

Increasing Access to Scientific and Technical Information on Tropical Biology at SEAMEO-BIOTROP and other Institutions During and After the Indonesian Economic Crisis (with Implications for their Training Needs on Internet Use)

Widharto

Librarian, SEAMEO-BIOTROP
Bogor, Indonesia

Abstract

BIOTROP is the Regional Center for Tropical Biology of the Southeast Asian Ministers of Education Organization (SEAMEO) which is involved in training and research activities in this field. The Information Resource Unit, to which the Library is attached, plays an important role in providing data about its subject interests, both to BIOTROP staff and other end-users in Indonesia as well as in other Southeast Asian countries.

With the advent of the new millenium, Indonesia's response to the emerging knowledge economy, the massive information explosion and rapid knowledge obsolescence is to become a "learning nation." This means that all Indonesians, regardless of their socio-economic background, are encouraged to learn more and to make productive use of the knowledge gained - all the time. This learning process requires that libraries in the country provide good quality services. They have a crucial role in supporting the people in the life-long process of acquiring new knowledge and skills, especially in science and technology. BIOTROP, with its innovative programs, has taken the lead in this regard. The programs and services offered by the BIOTROP Library are presented in this paper.

I. INTRODUCTION

Adequate infrastructure and a strong linkage to the productive sector are needed to foster the growth of science and technology, especially in developing countries. In their absence, research and development efforts may not be successful. It is necessary to make available to as large a sector of the population as possible the scientific and technological information on how to fully utilize their natural resources to improve their quality of life. They need to know about new food items, feeds and wood crops; about food processing, storage and preservation; about the microbial processes involved in the production of foods, beverages, condiments, animal feeds and medicines; and about harnessing non-conventional and renewable energy sources; about water and its purification; about conversion and utilization of organic wastes; about new building materials, etc. The scientific information acquired through technology transfers or those discovered through indigenous research should be relevant, up-to-date, productive and appropriate – and most importantly – accessible to end-users.

According to Henczel, (2001)¹, to ensure that the appropriate information is provided, there must be a clear and visible alignment of the information that is acquired by the users with the organizational or business objectives. The challenge for today's information professional is to identify what is needed to optimize the achievement of organizational objectives - who needs it, how it will be used, where it comes from and how it flows. He also has to establish the mechanism of information exchange between the organization and its external environment.

Oman (2001)² revealed that to be information-literate, an individual must recognize when additional information is needed and he must have the ability to locate, evaluate and use it effectively. Ultimately, these will be those people who have learned how to learn. They know how information is organized, how to find what they need and how to use the data in such a way that others can also learn from them.

Today, the empowerment of individuals and groups is achieved by providing access to information. At the same time, this access is undergoing a dramatic transformation, especially with the latest technological developments in electronic communications acting as the catalyst. Realizing the current situation, conscious efforts need to be made to facilitate intra- and cross-country linkages. The BIOTROP Library can help enable its clients and partners to reach out to the rest of the scientific community through computer networking. The potential role and use of the Internet in providing information services for the research and the studies conducted in a tertiary institution have been fully recognized. Although a large sector of the academic community may not yet be fully aware of the potential as well as the limitations of Internet use in academic work, nevertheless, most of them would have become increasingly conscious of the important role it could play in R&D from the publicity that the Net continues to receive in the mass media.

II. BIOTROP DATA AND INFORMATION SYSTEM

The BIOTROP-SEAMEO Regional Center for Tropical Biology is actively involved in training and research activities and has been an information resource for many scientists in this field. The Information Resource Unit (IRU), under which the library is administratively located, has played an important role in providing information on its subject interests both to the BIOTROP staff and to its other end-users in Indonesia as well as in other Southeast Asian countries. As part of the Higher Education Project (HEP), the BIOTROP Library has collaborated with the University of Indonesia in organizing training courses on library management and staffing for junior librarians of university libraries in the country. The library management course covers strategic planning, total quality management, information technology, human resource management and marketing of information, among others.

Among the primary goals of BIOTROP is to disseminate information about its programs and research findings to users of such information in Southeast Asia; to act as a clearing house for processing, storage and exchange of tropical biological information within the region; and to foster international cooperation, communication and exchange of scientific information among scientists interested in tropical biology. The IRU has the regional responsibility for and the objective of creating and maintaining bibliographic databases in selected areas of tropical biology.

