Chapter 3

LOGID, A DATABASE DISKETTE FOR IRRIGATION, DRAINAGE, AND FLOOD CONTROL SOFTWARE

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3.1 Introduction

The International Commission on Irrigation and Drainage (ICID) recognized the importance of computer assistance in irrigation, drainage, and flood control a long time ago. They also saw it as one of their tasks to provide member countries with as much relevant information as possible on the subject, and therefore installed a Working Group on Systems Analysis. One of the tasks of this working group was to collect and disseminate information on the use of systems analysis, and more in particular the use of computer-based technology, in irrigation and drainage among member countries.

This is the short background of the existence of a database on diskette of a wide range of computer models and programs (178 in the latest update of November 1994). The information about the programs was initially collected from ICID member countries using a questionnaire in a specific format. The current shape of the form is treated in Section 3.3 below. The forms were returned to CEMAGREF (Centre d'Etude du Machinisme Agricole, du Génie Rural, des Eaux et des Forêts), where the Secretary of the working group resides. The data were then entered in a database (using dBase III), while a standard list of qualifications and terminology was adhered to as much as possible. The initially limited database was extended over the last few years with information from other sources, such as institutions and private persons, so as to be able to make the database as·complete as possible.

The current policy is to distribute the LOGID disk as widely as possible and request users to append as much information as possible, and return the updated disk to CEMAGREF, for the attention of the present author (see address in Annex 2).

3.2 Running LOGID

The LOGID database (dated November 1994) is supplied on a 3.5" 720 kB diskette and takes a total of 581 kB in 16 files. There are four *.bat files, including an install.bat file for installation to the C:-drive and a logid.bat file for starting the program. There are eight *.dbf or *.dbt files, which form the core database, together with two index files (*.ndx). The running of the program is done through the logiciel.exe file. Note that LOGID is an abbreviation of the French word LOGiciel, combined with the I for Irrigation and the D for Drainage. The program will run on an IBM PC XT/AT or PS/2 compatible microcomputer under the MS-DOS operating system.

Installation is simply done by putting the diskette in an appropriate floppy disk drive, and typing A:install at the C:-prompt and [Enter]. This action will create a C:\LOGID directory and copy all files thereto. So, next you go to directory C:\LOGID and type logid to start the program. The database management system's Main menu will now be displayed, which looks as shown in Figure 3.1.

```
================================Possible choices================================
| Exit from LOGID to MS-DOS ----------------------------------------> X |
| Introducing a new file into the data base -------------------> I |
| Read files from the data base ---------------------------------> R |
| Change data in a file -----------------------------------------> C |
| Keyword list --------------------------------------------------> K |
| Erase a file from the data base -------------------------------> E |
| Affichage des écrans, messages et aide en français ---------> A |
=Only one screen=
To select press the 1st letter of a line or the arrow keys and RETURN
```

Figure 3.1   The Main menu of the LOGID program

If you have a colour monitor, the selected item is shown in green characters on a red background. Other possible choices are in white letters on a light-grey background. Non-usable choices are in dark-grey against a light-grey background. On a black-and-white monitor these colours will be in different shades of grey only. Note that the 7th choice allows you to switch from English to French and vice-versa.

The Main menu allows you primarily to choose between entering a new record (or file; i.e. describing a new program), reading, or editing, or erasing existing entries or going to the keyword list.

In case you want to read from the database, you will get another menu with six choices, as shown in Figure 3.2.

```
================================Possible choices================================
| End of consultation/Return to previous menu-----------------> E |
| Name: Select a software knowing its name ---------------------> N |
| Field: Select a software from a field ------------------------> F |
| Topic: Select from a topic within a field --------------------> T |
| Complete programs list ---------------------------------------> C |
| Affichage des écrans, messages et aide en français ---------> A |
=Only one screen=
```

Figure 3.2   The Read sub-menu of LOGID

The complete list of programs can be shown on screen (see also Table 3.1).

