USE OF MICRO CDS/ISIS IN PAKISTAN
A SURVEY

By Khalid Mahmood

Abstract: Micro CDS/ISIS, free software developed by UNESCO, is widely being used through out the world for handling and control of bibliographic records. In Pakistan, this is the only software which is mostly being used in libraries and information centres. This paper reports a survey on the status of the use of CDS/ISIS in Pakistan. Use of the software was started in Pakistan in 1988. Cataloguing of books and indexing of periodicals are the major areas of use. Users' opinions about various features of the software are given. Problems faced by the users in using CDS/ISIS are also discussed.

Micro version of the UNESCO-developed software package CDS/ISIS was released in 1985. Since that time it has been widely used through out the world. The number of licensed users increased from 3,000 in 1988 to 15,000 at the end of 1994 (*1,* p.10). The software is available, for non-profit organizations, free of cost direct from UNESCO, Paris or 100+ regional and national distributors. Mentioning the aims of the package Hopkinson (*2*) says

> UNESCO's intention in developing CDS/ISIS was to benefit developing countries in which library and information services had no easy and affordable access to software. Additionally, consonant with the aims of PGI, the division of UNESCO at which the package is now maintained, it promotes the exchange of information between different sectors in countries that may be at varying levels of development. From the introduction of the microcomputer version, it has been seen as a tool to use alongside exchange formats (p.76).

CDS/ISIS is a package that has been developed for bibliographic information; that is, information about documents such as books, journal articles, or conference proceedings. However, it has not been developed for library housekeeping applications (*2,* p.77). Major differentiating features, for which CDS/ISIS has become popular in libraries and information centres all over the world, include the use of variable length fields, sub-fields and repeatable fields. It is free of cost. CDS/ISIS uses advanced indexing techniques to enable faster searching of the database. Multilingual nature of the package is another important feature. Text on menus and worksheets can be changed by the user (*3*).

In Pakistan, the use of CDS/ISIS has been evidenced since 1988. UNESCO has appointed Pakistan Scientific & Technological Information Centre (PASTIC),

Islamabad as national distributor of CDS/ISIS software. According to Carino (*4*) there were 10 users of the software in Pakistan in 1992. Kips (*1*, p.11) mentions that this number was increased up to 51 in 1992.

CDS/ISIS in Library Literature in Pakistan

CDS/ISIS has been much described and discussed in library literature through out the world. Until April 1996 there were 139 books and monographs and 142 journal articles published in various languages (*3*). Information on the package began to appear in Pakistani library literature since 1990. Here we will review the literature on CDS/ISIS published in Pakistan in a chronological order.

Bushra (*5*) claimed that the use of CDS/ISIS software was introduced for the first time in the libraries of Lahore by LABELNET project. This project was jointly sponsored by International Development Research Centre (IDRC), Canada and Lahore University of Management Sciences (LUMS) and it aimed at the resource sharing in the libraries in business and economics sector in Lahore. Using CDS/ISIS two databases were maintained. SENET was the database designed for union list of serials. The database contained 605 records. The second database, UNIC, was developed for union catalogue. Until 1990 this database had 1,800 records. Describing the library activities of Dr. A.Q. Khan Research Laboratories, Bhatti and Sultan (*6*) related that they got CDS/ISIS package and training from PASTIC and started library automation. „It is a matter of great satisfaction that the system has shown commendable results and the library users have widely appreciated it" (p.105). Siddiqui (*7*) mentioned that Pakistan Institute of Development Economics (PIDE) at Islamabad became ISIS Resource Centre in 1979 with the technical and financial assistance from the International Development Research Centre of Canada. Under this project PIDE Library created a computerized database containing 700 records. In 1992, Sultan and Bhatti (*8*) described the details of CDS/ISIS use in Dr. A.Q. Khan Research Laboratories Library. They started to use CDS/ISIS on local area network. Since January 1990 the library had entered about 50% of its total documents. Functions of CDS/ISIS and its salient features were also described in the article. In a survey of 95 automated libraries of the twin cities of Islamabad and Rawalpindi, Maqsood (*9*) mentioned that 10 libraries were using CDS/ISIS in 1991-1992 and it was the only software that was mostly used. According to Hanif (*10*) „Library Automation Group (LAG)" was formed in 1992 consisting of librarians and computer specialists of Federal Area. LAG constituted a committee to make a comparative study of two available micro software packages: Micro CDS/ISIS and INMAGIC. Then the study was published in an issue of *LAG News*. Software specifications, indexing features, deferred indexing option for maintenance, input/output

