Microcomputers in Information Services in Developing Countries

J.L. MACLEAN
ICLARM

Computer-based information services have "traditionally" been the preserve of mini- and mainframe computers. Bibliographic records in such services take up large amounts of space on disks and tapes and these records can be highly variable in length. In short, big computer memory is needed.

Early Days

Mainframe computers in a few western countries were and still are the repositories of computer versions of the major scientific abstracting journals as well as a variety of nonbibliographic databases. Access to these journals in developing countries, whether by subscription to the hardcopy or online searching, has been horrendously expensive and continues to be a major contributor to the widening information gap between north and south.

In the heyday of minicomputers, well-meaning donors set up regional information services based on minis that could search selected databases from series of tapes sent out from the western repositories; they provided free or subsidized services to developing-country users. Not even the most well-meaning donors will support such services forever. By 1984, there was the incongruous situation of at least one minicomputer recipient in Asia wondering where to find $10,000 to continue the annual service contract on its underutilized machine, which ran a regional agriculture and fisheries database, while in the same and in several other Asian countries, similar, donor-funded, minicomputers were being installed with far less extensive applications—in fisheries alone—in mind.

(I recall that in the early 1980s, we at ICLARM made the decision not to take the minicomputer route. The potential of micros was uncertain, but we were negotiating acquiring some terminals to link up with a nearby mainframe by modem.)

IBM and compatible micros are becoming standard items in developing countries in information services.

When ICLARM began its IDRC-funded Selective Fisheries Information Service in 1984, the library still did not have a microcomputer. However, we were accessing the online version of ASFA in California through a telex-type terminal and this was the backbone of our service. Costs of searching and abstract delivery were up to $5,000/year.

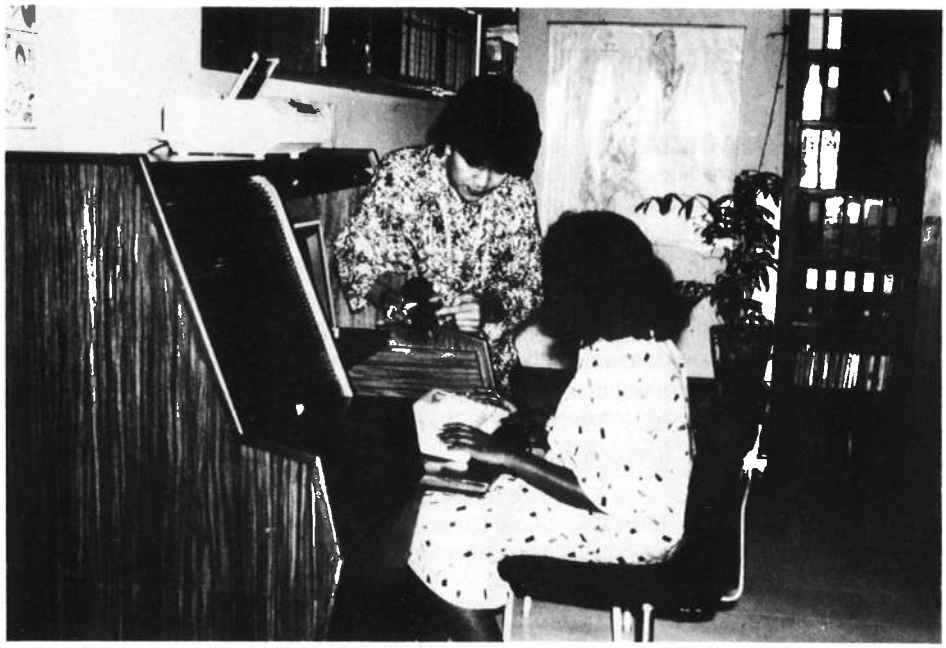
Meanwhile, the advent of hard disks and larger random access memories (RAM) in microcomputers prompted the development of a number of commercial applications for handling bibliographic records and similar material. Early programs were specifically designed and were priced at around $2,000. Prices began to drop below $1,000 as dBase-based programs were developed. However, the latter were still way beyond the means of aspiring users in developing countries. Also, even as they were being marketed it was clear that they were transitional and only suitable for small tasks because they slowed down tremendously (and intolerably) as the number of records grew.

Minicomputer setup—micros can do most of their work now.

What were needed for micros were programs that used precious disk space more efficiently and did not slow down appreciably as databases grew. Happily, such programs were brewing within the corridors of a few concerned donor agencies; these had interesting titles like "IV+V", "data entry package" and "mini-micro CDS/ISIS".