Table 3.1   The software list in LOGID as per November 1994

Software name	Country	I/D/F	Theme
AAD MODELING SYSTEM	NETHERLANDS	I	Irrigation management
ADIMO	NETHERLANDS	I	Water requirements
AGNPS	USA	D	Simulation
AGREGA	PORTUGAL	I	Irrigation management
AGWAT	NETHERLANDS	I	Water requirements
AQUIFER MODEL	UNITED KINGDOM	D	Simulation
ASTRHYD	FRANCE	I	Irrigation management
BACKWAT	UNITED KINGDOM	F	Open channel flow
BAHIA	FRANCE	I	Open channel flow
BAHIDIA	ARGENTINA	I	Irrigation management
BALANCE	BULGARIA	I	Irrigation scheduling
BALLISTIC TRAJECTORY	BRAZIL	I	Sprinkler irrigation
BASCAD 2.0	NETHERLANDS	I	Reservoir management
BCW	USA	I	Open channel flow
BEL	FRANCE	I	Water hammer
BICADM	AUSTRALIA	I	Border irrigation
BIDRICO	ITALY	I	Soil-water model
BILAN HYDRIQUE PRAIR	BELGIQUE	I	Irrigation management
BILANREG	FRANCE	I	Water requirements
BUCKL	JAPAN	I	Water requirements
BYM	FRANCE	I	Soil-water model
CALDERIN	ESPAGNE	I	Pumping station
CALPIV	FRANCE	I	Sprinkler irrigation
CALSITE	UNITED KINGDOM	I	Reservoir sedimentation
CANAL9	FRANCE	I	Open channel flow
CANAL_D	USA	I	Open channel flow
CATCH-3D	USA	I	Sprinkler irrigation
CEBELMAIL	FRANCE	I	Pressurized network
CERES	FRANCE	F	Flood routing
CERES-MILLET	USA	I	Soil-water model
CIRCHAN	ESPAGNE	I	Semi-circular canal
CLIMWAT	ITALY	I	Water requirements
CMMSWICG	PAKISTAN	I	Irrigation scheduling
COUP	UNITED KINGDOM	I	Water hammer
CRIWAR 2.0	NETHERLANDS	I	Water balance
CROPWAT	ITALY	I	Irrigation scheduling
CRPSM	USA	I	Irrigation management
CRUE	FRANCE	I	Peak flood modelling
DACCORD	FRANCE	D	Drainage network
DACSE	UNITED KINGDOM	I	Sediment control
DAMBRK UK	UNITED KINGDOM	F	Dam break
DELPAR	NETHERLANDS	I	Hydrology
DELTA2	PAKISTAN	I	Water requirements
DELWAQ	NETHERLANDS	I	Water quality
DEMAND	MOROCCO	I	Irrigation management
DEMGEN	NETHERLANDS	D	Simulation
DEVER	FRANCE	F	Open channel flow
DIGIT	UNITED KINGDOM	I	Hydrology
DORC	UNITED KINGDOM	I	Regime canals
DOSSBAS	UNITED KINGDOM	I	Sediment control
DRAINAGE	FRANCE	D	Drainage network
DRAINET_C	GERMANY	D	Simulation
DRAINSAL	INDIA	D	Simulation
ECOSYS	CANADA	I	Irrigation management
EVAPOTRANSPIRATION	BRAZIL	I	Hydrology
FASTQUOTE	NEW ZEALAND	I	Irrigation design
FLD_BOX	CANADA	D	Passe mare
FLUME 3.0	NETHERLANDS	I	Hydrology
FRQSIM	UNITED KINGDOM	F	Urban hydrology

Table 3.1 (Ctd.)