To allow easy access to the information resources available at the SEAMEO-BIOTROP, the IRU has produced five databases for different purposes, to date. After the WEEDOC (Weed documents), RESABS (abstracts of research) and HERBAR (herbarium data bank) were developed, a decision was made to come up with a user-friendly software, INMAGIC. The five databases are:

- **WEEDOC**, a database which contains bibliographical information on the weeds of Southeast Asia and which is larger than what a user can get at any one place;
- **LIA**, a database which contains an index of scientific articles from the journals available at the IRU library;
- **DOC**, a database which contains bibliographical data on published and unpublished manuscripts, reports and/or other articles/papers written by BIOTROP staff;
- **BIOTRO**, a database which contains bibliographical data on books in the BIOTROP library collection; and
- **SERIAL**, a database which contains bibliographical data on the periodicals, listed by titles, that are acquired regularly by the BIOTROP library.

These databases were developed with initial financial assistance from the International Development Research Center (IDRC), Canada. Under the Project, BIOTROP organized the Southeast Asian Weed Information Center (SEAWIC) in 1985 as a specialized center about undesirable plants that grow in the region. SEAWIC was created to select, screen, analyze, process, store and disseminate information that can be gathered about weeds in Southeast Asia. With the databases it has generated and the publications that are distributed all over the world, the project has been useful in terms of providing information to weed scientists located in different parts of the globe.

III. BIOTROP'S ROLE IN THE HIGHER EDUCATION PROJECT (HEP)

According to Djajanegara,³ there are a number of important roles for regional universities in a region's advancement as part of their major developmental mission. However, many regional universities have not been able to carry out this mission because of the following limitations: institutional isolation, inadequacy of

qualified staff, a dearth of information service facilities or a lack of communication lines with regional authorities and communities.

Through HEP, the Indonesian Ministry of Education and Culture designated BIOTROP as a resource center for the country's universities to promote scholarly research via networking. Through this project also, BIOTROP was able to share its expertise by providing training courses for junior library staff members in the target universities, by supervising approved research projects and by facilitating any activities related to those undertaken at BIOTROP.

Under this project, the BIOTROP Library organized training courses on library management and staff development for junior librarians in collaboration with the School of Library Science, University of Indonesia. More than two hundred librarians and information specialists from the target universities have attended the courses.

IV. PROBLEMS IN SUSTAINABILITY OF INFORMATION SERVICES IN INDONESIA

Starting in July 1997, many Southeast Asian countries went through an economic crisis, with Indonesia being more affected than the others. To date, the economic and political situation in the country remains unstable, causing a negative effect on the gains made over the last thirty years. The economic downturn has resulted in budgetary cuts for all activities that had been planned by both government and private institutions. Indonesia may be a unique case in that no other country in recent history has undergone such a dramatic reversal of fortune. In a span of only one year, Indonesia's currency lost 80% of its value against the United States dollar and inflation soared to over 50%. Because of financial problems, many banks have closed and businesses have gone bankrupt. Millions of workers are unemployed and the level of violence has gone up.

The IRU seeks to help most of the libraries in Indonesia keep abreast of the latest developments in the field, given the explosion of print-on-paper resources and their accelerating costs. At the same time, it tries to introduce new technologies in the management of information systems. Staff are trained on how to speedily access the vast array of information sources while coping with rising costs. It is quite unfortunate that just as these librarians are beginning to explore the use of new technologies to advance their work, the inflation rate has caused a considerable increase in the cost of scientific and technical resources. The situation is exacerbated by the devaluation of the local currency.

On top of all these, there is the problem of lack of trained manpower. How and where do we find suitable information workers? On a daily basis, their work may entail interacting intelligently and knowledgeably with an advanced and well-informed researcher. The next day, they may have to deal with an almost illiterate factory owner who needs to be given information in a simple and easily

understood format. The information technology field itself is constantly changing and growing, demanding that information professionals be flexible and life-long learners.

Another major problem confronting all Indonesian librarians is the growing cost of everything. What can anyone do when the budget provisions are static, at best, or shrinking, at worst? We know that manpower costs are constantly increasing and the prices of books, journals and other library materials keep on escalating.

V. THE ASIA FELLOWS PROGRAM

A program was proposed to be undertaken by the undersigned based on the objectives of the "ASIA Fellows Program" ⁴ which seeks to develop regional expertise; to establish a multilateral network of Asian specialists from many disciplines, professional fields and countries; to stimulate inter-disciplinary research and inter-societal comparison; to contribute to new developments within existing area studies and communities; and to promote the establishment of an accessible, stable, consistent and sustainable information and communication infrastructure in Indonesia and other countries in Southeast Asia, for research collaboration, information exchange, sharing and communications. Included in the activities of the program are:

- I. to undertake a comparative study of some agricultural research institutions in the Philippines and in Thailand;
- II. to survey the specific needs for information resources of the scientists and faculty members of the target universities in Indonesia.