features, data validation, search features, output/display, and many other features of the both packages were compared. At the end CDS/ISIS was recommended by the committee for the use in Pakistani libraries. In an article published in *Pakistan Library Bulletin* Naqvi (*11*) described CDS/ISIS software in detail. He introduced various features and modules of the package with a number of examples. In another article in *Pakistan Library Bulletin* Khalid (*12*) described new features of CDS/ISIS that were introduced in version 3.0. This version was made specially for multi-user environments. New and easy installation procedure was adopted. Many new features in formatting language and indexing techniques were also added to the software. In 1995 Khalid (*13*) described the various important characteristics of CDS/ISIS that were particularly fulfill the requirements of Pakistani libraries. 29 advantages of the use of CDS/ISIS were discussed. Naqvi (*14*) narrated the library automation activities of PIDE. Computerization was started in 1988 with CDS/ISIS version 1.0. Three databases have been developed. LIBRI database, having 14,632 records, includes publications on South Asia. PILS contains 3,100 records of World Bank publications. HOLD database contains 458 records of periodicals holding of the library. In a survey of 40 automated libraries of Lahore, Haroon (*15*) mentioned that 23 libraries use CDS/ISIS for different purposes. This is the mostly used software in the city.

From the literature survey it is apparent that all the studies are either theoretical descriptions of the software or narratives of individual libraries. As CDS/ISIS is the mostly used package in Pakistani libraries and information centres, the opinion of its users should have been studied which the previous literature lacked. There is also a dire need to find out the problems that are faced by the users of CDS/ISIS.

Purpose and Scope of the Study

The purpose of this study is to find out:

-   Current status of the use of Micro CDS/ISIS in Pakistan;
-   Which functions have been automated with the help of CDS/ISIS;
-   Opinion of CDS/ISIS users about various features of the software;
-   Problems in the use of the software; and
-   Suggestions of users about the support of the software.

Scope of the study covers all libraries, information centres, training centres and library and information related organizations that are using CDS/ISIS package for any purpose. It has been tried to cover institutions from all over the country.

Methodology

Survey method was adopted for this study. A comprehensive questionnaire was designed. Information about CDS/ISIS use in various institutions were obtained from different bibliographic and personal sources. The questionnaire was sent to 60 organizations out of which, during the time span of a whole year, 40 responded. The response rate is 66.66%. Most of the institutions at Lahore and Islamabad were personally visited by the author and working professionals were interviewed. Data from Quetta and Peshawar was collected with the help of Mr. Muhammad Ilyas and Syed Liaqat Ali respectively. These are the teachers at LIS departments in both of the cities. There was no response from Karachi.

Analysis of the Survey Findings

CDS/ISIS use in various provinces: Pakistan is administratively divided into four provinces Punjab, Sind, Balochistan and N.W.F.P. and Federal & Tribal Area (administered federally). The independent part of Jammu & Kashmir is also attached with the country and there is no restrictions in the movement between the two units. Out of 40 institutions studied 23 (57.5%) are situated in Punjab Province. Second area where CDS/ISIS is mostly used is Federal Capital Islamabad where 9 institutions (22.5%) use the package. For other areas see *Table 1*.