Software name	Country	I/D/F	Theme
GEOCUP	JAPAN	I	Earthen dams
GESREG	PORTUGAL	I	Irrigation management
GESTIO	FRANCE	I	River training
GLYCIM	USA	I	Soil-climate-crop model
GRASPER	MOROCCO	I	Irrigation management
HSPF	USA	D	Simulation
HYDRA	FRANCE	D	Drainage network
HYDRAN	UNITED KINGDOM	I	Pressurized network
HYDRO_ID	UNITED KINGDOM	I	Open channel flow
HYDSYS FOR DRAINAGE	CANADA	D	Drainage network
HYMOS	NETHERLANDS	I	Hydrometeorology
IBMR	PAKISTAN	I	Irrigation planning
ICARE	FRANCE	I	Pressurized network
IMPACT	UNITED KINGDOM	I	Impact study
IMS	UNITED KINGDOM	I	Irrigation management
INCA	UNITED KINGDOM	I	Irrigation management
IRR-TIME	NETHERLANDS	I	Irrigation management
IRRICAD	ITALY	I	Pressurized network
IRRICAD5	NEW ZEALAND	I	Irrigation design
IRRICANE III	LA REUNION	I	Irrigation management
IRRICEP	PORTUGAL	I	Gravity network
IRRIGATION SCHEDULIN	UNITED KINGDOM	I	Irrigation management
IRRIGATION WATER REQ	BRASIL	I	Evapotranspiration
IRRIMOD	INDIA	I	Evapotranspiration
IRRISKED	USA	I	Irrigation scheduling
IRRITEL	FRANCE	I	Irrigation management
ISAREG	PORTUGAL	I	Irrigation management
L&W TOOLKIT	NETHERLANDS	I	Irrigation management
LIDO	FRANCE	I	Open channel flow
LINMOD	NETHERLANDS	D	Simulation
LOGDOS	NETHERLANDS	I	Hydrometeorology
LOGIDRAIN	FRANCE	D	Drainage system
MACRA	COLOMBIE	I	Evapotranspiration
MBAL	UNITED KINGDOM	I	Soil-climate-crop model
MECENE	FRANCE	I	Economy
MICRO DRAINAGE	UNITED KINGDOM	D	Drainage system
MICROFLUCOMP	UNITED KINGDOM	F	Open channel flow
MIDAS	UNITED KINGDOM	I	Gravity irrigation
MIKE11	DENMARK	I	Gravity network
MIS	USA	I	Irrigation management
MODFLOW+MODGRID	NETHERLANDS	D	Groundwater flow
MONFLOW	CANADA	I	Hydrology
MRI	PAKISTAN	I	Irrigation scheduling
MUST	NETHERLANDS	I	Soil-climate-crop model
NORMA	BULGARIA	I	Water requirements
OMIS	NETHERLANDS	I	Irrigation management
ONDA	UNITED KINGDOM	I	Open channel flow
OPUS	USA	I	Soil-water model
ORIGINAL PENMAN MODE	UNITED KINGDOM	I	Irrigation management
PARADIGM	UNITED KINGDOM	I	Probable rainfall
PB2DIAM	FRANCE	I	Micro-irrigation
PC-CANDES	NETHERLANDS	I	Open channel flow
PCET	USA	I	Irrigation management
PECARI	FRANCE	I	Pressurized network
PENMET 3	BRAZIL	I	Irrigation management
PIMAG	MORROCO	I	Irrigation management
POETICS	JAPAN	I	Earthen dams
POLICORO	ITALY	I	Soil-water model
PROCANAL	BRASIL	I	Gravity irrigation
PROFILE	NETHERLANDS	I	Open channel flow

Table 3.1 (Ctd.)

Software name	Country	I/D/F	Theme
QEST	CANADA	I	Hydrology
RAHYSMOD	NETHERLANDS	I	Soil-water model
RAIEOPT	FRANCE	I	Gravity irrigation
RAMI	FRANCE	I	Pressurized network
RAMIF1	MOROCCO	I	Pressurized network
RBM_DOGGS	UNITED KINGDOM	F	Flood routing
REF-ET	USA	I	Evapotranspiration
RELREG	PORTUGAL	I	Irrigation management
RESOP	CANADA	I	Irrigation management
RESPONSE FUNCTIONS	BRASIL	I	Irrigation management
RG	ESPAGNE	I	Pressurized network
RIBASIM	NETHERLANDS	I	River basin hydrology
RM4S	JAPAN	I	Resistance modelling
SALCON	NETHERLANDS	D	Groundwater flow
SALMON-F	UNITED KINGDOM	F	Open channel flow
SALTMOD	NETHERLANDS	I	Soil-water model
SATEM 1.4	NETHERLANDS	D	Simulation
SCAL	ESPAGNE	I	Micro-irrigation
SGMP 2.1	NETHERLANDS	D	Simulation
SIC	FRANCE	I	Open channel flow
SIDRA	FRANCE	D	Simulation
SIMIS	ITALY	I	Irrigation scheduling
SIMTHEO	BRASIL	I	Soil-climate-crop model
SIRFRU	ITALY	I	Irrigation management
SIRMOD	USA	I	Surface irrigation
SOILWAT	HUNGARY	I	Irrigation management
SOILWAT-I	HUNGARY	I	Hydrology
SOWABAMO	ITALY	I	Soil-water model
SPRINKPAC	NEW ZEALAND	I	Irrigation design
SPRINKSIM	USA	I	Pressurized network
STAB	FRANCE	I	Earthen dams
STC25	UNITED KINGDOM	D	Drainage network
STEADY	USA	I	Open channel flow
STORMPAC	UNITED KINGDOM	D	Simulation
SURVEY	FRANCE	F	Flood mitigation
SWACROP	PAKISTAN	I	Soil-water model
SWATRE/SWACROP	NETHERLANDS	I	Soil-water model
SWATRER-SUCROS	BELGIQUE	I	Soil-climate-crop model
SWATRES/SWACROP	NETHERLANDS	I	Soil-climate-crop model
SWIMM	UNITED KINGDOM	I	Reservoir sedimentation
TALWEG-FLUVIA	FRANCE	F	Open channel flow
TARCOMP	NETHERLANDS	I	River basin management
THALIE	FRANCE	I	Hydrometric network
TURGAP	GERMANY	I	Irrigation planning
USUPIVOT	USA	I	Center pivot
UTAHET	USA	I	Irrigation management
VERIP	FRANCE	I	Sprinkler irrigation
VERITAS	FRANCE	I	Sprinkler irrigation
VIDEOTEL IRR. MODEL	ITALY	I	Irrigation scheduling
WALLING.SYS.FOR DRAI	UNITED KINGDOM	D	Simulation
WASAM	NETHERLANDS	I	Irrigation management
WATER BALANCE MODEL	BRASIL	I	Soil-climate-crop model
WATER DISTRIBUTION	BRASIL	I	Irrigation management
WATER USE MOD	USA	I	Evapotranspiration
WBT	USA	I	Irrigation management
WIS	UNITED KINGDOM	I	Hydrology
WRMM	CANADA	I	Irrigation scheduling
XERXES-RENFORS	FRANCE	I	Pressurized network
YIELD	BULGARIA	I	Soil-water model

