas	Moderate input required to help in transfer of existing programs and data to microcomputers and in identification of phase-II needs.	1 AT + 1 PC	6 Level I 1 Level II
Computer-Aided Design (CAD)	EPRDVIN	Major input required to assist in transfer of existing programs and databases to microcomputers, to optimize design of existing database, and to assist in integration of database and programs with CAD software.	1 AT + 1 PC	6 Level I 1 Level II
Data-Processing Support Services	Infor BAVIHIC	Moderate input required to help familiarize staff with microcomputers and relevant software and to help organize suitable training materials and courses for MINVAH staff.	1 AT + 1 PC	6 Level II 4 Level III

Total Estimated Equipment and Training Required in Phase I . . . . 6 AT + 12 PC   67 All Lvls

Note: Microcomputer inputs are classified as "AT" (which stands for machines equivalent to an AT or a turbo-charged PC with a hard-disk of 20-40 Mb capacity) or "PC" (which stands for basic machines with two floppy disk drives and maximum memory). Training needs are classified by level, with Level I meaning the ability to use microcomputers for specific purposes, Level II meaning the ability to modify and extend existing uses of specific packages, and Level III meaning the ability to design and choose among alternative packages and their applications.

14.   The project is divided into two phases spread over a total of twenty months. Essentially, the purpose of Phase I is to provide MINVAH staff with an initial experience of computerized information systems over a range of different applications -- and help them identify exactly what the next steps should be. The purpose of Phase II is to give MINVAH the opportunity to take these next steps and to extend their initial experience with a second set of inputs. These inputs might be used for getting assistance in developing more sophisticated systems; for getting more powerful computers or more specialized peripherals; and/or for obtaining more advanced or more specialized training. In this way, initial applications could be expanded to other areas of responsibility, to other regional offices, or to other kinds of problems. A detailed schedule of activities for both Phases is given in Table B.

INSTITUTIONS
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15.   The project will be executed by the Ministerio de Vivienda y Asentamientos Humanos (MINVAH) of the Government of Nicaragua. MINVAH is the chief government agency responsible for housing and human settlements.

16.   Within MINVAH, the agency mainly responsible for the project will be Infor BAVINIC. Infor BAVINIC is effectively the computer and data-processing department of the Ministry, and has been responsible for development of most of the computer applications currently in use.[1] Infor BAVINIC has a staff of about fifteen technical and professional people, of whom four are university-qualified computer specialists (licensiados). Two persons will be assigned explicitly to the project on a half-time basis; other staff will be involved as and when required (primarily to help with staff training and applications trouble-shooting.)

TRAINING
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17.   User training has a very important part to play in this project. In view of the desire to build on and strengthen existing and proven computer capabilities inside the Ministry, it is intended that most of the training be provided internally. Project staff will be responsible for designing and implementing a suitable training program for users in all parts of the Ministry. Initially, they will have the assistance of the Consultant for this purpose (as well as others). Thereafter, they will also be able engage local consultants for help in presenting seminars and courses. But training will be done largely by project staff.

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1. Details of MINVAH computer applications are given in _ibid._.

Table B

PROJECT METHODOLOGY -- SCHEDULE OF ACTIVITIES

Proposed start date: April 1st, 1988
Total duration: 20 months
Planned end date: November 30th, 1989

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                                            1 9 8 8          1 9 8 9
                                         J F M A M J J A S O N D  J F M A M J J A S O N D
ID                          Start No. of  a e a p a u u u e c o e  a e a p a u u u e c o e
No. Description             Date  Months  n b r r y n l g p t v c  n b r r y n l g p t v c
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    Tasks

 1  Specification of equipment   Apr 01/88   1   . . . * . . . . . . . .  . . . . . . . . . . . .

 2  Supply and installation      May 01/88   2   . . . . * * . . . . . .  . . . . . . . . . . . .

 3  Preliminary systems development  Jul 01/88  2  . . . . . . * * . . . .  . . . . . . . . . . . .

 4  Staff training               Jul 01/88   6   . . . . . . * * * * * *  . . . . . . . . . . . .

 5  Evaluation of impact/effectiveness  Sep 01/88  6  . . . . . . . . * * * *  * * . . . . . . . . . .

 6  Phase I Report               Jan 01/89   1   . . . . . . . . . . . .  * . . . . . . . . . . .

 7  Review of Report             Feb 01/89   1   . . . . . . . . . . . .  . * . . . . . . . . . .

 8  Supply of Phase II equipment Mar 01/88   2   . . . . . . . . . . . .  . . * * . . . . . . . .

 9  Phase II systems/training    May 01/89   5   . . . . . . . . . . . .  . . . . * * * * * . . .

10  Phase II Report              Nov 01/89   1   . . . . . . . . . . . .  . . . . . . . . . . * .


    Human-Resource Inputs

    Consultant (full-time)                       . . . * . . * * . . . .  . . . . . * * * . . . .