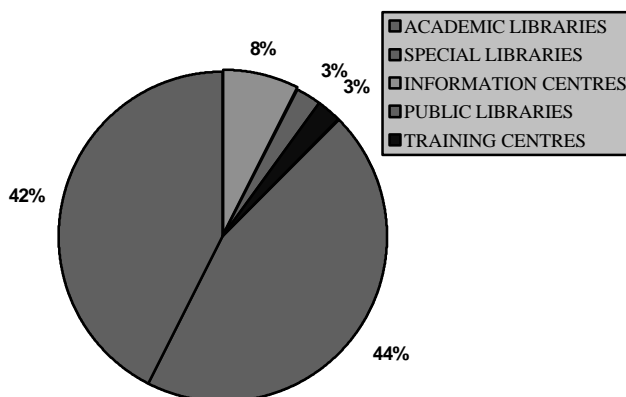*Table 1. Area wise distribution of CDS/ISIS users*

Rank	Area	Frequency	%
1	Punjab	23	57.5
2	Federal Capital	9	22.5
3	Balochistan	4	10.0
4	N.W.F.P.	3	7.5
5	Azad Jammu & Kashmir	1	2.5
6	Sind	0	0.0
	Total	40	100.0

CDS/ISIS users: Survey findings show that CDS/ISIS is mostly being used in academic and special libraries. The ratio of academic libraries is 45% while special libraries (42.5%) are at the second position in the rank order. Other users include information centres (7.5%), one public library and one training centre. See *Table 2*.

Table 2. Types of CDS/ISIS users

Rank	Type	Frequency	%
1	Academic libraries	18	45.0
2	Special libraries	17	42.5
3	Information Centres	3	7.5
4	Public libraries	1	2.5
5	Training Centres	1	2.5
	Total	40	100.0

Graph 1. CDS/ISIS Users

Versions of CDS/ISIS: It has been found that three different versions of the software are in use. Information about version is provided by 31 (77.5%) users. The latest version 3.07 is mostly used in 15 (48.3%) institutions. The second mostly used version is 3.0 which is used by 14 (45.2%) users. Version 2.3 is also being used by 2 (6.5%) institutions. See *Table 3*.

Table 3. CDS/ISIS versions

Rank	Version	Frequency	%
1	3.07	15	48.3
2	3.0	14	45.2
3	2.3	2	6.5
	Total	31	100.0

Software providers: All users provided information about the institutions from where they got CDS/ISIS software. Most of the users (50%) procured the package from PLA Computer Training Centres at different cities. PASTIC, the distributor appointed by UNESCO provided the software to only 8 (20%) institutions. Netherlands Library Development Project (NLDP) supplied CDS/ISIS with their integrated library software LAMP to 6 (15%) institutions. Other software providers include UNESCO (Paris), LABELNET and Pakistan University Grants Commission (UGC). For more details see *Table 4*.
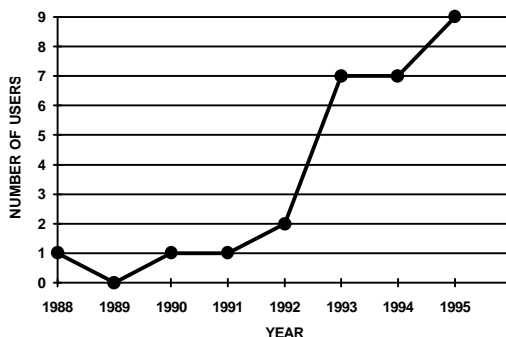
Table 4. Software providers

Rank	Name of Institution	Frequency	%
1	PLACTC	20	50.0
2	PASTIC	8	20.0
3	NLDP	6	15.0
4	UNESCO	3	7.5
5	LABELNET	2	5.0
6	UGC	1	2.5
	Total	40	100.0

Chronology of CDS/ISIS use: Only 29 (72.5%) users supplied the information about the year when they started the use of CDS/ISIS. In 1988, an institution used the package for the first time. *Graph 2* shows that there is an increase in the use after 1991. Education of CDS/ISIS by Pakistan Library Association in various cities of the country appears to be one of the major reasons for this increase. The other reasons include the activities of LABELNET project in Lahore and the development of integrated library software LAMP which was developed by NLDP using CDS/ISIS Pascal programming language. The overall trend of library automation in the country also another reason for the increased use of a free software, i.e., CDS/ISIS.