Micro-isis

Eventually the CDS/ISIS package (usually called Micro-isis) won the day. Developed by Unesco, it is the grandchild of ISIS (Integrated Set of Information Systems), a self-explanatory mainframe system. ISIS was rewritten in 1976 by IDRC for the mini-generation as MINISIS. Fortunately for MINISIS users,



ICLARM Chief Librarian Linda Temprosa shows the ASFA compact disk to S.A.R. Vinitha Fernando, seated at the library's microcomputer. The player is shown above the microcomputer console. Ms. Fernando, a librarian from Sri Lanka, spent six weeks earlier this year training in the ICLARM library. She was sponsored by UNDP.

the new program can be used on minis and is compatible with its use in micros. This may extend the productive life of minis in information tasks.

Although Unesco announced its new product at the beginning of 1986 with a minimum of publicity, there were already 700 users by February 1987. Training sessions have been held in Paris as well as regionally and nationally. One major factor in explaining its rapid spread is that the program is FREE, although applicants must register as users with Unesco.

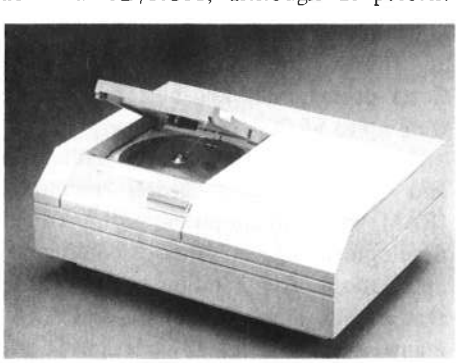
Micro-isis can be simply programmed to do any storage and retrieval task that doesn't involve calculations. Records can be printed in many ways. The articles in the Information Department of this Naga issue were the first output from our Micro-isis. As you can see, indexing becomes easy and we can include a host of keywords instead of the previous broad terms. Computerization of back issues of Naga's Information Department is underway, and the whole ICLARM library will gradually become searchable on Micro-isis.

There is a concerted move to make this software the standard bibliographic program, at least in developing countries. How nice if this eventuates; it will mean that developing countries, which have generally been able to bypass the minicomputer generation, can also bypass the expensive software generation (and yet they can interact with the many mainframes and minis as well)! For more information on Micro-isis, write to Dr. G. Del Bigio, Division of the Unesco Library, Unesco, 7 Place de Fontenoy 75700 Paris, France.

From Stereo to Stingray

Another development, the laser or compact disk (CD) that gives such excellent music reproduction, has been harnessed for information work. The first applications were encyclopedias in 1984. The small ROM (read only memory) disks are run on a special player connected to a microcomputer.

ASFA is already commercially available on CD/ROM, although at present



Compact Disk ROM.

covering only 1982 to mid-1985, with the 1986 update promised by June. The first asking price was $6,750, but was later reduced to $2,750 including the player, which was when we bought our copy. It made economic sense because it would reduce our overseas database searching by a greater amount. In addition, we can spend all day if necessary refining a search strategy to minimize costs when we do go online to the overseas ASFA database.

Our compact-disk ASFA is also proving popular with staff and external users, who are able to search happily unaided after a short initial instruction. This is due to the new user-friendly searching commands, not available with the overseas database. Like classic Coke, the older searching methodology is still available on the compact disk.

ICLARM is one of a few institutions testing another experimental CD/ROM database—CAB Abstracts—for the Commonwealth Agricultural Bureaux. Based on our experience to date with the CD/ROM ASFA database, one can confidently predict that this technology will spread rapidly. Prices will then fall as they did for microcomputers themselves. For instance, the 1986 ASFA update disk on CD/ROM (which includes the previous years of course) will cost about $1,200 and may fall below the cost of hard copy ($850/year and rising) in the future.

Pax Vobiscum

For those information workers contemplating becoming computerized, I believe the trends outlined above are an accurate guide to the near future: Micro-isis for library collections (up to 50,000 items) and CD/ROM for big databases. The microcomputer can now handle all your bibliographic needs. It is important to choose a type of microcomputer that will run the programs.

Others who have already automated their libraries or records should check the compatibility of their software with Micro-isis for future data exchange. Some have already transferred their records successfully from other programs to Micro-isis. However, if your system is self-contained and you are happy with it, then ignore the above. After all, a good information service is the real objective. •