You can view information about any program in the database by selecting its name from any of three lists:

(i)   by program name, from an alphabetical list (see Table 3.1);

(ii)   by field of interest (Irrigation, Drainage, or Flood control);

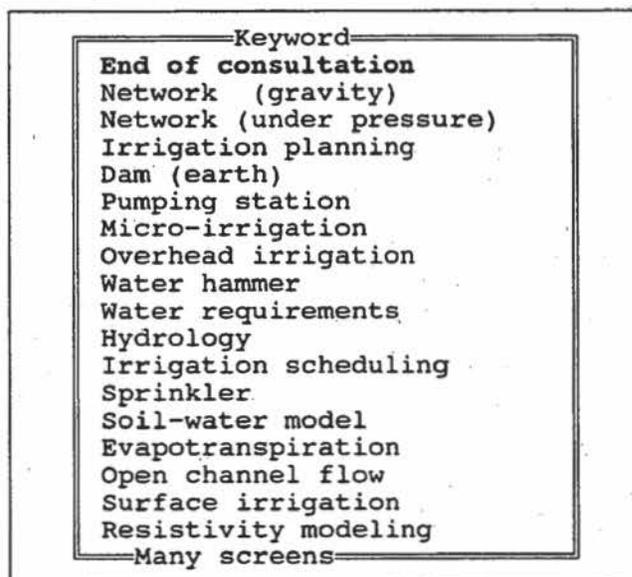(iii)   by subject/keyword within a field, an example of which is shown in Figure 3.3.

```
==================Keyword==================
 End of consultation
 Network  (gravity)
 Network (under pressure)
 Irrigation planning
 Dam (earth)
 Pumping station
 Micro-irrigation
 Overhead irrigation
 Water hammer
 Water requirements
 Hydrology
 Irrigation scheduling
 Sprinkler
 Soil-water model
 Evapotranspiration
 Open channel flow
 Surface irrigation
 Resistivity modeling
=================Many screens=================
```

Figure 3.3   LOGID's keyword list for irrigation

If you choose to change data in a file, you may do so for your own use. To communicate the changes to us, it would be better to to create a new entry, mentioning that this is a new version of the program, and send us the complete disk (including the changes).

To enter a new program into the database, follow the menu and answer the questions from four screens. These screens correspond with the forms which were sent to the member countries, which are mentioned below. The most important item to fill in is your short description (on screen 3) of the aims and methodology of the program you are entering (a maximum of 20 lines of text). You can also, if necessary, enter new keywords for any of the three fields (I/D/F), provided you know the French translation.

3.3   Forms for LOGID entries

As mentioned above, the basic information for the LOGID database was collected via four structured forms. These forms are reproduced on the next few pages as Figure 3.3. It can be seen that the requested information falls into a number of classes or categories. After specifying the name and the purpose of the program, hardware requirements, software aspects, user aspects, keywords, functional description, and software marketing appear.