Table 5. Chronological distribution of CDS/ISIS use

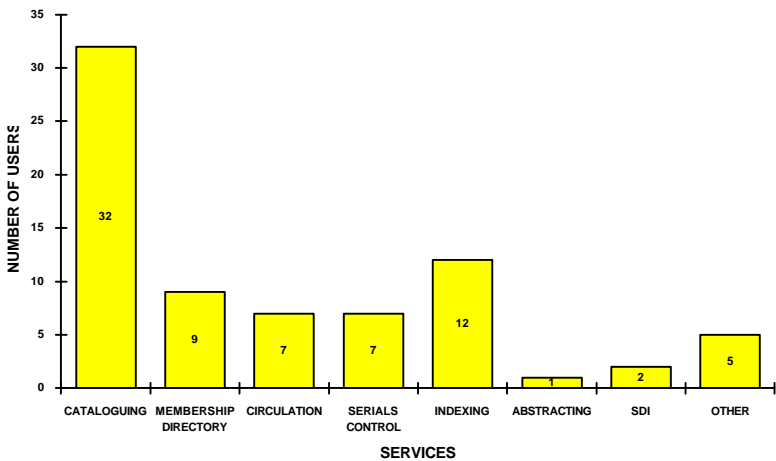| Year	Frequency	%
1988	1	3.4
1989	0	0.0
1990	1	3.4
1991	1	3.4
1992	2	6.9
1993	7	24.1
1994	7	24.1
1995	9	31.0
1996	1	3.4
Total	29	100.0

Graph 2. Chronology of CDS/ISIS use

Services automated using CDS/ISIS: The package has been basically developed for the control of bibliographic records. Cataloguing service is thus easily be automated with the help of CDS/ISIS. 80% of users use CDS/ISIS to provide cataloguing services in their libraries. The second largest use of CDS/ISIS is in the field of journal articles indexing. This is another form of bibliographic work which is being done in 12 (30%) institutions. Directory of library members is the third most area of CDS/ISIS use which is in 9 (22.5%) institutions. Other examples of CDS/ISIS use include acquisition, circulation, serials control, abstracting, selective dissemination of information (SDI), stock verification, mailing lists, list of courses offered by the institution, and teaching librarians and library and information science students.

Table 6. Services automated using CDS/ISIS   (N=40)

Service	Frequency	%
Acquisition	3	7.5
Cataloguing	32	80.0
Membership directory	9	22.5
Circulation	7	17.5
Serials control	7	17.5
Indexing	12	30.0
Abstracting	1	2.5
SDI	2	5.0
Other	5	12.5

Graph 3. Services Automated Using CDS/ISIS

Databases in CDS/ISIS: 34 users supplied information about 51 different databases they have designed using CDS/ISIS. 5 institutions have designed 4 databases each. Databases are of various sizes and are meant for various purposes. The maximum number of databases, i.e., 17 (33.3%) have records between 1,000 to 5,000. Three databases have more than 10,000 records each. Total number of records which have so far been entered in 51 databases is 175,217.

Table 7. Size of databases in CDS/ISIS

Maximum MFN	Frequency	%
1-100	5	9.8
101-500	12	23.5
501-1000	6	11.8
1001-5000	17	33.3
5001-10000	8	15.7
10000+	3	5.9
Total	51	100.0

Training in CDS/ISIS: 35 users supplied information about the formal training of their staff in using CDS/ISIS. 18 (51.4%) institutions have only one trained staff member each. 9 (25.7%) institutions have 2 each trained personnel. The maximum number of trained staff is 7 which is in one institute. The total number of trained professionals in 35 institutions is 73. From the introduction of CDS/ISIS in Pakistan PLA has been offering training courses on the software. Since 1992 five PLA Computer Training Centres in federal capital Islamabad and provincial headquarters, i.e., Lahore, Karachi, Peshawar and Quetta have been regularly training working professionals in the use of CDS/ISIS. According to the survey findings staff from 26 (74.3%) institutions got training from PLA Computer Training Centres. Other training courses were held by PLA (prior to PLACTC), PASTIC, LUMS, PIDE and Pakistan Institute of Nuclear Science and Technology (PINSTECH). See *Table 8*. Some users attended course on CDS/ISIS held in other countries like Thailand, Holland and Sri Lanka.