    Counterparts (part-time)                     . . . * * * * * * * * *  * * . * * * * * * * . .
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18.   In support of this commitment, the project will provide books,
magazine subscriptions and training materials -- with special emphasis
on those that are available in Spanish. It is also to be hoped that key
project personnel may be eligible for post-project training awards from
the Fellowships and Awards Division.

BUDGET

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19.   The Project Budget is outlined in Table C.

20.   Salaries represent the estimated costs of a part-time project
coordinator and several part-time associates drawn from the staff of In-
for BAVINIC. Phase II costs are incremented by five percent over Phase
I costs.

21.   Publication costs include two separate items: preparation of
project reports and other outputs (to be paid by MINVAH) and   costs of
acquiring books, magazine subscriptions and foreign training materials
(to be paid by IDRC). Phase II costs are assumed to be the same as
Phase I costs.

22.   Training costs are anticipated for hiring part-time teachers to
assist with staff training. It is intended that the international con-
sultant will assist project staff to familiarize themselves with the new
computer equipment and software, and that project staff will in turn
train MINVAH staff. When project resources need to be supplemented with
part-time instructors drawn from the university or other institutions,
MINVAH will pay the costs. Phase II costs are assumed to be the same as
Phase I costs.

23.   Research expenses are expected to have two components: computer
software and computer-related consumables (such as diskettes, printer
paper, printer ribbons, etc.) which are to be paid by IDRC; and other
costs (such as those associated with transferring data from equipment
currently in use to the new equipment, local travel costs, etc.) which
are to be paid by MINVAH. Phase II costs are assumed to be the same as
Phase I costs.

24.   Support services, including secretarial services, office accomo-
dation, photocopying, communication, and general office expenses, are to
be paid by MINVAH. Phase II costs are assumed to be the same as Phase I
costs.

Table C

PROJECT BUDGET

Budget Item	Phase I (1988) Cndn Dollars IDRC	MINVAH	Nic Cordobas IDRC	MINVAH	Phase II (1989) Cndn Dollars IDRC	MINVAH	Nic Cordobas IDRC	MINVAH
	(Thousands)		(Millions)		(Thousands)		(Millions)	
RECIPIENT-ADMINISTERED PORTION (RAP)								
Salaries		17		100		18		105
Publications	3	1	18	5	3	1	18	5
Training		4		25		4		25
Research Expenses	5	2	30	10	5	2	30	10
Support Services		7		40		7		40
Capital Equipment	48		288		30		180	
Sub-total	56	30	336	180	38	31	228	185
CENTRE-ADMINISTERED PORTION (CAP)								
Consultants	33		198		33		198	
TOTAL, RAP + CAP	89	30	534	180	71	31	426	185
GRAND TOTAL, PHASES I AND II					160	61	960	365

Notes:

1. All currency conversions are made at the rate of CAD 1.00 = NC$ 6,000.00.
2. All Cordoba estimates are in current values as at August 31st, 1987.
3. In some cases, figures shown do not add to totals, due to rounding.

25.   <u>Capital equipment</u> costs are estimated on the basis of CAD 4,000
for the "AT" and CAD 2,000 for the "PC" as described in Table B above.
Both prices include provision of a basic dot-matrix printer, plotter or
equivalent.   All computers should be compatible with the so-called IBM
standard and all printers compatible with either Epson or IBM standards.
Procurement is shown as recipient-administered but project staff should
discuss this with the consultant; and if local quotations are not compe-
titive with those of offshore suppliers, this line might have to be
Centre-administered. Phase II costs are assumed to be about sixty per-
cent of Phase I costs on the grounds that a smaller quantity of more
specialized equipment will probably be required.

26.   <u>Consultant</u> costs are estimated on the basis of CAD 11,000 per
month and include provision for fees, living expenses and two airfares,
Ottawa-Managua-Ottawa.