In an effort to assess the needs of existing university and institutional libraries and to help create a multilateral network of librarians from both types of organizations in the Philippines, Indonesia and Thailand, a program was started in November 1999 to undertake the following:

- a) To improve the existing system relative to information acquisition, storage and dissemination;
- b) To share information on how to improve the library management systems of university libraries, especially with reference to the acquisition of current information and application of automated systems;
- c) To provide access to regional and global information resources, *e.g.*, directories, databases and information exchange systems that would increase the understanding of ways in which information can be accessed from foreign institutions, particularly those in Southeast Asia;
- d) To establish contacts with institutions, working on subject areas common to BIOTROP, to foster the exchange of information (networking);
- e) To improve coordination, efficiency and effectiveness of R&D processes;
- f) To increase the effectiveness and implementation of project planning and participation;

- g) To provide access to regional and global communications by communities;
- h) To strengthen the capacity of development communities in using information and communication technologies;
- i) To identify promising/potential users, host institutions and key individuals as well as potential national or regional resource persons;
- j) To assess existing and planned technical/electronic networking options

V.1 THE PHILIPPINES

November 1999 - January 2000: Attachment to the Library of the International Rice Research Institute (IRRI) in Los Banos, Laguna. Under the supervision of Ms Mila Ramos, IRRI Librarian, the author learned the system at the IRRI Library which was used in preparing the survey questionnaires. IRRI also facilitated visits to the libraries of both government and private institutions in the Metro Manila and in the Los Banos areas as well as in the Visayas in Central Philippines. It was noticed that in the Philippines, most of the university libraries were more developed and better endowed when compared to those of government institutions. The libraries of international institutions such as IRRI and the Asian Development Bank (ADB) are well stocked. However, the use of the ADB Library is restricted to its staff members and graduate students doing research on areas of interest to the Bank.

V.2 INDONESIA

February - April 2000: The survey was implemented in Indonesia⁵. It was designed to identify the information needs, the usage and the problems encountered by the clients of the SEAMEO-BIOTROP Library and the target universities under ADB Project INO-1253.

The major findings of the study are that the most needed sources of information are research journals, textbooks, dictionaries and encyclopedias, etc. Among the respondents, 32.11% visit the Library at least once a week while 24.81% rarely do so. *Review of related literature* was listed as the most common use of library resources as reported by 88.32% of the respondents.

The study has shown that the university library is still the most important source of information for scientific activities. Survey results showed that 26.84% of the respondents stated that the university library is the first place that they went to when they needed scientific information, followed by the 20.80% who said that they contacted their colleagues. Only 13.42% used the Internet for their information needs.

Nowadays, being connected to the Internet should no longer be considered a luxury but as a necessity. It is high time for the academic community in the

universities to learn how to access and obtain information by using the latest tools in information technology such as the Internet.

The survey also revealed that some trained librarians who come from the target universities considered the World Wide Web (www) and *litserv* as very important resources for a library information service to have. However, those who have never undergone the training courses said that they were not very comfortable in using the Internet services. In general, this group felt that they needed to learn more about the different aspects of the Internet, not only for their current job requirements but also to continue “to keep up with trends” in the field.

Based on these findings, it appears that there is a strong need for an Internet training course specifically for the benefit of both the practicing librarians and the academicians in the target universities.

Finally, although the university library is the first place that people go to obtain the information that they need, the existing resources were rated as being “*Fairly Adequate*” by only a little more than half of the respondents (50.37%). Only 5.18% rated their university library as “*more than adequate*”.

Among the recommendations put forward by the university staff members in the survey were:

- (1) The present library collection should be improved and expanded to meet the specific information needs of the users. An evaluation of the existing collection should be conducted to determine the weak areas. The assistance of the users may be sought in this regard.
- (2) The present services should be reviewed with special attention to optimizing on-going activities or to making them more effective. A Library Users' Guide must be prepared and distributed.
- (3) Assessment of the information needs and preferences of the library users should be carried out on a regular basis to insure that library services continue to be effective and relevant to the users' needs.

V.2.1 Identification of Local Requirements

The following requirements were identified after the visits and interviews with scientists and lecturers:

- 1) Capability to access information and databases compiled by organizations in developing and developed countries, especially in ASEAN member countries;
- 2) New or improved communication software interface;
- 3) Easy access to phone lines and e-mail networks for institutions located in remote areas;
- 4) Consensus regarding networking strategies, co-ordination and planning among universities to avoid duplication of research undertakings as well as other programs/projects;

5) Training in data communications application and use.