Table 8. Staff training   (N=35)

Rank	Institution	Frequency	%
1	PLACTC	26	74.3
2	PLA (prior to PLACTC)	4	11.4
3	PASTIC	4	11.4
4	LUMS	2	5.7
5	PIDE	2	5.7
6	PINSTECH	1	2.9

Use of CDS/ISIS by library users: A question was asked from the users whether the common library patrons can use CDS/ISIS without the help of library staff or

not. Out of 40 respondents only 7 (17.5%) claimed that their users can use the software at their own.

CDS/ISIS on local area network: 13 (32.5%) institutions claimed that they use CDS/ISIS on local area network (LAN). Number of terminals ranges from 3 to 25 in different institutions. Discussing the problems regarding the use of CDS/ISIS in a multi user environment one library mentioned that 'Record locking' and 'Database locking' are the problem areas.

Consultants in CDS/ISIS: Library automation in Pakistan is in the stage of infancy. There is a dire need of consultants in using software. There is no formal consultant for CDS/ISIS. However some persons or organizations provide for free help in the use of CDS/ISIS. A question was asked whether the users consult outsiders for help in implementation or trouble shooting in CDS/ISIS. In the survey 19 users mentioned the outside helpers. A rank wise list of seven informal consultants have been given in *Table 9.*

Table 9. Consultants in CDS/ISIS

Rank	Name	Affiliation	Frequency
1	Khalid Mahmood	Dept. of Library & Information Science, Punjab University, Lahore	12
2	Sultan Mahmood	Dr. A.Q. Khan Research Laboratories, Islamabad	2
3	Zafar Javed Naqvi	PIDE, Islamabad	2
4	Bushra Riaz	LUMS, Lahore	1
5	Haseeb Ahmad Piracha	Dept. of Geology, Punjab University, Lahore	1
6	Sohail Ahmad	British Council Library, Lahore	1
7	Nisar Ahmad	PASTIC, Islamabad	1

General / support features of CDS/ISIS: In opinion about features of CDS/ISIS the response is not 100%. Out of 32 users 13 (40.6%) are of the opinion that CDS/ISIS is satisfactorily user friendly. 11 (34.4%) users think that user friendliness feature is good. CDS/ISIS is a multi-lingual package. The standard software is available in English, French and Spanish. Versions in other languages include Latin, German, Italian, Arabic, Hungarian, Korean, Thai, Tibetan, Hindi and Chinese. According to 50% users the language coverage feature of the software is good. During last 10 years UNESCO has issued various versions of CDS/ISIS. According to 33.3% users the rapid updation in versions is good. The same number of users think it satisfactory. Various manuals and handbooks are available to help the use of CDS/ISIS. 35.7% users think the publication support

of the software is good. 55.2% users are of the opinion that the training facilities in CDS/ISIS are good. 36.7% users think that consultation facility is satisfactory. For more details see *Table 10.*

Table 10. General / Support features of CDS/ISIS

Feature	Responses	Very Poor	Poor	Satisfactory	Good	Very Good
User Friendliness	32	1 (3.1%)	3 (9.4%)	13 (40.6%)	11 (34.4%)	4 (12.5%)
Language Coverage	28	1 (3.6%)	4 (14.3%)	8 (28.6%)	14 (50.0%)	1 (3.6%)
Rapid Updation of Versions	27	0 (0.0%)	6 (22.2%)	9 (33.3%)	9 (33.3%)	3 (11.1%)
Publication Support	28	2 (7.1%)	4 (14.3%)	9 (32.1%)	10 (35.7%)	3 (10.7%)
Training Facilities	29	1 (3.4%)	4 (13.8%)	6 (20.7%)	16 (55.2%)	2 (6.9%)
Consultation Facilities	30	3 (10.0%)	4 (13.3%)	11 (36.7%)	8 (26.7%)	4 (13.3%)