Figure 3.4   Basic forms for the LOGID database

Formulaire pour la base de données LOGID / Form for Data Base LOGID
Remplir les cases larges, cochez les cases étroites/Fill in wide squares, check off narrow squares

Nom du logiciel		Title of the software
Fonction		Purpose

Matériel   Hardware needed

Grand système		Main frame
Mini ordinateur		Mini computer
Micro-ordinateur compatible IBM-PC		IBM-PC compatible micro-computer
Autre micro-ordinateur		Other micro-computer

Système d'exploitation   Operating system

Système d'exploitation spécial		Specific Operating system
MS/DOS 2.xx et suiv		MS/DOS 2.xx and seq.
MS/DOS 3.xx et suiv		MS/DOS 3.xx and seq
OS/2 et P.M		OS/2 and P.M
Système UNIX		UNIX system

Mémoire centrale   Main storage

256 kilo-octets		256 kilo-bytes
512 kilo-octets		512 kilo-bytes
640 kilo-octets		640 kilo-bytes
1 méga-octets		1 mega-bytes
2 méga-octets		2 méga-bytes
+ de 2 méga-octets		+ 2 mega-bytes

Disque dur   Hard disk

<=20 Mo		<=20 Mo
<= 100 Mo		<= 100 Mo
> 100 Mo		> 100 Mo

Disquette   Floppy disk

Inutile		Useless
5,25' 360 Ko		5.25'360 Ko
5,25' 1,2 Mo		5.25' 1.2 Mo
3,5' 720 Ko		3.5' 720 Ko
3,5' 1,44 Mo		3.5' 1.44 Mo
Format spécial		Special format

Bande magnétique   Magnetic tape

Inutile		useless
Format spécial		Special format
1600 bpi		1600 bpi
6250 bpi		6250 bpi

Contrôleur d'écran   Display Controller

Standard		Standard
Spéciale		Specific
EGA		EGA
VGA		VGA
HERCULES		HERCULES

Moniteur   Display unit

Monochrome		Monochrom
Couleur		Color
Haute résolution		High resolution
Multi-fréquence		Multi-synchronism

Imprimante   Printer

Standard		Standard
Laser		Laser
Graphique		Graphic
Graphique large		Wide graphic

Numériseur   Scanner

Inutile		Useless

Figure 3.4 (Ctd.)

Formulaire pour la base de données LOGID / Form for Data Base LOGID
Remplir les cases larges, cochez les cases étroites/Fill in wide squares, check off narrow squares

Numériseur couleur	☐	Color scanner
Numériseur monochrome (grisés)	☐	Monochrom scanner (grey scale)

Traceur   **Plotter**

Inutile	☐	Useless
Traceur de table	☐	Flat bed plotter
Traceur à rouleau	☐	Roller plotter
Traceur électrostatique	☐	Electrostatic plotter

Digitaliseur   **Digitiser**

Sans objet ou inutile	☐	Groundless or useless
Utilisé si présent (optionnel)	☐	Used if present (optional)
Indispensable	☐	Required(absolutely necessary)

Processeur arithmétique   **Mathematical processor**

Sans objet ou inutile	☐	Groundless or useless
Utilisé si présent (optionnel)	☐	Used if present (optional)
Indispensable	☐	Required(absolutely necessary)

Souris   **Mouse**

Sans objet ou inutile	☐	Groundless or useless
Utilisé si présent (optionnel)	☐	Used if present (optional)
Indispensable	☐	Required(absolutely necessary)

Dispositif de protection   **Copy protection**

Le logiciel n'est pas protégé	☐	The software isn't protected
Protection par clef ou bouchon	☐	Protection by key
Protection par un mot de passe	☐	Protection by keyword
Autre dispositif de protection	☐	Other means of protection

Langage(s) de programmation   **Programming language(s)**

FORTRAN	☐	FORTRAN
BASIC	☐	BASIC
PASCAL	☐	PASCAL
DBASE III	☐	DBASE III
C	☐	C
Plusieurs langages de programmation	☐	Several programming languages

La fourniture du logiciel comprend   **Provided software includes**

Uniquement un code exécutable	☐	Only an executable code
Uniquement le code source	☐	Only the source language
A la fois code source et exécutable	☐	Both source and executable code

L'échelle de temps est   **Time scale is**

Sans objet	☐	Groundless
Années	☐	Years
Saison	☐	Season
Mois	☐	Months
Jours	☐	Days
Heures	☐	Hours
Minutes	☐	Minutes

Validation du modèle vis à vis de   **Model has been verified against**

Solutions analytiques	☐	Analytical solutions
Autres programmes	☐	Other programs
Mesures et/ou observations	☐	Measurements
Autres formes de vérification	☐	Other forms of verification

Utilisation   **Software use**

Traitement par lot	☐	Batch mode
Logiciel conversationnel	☐	Interactive mode

Environnement logiciel   **Software environment**

Programme fonctionnant seul	☐	Stand-alone program
Besoins d'autres logiciels	☐	Other softwares needed

Langue de travail   **Working language**

Figure 3.4 (Ctd.)