Technical features of CDS/ISIS: Field definition capacity in CDS/ISIS is vary high. 200 fields can be defined in a database. According to survey findings 62.1% users believe that this feature is good. Data entry screens in CDS/ISIS have various options and these are modifiable. 50% users think this feature good. Data entry module in the package have various facilities. For instance, default data entry and cut and paste facilities are provided. According to 43.8% users data entry facilities are good. CDS/ISIS has powerful indexing techniques which are really needed in a bibliographic database. According to 43.8% users this facility is good while 40.6% users have the opinion that this is very good. 50% users think that the searching speed of CDS/ISIS is good. Nearly same number of users have the similar opinion about the searching facilities. CDS/ISIS has its own display / print formatting language which facilitates the users to design different formats as needed. This language is a little bit difficult to use. 40% users thus think that this language is satisfactory. Printing features in the software are satisfactory according to 51.6% users. Data exchange facility is excellent. Data can easily be exchanged among databases even having different field structures. 46.2% users think this facility good. CDS/ISIS has its own backup facility. According to 39.3% users this facility is good. The same number of users have the idea that this facility is satisfactory. The menus of the software are also modifiable. This facility is good to 51.6% users. Since version 3.0 CDS/ISIS is working in a multi-user environment. Its networking support is good according to only 26.3% users. The same number of users have the opinion that this facility is satisfactory and the
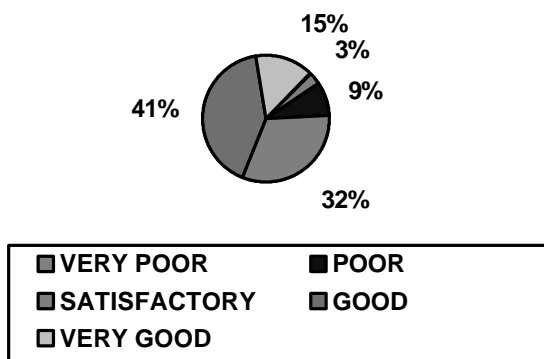
same number say that this is poor. Beyond the limitations of CDS/ISIS advanced programming is possible through ISIS PASCAL language.

Table 11. Technical features of CDS/ISIS

Feature	Responses	Very Poor	Poor	Satisfactory	Good	Very Good
Field Definition Capacity	29	0 (0.0%)	1 (3.4%)	6 (20.7%)	18 (62.1%)	4 (13.8%)
Data Entry Screens	32	1 (3.1%)	2 (6.3%)	10 (31.3%)	16 (50.0%)	3 (9.4%)
Data Entry Facilities	32	0 (0.0%)	2 (6.3%)	13 (40.6%)	14 (43.8%)	3 (9.4%)
Indexing Features	32	0 (0.0%)	0 (0.0%)	5 (15.6%)	14 (43.8%)	13 (40.6%)
Searching Facilities	32	0 (0.0%)	2 (6.3%)	6 (18.8%)	15 (46.9%)	9 (28.1%)
Searching Speed	32	0 (0.0%)	0 (0.0%)	9 (28.1%)	16 (50.0%)	7 (21.9%)
Display / Print Formats	30	2 (6.7%)	1 (3.3%)	12 (40.0%)	11 (36.7%)	4 (13.3%)
Printing Features	31	2 (6.5%)	4 (12.9%)	16 (51.6%)	6 (19.4%)	3 (9.7%)
Data Exchange Facility	26	0 (0.0%)	3 (11.5%)	8 (30.8%)	12 (46.2%)	3 (11.5%)
Backup Facility	28	0 (0.0%)	1 (3.6%)	11 (39.3%)	11 (39.3%)	5 (17.9%)
Menus	31	0 (0.0%)	1 (3.2%)	10 (32.3%)	16 (51.6%)	4 (12.9%)
Networking Support	19	1 (5.3%)	5 (26.3%)	5 (26.3%)	5 (26.3%)	3 (15.8%)
Advanced Programming Support	19	2 (10.5%)	1 (5.3%)	7 (36.8%)	5 (26.3%)	4 (21.1%)

36.8% users think that this facility is satisfactory. For details see *Table 11*. *Graph 4* shows the overall opinion of CDS/ISIS users about all features of the package. In the opinion of 41% users CDS/ISIS is good. The second largest opinion (32%) shows that it is satisfactory.