Formulaire pour la base de données LOGID / Form for Data Base **LOGID**
Remplir les cases larges, cochez les cases étroites/Fill in wide squares, check off narrow squares

Français	☐	French
Anglais	☐	English
Plusieurs langues	☐	Several languages
Langue du pays d'origine	☐	Original country language

Système d'unités utilisé   Used unit system

Système International	☐	SI system
Unités anglaises	☐	English units
Autre système d'unité cohérent	☐	Any consistent unit system

Le domaine d'application choisi   The chosen application field is

IRRIGATION	☐	IRRIGATION
DRAINAGE	☐	DRAINAGE
MAITRISE DES CRUES	☐	FLOOD CONTROL

Choisissez ou ajoutez un mot clef   *Choose or add a keyword*
Le thème spécifique choisi est   The chosen specific theme is
Si thème=IRRIGATION, mot clef :   If theme=IRRIGATION keyword :

Réseau (sous pression)	☐	Network (under pressure)
Réseau (gravitaire)	☐	Network (gravity)
Economie	☐	Economy
Barrage (en terre)	☐	Dam (earth)
Station de pompage	☐	Pumping station
Micro-irrigation	☐	Micro-irrigation
Irrigation par aspersion	☐	Overhead irrigation
Coup de bélier	☐	Water hammer
Besoins en eau	☐	Irrigation needed
Hydrologie	☐	Hydrology
Gestion des irrigations	☐	Irrigation management
Asperseur	☐	Sprinkler
Modèle sol-climat-plante	☐	Soil-climate-crop model
Evapotranspiration	☐	Evapotranspiration
Hydraulique à surf. libre	☐	Open channel flow
Irrigation gravitaire	☐	Surface irrigation

Mot clef à ajouter [   ] added keyword

Si thème=DRAINAGE, mot clef: If theme=DRAINAGE, keyword:

Réseau	☐	Network
Simulation	☐	Simulation

Mot clef à ajouter [   ] added keyword

Si thème=MAITRISE DES CRUES, mot clef :   If theme = FLOOD CONTROL, keyword:

Hydraulique à surf. libre	☐	Open channel hydraulic

Mot clef à ajouter [   ] added keyword

Description des fonctions du logiciel: *Description of the functions of the software:*

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Figure 3.4 (Ctd.)

Formulaire pour la base de données LOGID / Form for Data Base LOGID
Remplir les cases larges, cochez les cases étroites/Fill in wide squares, check off narrow squares

Commercialisation		Software marketing
Société		Company
Service de conception		Design division
Personne à contacter		Contact person
Adresse		Address
Boite Postale		P.O. box
Code Postal		Postal code
Ville		City
Pays		Country
Téléphone		Phone number
Télex		Telex
Télécopie		Fax
Prix de vente au détail hors taxes		Software retail price without taxes
Devise		Currency
Date de la première version	/ /	Date of first version
Date de la version actuelle	/ /	Date of current version
Date de ces informations	/ /	Date information entered
Conditions de maintenance		Maintenance conditions

Disponible gratuitement ☐ Available free of charge
Disponible avec paiement ☐ Available against payment
Non disponible ☐ Not available

C.I.I.D.   page 4 / 4   I.C.I.D.
Groupe de travail "Analyse des Systèmes"   Working group on systems analysis

Note that about 1½ pages are concerned with hardware requirements, and another half page with software building aspects, almost one page with specifying the appropriate subject, half a page with a free-format description, and half a page with addresses. The hardware is relatively easy to specify (and detail in a form) and gets quite some attention. One might want more information on some user aspects, like the intended use or target group, the availability of a manual or on-screen help, and more specific and more distinctive keywords. Nevertheless, it shows a rather comprehensive approach to obtaining information on available irrigation (146 programs) and drainage (22 programs) software (and relatively few -10- flood control programs). The merits of this type of information, in comparison with other attempts at an inventory (like the ILRI inventory and IRRISOFT) will be discussed in Chapters 4 and 5. Moreover, LOGID is easily accessible and thus may grow in future, as more member-countries, institutions, and individuals discover its usefulness and submit more forms.