Graph 4. Users' Opinion about Features of CDS/ISIS

CDS/ISIS and library / information work: A question was asked from the users whether CDS/ISIS is able to handle all library / information work routines effectively. Total 34 (85%) users answered this question. Only 12 (35.3%) users answered the question in 'yes' while 22 (64.7%) users did not agree with the statement. The users mostly stated the following reasons for the failure of CDS/ISIS in libraries.

- Difficult in acquisition, circulation, SDI and serials control
- Not user friendly
- Difficulties in data entry and printing
- Complex searching is difficult and not user friendly
- No dynamic allocation of memory
- Indexing files are too many and too large to support a big database

Problems in using CDS/ISIS: Averagely 75% users mentioned the problems they faced in using CDS/ISIS software. Sometimes there are errors in installation of the package. 48.3% users face this problem rarely. Sometimes during working the system hangs. 53.3% users are suffering from this problem rarely. Abnormal termination of the package is rarely faced by 51.7% users. Data corruption is another problem which is frequently faced by 12.9% users and rarely by 29%. Due to unknown reasons inverted file occasionally removed. This problem is rarely faced by 41.4% users. There are errors in inverted file generation. 48.3% users face this problem rarely. 41.4% users mentioned the problems in search results.

33.3% users feel problems in printing and sorting and 29.6% users face problems in backup of data. 38.5% users have problems in importing and exporting records. Other problems indicated by the users include lack of duplication check, lack of online help, lack of data validation check, and problems in PASCAL training for ISIS users. See *Table 12*.

CDS/ISIS user groups: In other countries there are user groups of CDS/ISIS. For example, in Italy there was a user group meeting with 1,000 participants. Niger has a user group with 70 members. Thailand has an active user group with 200 institutions and about200 individual members. The Dutch speaking user group

Table 12. Problems in CDS/ISIS

Problem	Responses	Frequently	Rarely	Never
Installation errors	29	5 (17.2%)	14 (48.3%)	10 (34.5%)
System hangs	30	2 (6.7%)	16 (53.3%)	12 (40.0%)
Abnormal termination	29	0 (0.0%)	15 (51.7%)	14 (48.3%
Data corrupted	31	4 (12.9%)	9 (29.0%)	18 (58.1%)
Inverted file removed	29	1 (3.4%)	12 (41.4%)	16 (55.2%)
Errors in inverted file generation	29	1 (3.4%)	14 (48.3%)	14 (48.3%)
Incorrect search results	29	0 (0.0%)	12 (41.4%)	17 (58.6%)
Errors in printing / sorting	27	1 (3.7%)	9 (33.3%)	17 (63.0%)
Backup errors	27	0 (0.0%)	8 (29.6%)	19 (70.4%)
Errors in import / export	26	1 (3.8%)	10 (38.5%)	15 (57.7%)

has about 100 members (*3*). As in Pakistan there are so many users of CDS/ISIS and they have common problems, user groups at city, provincial and country level have strongly been recommended. For detail see *Table 13*.

Table 13. CDS/ISIS user group recommended

Rank	Level	Frequency	%
1	City	26	65.0
2	Province	22	55.0
3	Country	21	52.5

Newsletter on CDS/ISIS: As we know, at international level there are so many journals and newsletters which inform the users of CDS/ISIS with new developments and discuss the problems faced by the users. For exchanging experiences in the use of the software a newsletter has heavily been recommended by the users in Pakistan. 33 (82.5%) users are in favor of a newsletter at Pakistan level.

General impression / opinion about CDS/ISIS: 27 (67.5%) users expressed their general impressions and opinions about CDS/ISIS. A summary of them is given here.

- In the view of most of the users CDS/ISIS is a good program for libraries
- Good for novice to conceive the concept of database
- Some users say it user friendly and some say not
- It should be modified according to local needs
- It should include spell checker
- Import / export module is difficult and complicated
- It should be modified according to professional needs of libraries
- Circulation module is direly needed
- There should be a version for Windows

Conclusion

It is a bare fact that CDS/ISIS is the only software that is mostly used in Pakistani libraries and information centres. Although, in this survey , most of the users are satisfied with the software yet problems are there to be solved out. The package should be improved to cater for all the needs of libraries and information centres. CDS/ISIS may be improved in the light of the discussion in this article. As a large number of reading material in Pakistani libraries is in Urdu language, there should be an Urdu version of CDS/ISIS to handle this material. Beginning of CDS/ISIS training at PLA Computer Training Centres is a praiseworthy step. It is needed to train CDS/ISIS users at advanced level. There should be courses on programming in library services using ISIS PASCAL. ISIS user groups at all levels should be formed and a newsletter on the activities of these user groups should be published. UNESCO and PASTIC should provide funds for this purpose. PLA should arrange consultancy in the use and trouble shooting of CDS/ISIS. Although LAMP is a good effort to formulate a standard database format for Pakistani libraries which are using CDS/ISIS yet this should be improved according to the international standards, i.e,.MARC, ISBD, etc. PASTIC should control the distribution of CDS/ISIS in Pakistan and should obligate the institutions to sign the license before using the software. In this regard PASTIC may contact the institutions at its own. It is also important to time

to time conduct surveys of this type to know the status of the use of CDS/ISIS and the problems being faced by the users.

References

1. Eddie Kips. *Explore CDS/ISIS, a training vehicle*. Hague : LIS Department, The Hague Polytechnic, 1994.

2. Alan Hopkinson. CDS/ISIS: UNESCO's information retrieval package for microcomputers and the Vax minicomputer. *Encyclopedia of Library and Information Science*, 57, 72-89.

3. Khalid Mahmood. The best library software for developing countries: 30+ plus points of Micro CDS/ISIS. *Unpublished*.

4. Patricia B. Carino. Status of CDS/ISIS training and use in Asia and the Pacific: a regional report. *Astinfo*, 8(1), Jan.-Mar. 1993, 7-10 -- 8(2), Apr.-June 1993, 7-10.

5. Bushra Riaz. LABELNET: development of a networking project. *PULSAA News*, 2(3), Summer 1990, 66-70.

6. Azmatullah Bhatti and Sultan Mahmood. A unique special library. *PULSAA News*, 2(3), Summer 1990, 102-105.

7. Akhtar H. Siddiqui. The PIDE Library. *Pakistan Library Bulletin*, 23(1), Mar. 1992, 2-12.

8. Sultan Mahmood and Azmatullah Bhatti. CDS-ISIS at STINFOD Library. *News Bulletin, Pakistan Library Association, Federal Branch,* Issue 26-27, July-Sept. 1992, 49-51.

9. Maqsood Ahmed. Library automation: survey of computerized library services in Federal Area (Islamabad/ Rawalpindi). In: Fida Mohammad, ed. *Challenges in Automating the Library Services*. Peshawar : Department of Library & Information Science, University of Peshawar, 1993, 47-49.

10. Sheikh M. Hanif. Comparative study of Micro CDS/ISIS and INMAGIC software for libraries. *LAG News*, 1(1), Jan.-Mar. 1993, 4-8.

11. Zafar Javed Naqvi. Mini-micro CDS/ISIS: a bibliographic information software. *Pakistan Library Bulletin*, 24(1-2), Mar.-June 1993, 16-25.

12. Khalid Mahmood Malik. Micro CDS/ISIS: what's new in version 3.0. *Pakistan Library Bulletin*, 24(4), Dec. 1993, 17-26.

13. Khalid Mahmood Malik. Why should we use CDS/ISIS in libraries? *News Forum (PLA Punjab Branch)*, 5(1-4), 1995, 7-12.

14. Zafar Javed Naqvi. Application of computer technology in PIDE Library and Documentation Division. *Pakistan Library Association Journal*, No.17, Oct. 1995-Mar. 1996, 32-40.

15. Haroon Idrees. The Library Automation in Lahore. Unpublished Master's thesis, University of the Punjab, 1995.

Khalid Mahmood
Department of Library & Information Science
University of the Punjab
Quaid-E-Azam Campus, Lahore, Pakistan
Ph: 92-42-5863764
Email: mahmoodkhalid@hotmail.com