V.3 THAILAND

May - July 2000: Visit to Thailand to network with librarians and scientists who are working on the same subject areas as those in Indonesia. Arrangements were made for the author to be attached to Kasetsart, an agricultural university. It was fortuitous that one of its senior faculty members was one of the Governing Board members of BIOTROP, Dr Banpoth Napompeth. Dr Banpoth is also currently the Director of the university's National Biological Control Research Center. During the attachment period, the author was supervised by Mrs Piboonsin Watanapongse and worked on a daily basis with Mrs Napa Chieochoowong, Training Head of the KU Library.

In 1971, the KU Library at the Kamphaengsaen campus was established at Nakornpathom province. Since 1980, this library has participated in the International Information System for Agricultural Science and Technology (AGRIS) representing the Thai National AGRIS Center, collecting all agricultural information materials produced in Thailand. In 1981, the library received technical and financial support from the International Development Research Center of Canada (IDRC) to set up a specialized information Center on buffalos - The International Buffalo Information Center (IBIC) - making the library the National Coordinating Center for Agricultural Science under the National Information System in 1988. The members are the agricultural libraries and information centers of universities, Ministries of Agriculture and of Education, cooperation projects and agencies from the non - governmental sector.

In addition to the linkages established with people from Kasetsart University, it was also possible to network with librarians and faculty members of the Asian Institute of Technology (AIT), the Royal Forest Department, Chulalongkorn University, the Armed Forces Medical Research Centre, Suranaree University of Technology, Chiang Mai University and Maejo University (also in Chiang Mai).

IV.4 TRAINING NEEDS IN INFORMATION SCIENCE

The Internet

Begum⁶ (1999) stated that the rapid developments in Information Technology (IT) have become a part of daily life. One of the most talked about elements of IT is the Internet. Scientists and researchers should be aware of its applications for research purposes to enhance their outputs. The most effective way to learn how to harness the power of the Internet is through hands-on practice. Thus, training programs in specific areas have to be developed.

Galernter⁷ (2001) stated that the Internet, by definition, is a network of interconnected computers, and that network is composed of communication channels of varying bandwidths. The greater the bandwidth of a connection, the

greater the amount of data that can travel along that line per second and the faster the communication potential between the computers it connects.

The convenience of using the Internet makes it an attractive tool for distance learning, starting some sort of a revolution in higher education. Adults who may not have the time or money to live on campus full-time to pursue a college degree can now earn academic credits on-line.

It is expected that by learning more about using Information Technology tools, faculty members and students will be able to:

1. help identify research and development problems for the scientists and researchers to develop sound inter-disciplinary projects and to find adequate solutions for them;
2. identify, access, select and help transfer appropriate technologies from all over the world to make the best possible choices in cooperation with user agencies;
3. provide up-to-date information services to policy makers, planners and other users to keep them abreast of new developments in science and technology that may be of national interest, for instance, by starting a newsletter;
4. hold seminars, workshops and symposia to facilitate an information exchange related to on-going R&D projects where common problems can be ventilated, for members of such inter-institutional development projects; and
5. To create an inter-country network for documents, journals and books, especially among the Southeast Asian countries.

V. CHALLENGES AND BENEFITS

As stated in the proposal, the main objective of the program is to improve the expertise of the Chief BIOTROP Librarian as well as to facilitate information access by BIOTROP scientists and its other clients as part of the ASIA Fellows Program, 1999 – 2000. This was done through the work attachment at the International Rice Research Institute, Los Banos, Laguna, Philippines, where the following were achieved:

- a) identify contact persons in the institutions and the libraries visited who can help Indonesian scientists and staff of target universities to access the information they need from foreign institutions and universities. The visits also provided the opportunity to discuss and to share BIOTROP information needs and how to improve the library management system.
- b) Most of the scientists and librarians in both the Philippines and Thailand expressed their willingness to share expertise, information and services. However, there will be instances when expenses may be involved e.g., for materials reproduction.

- c) The visits helped develop an awareness of areas of common interest and concern. They likewise provided an opportunity to help promote the ASIA Fellows Program.

V. CONCLUSIONS

Still, the greatest obstacle to the growth and development of libraries in Asia, particularly in Indonesia, is the stiff cost involved and the eventual stringent policies and regulations that govern these institutions. One of the major frustrations for professionals trying to facilitate access to information is to find that the full-text scientific and technical information cited in bibliographic databases entails costs that put them beyond the reach of many of these libraries. In addition, there is a need to educate individual users on how to properly use the information available. Applied appropriately, the information can contribute greatly in resolving many problems in the region, perhaps even more so than the development of complex systems or the introduction of advanced technologies.

Based on the results of the survey conducted, the following research topics are recommended. They can be undertaken by libraries or information centers in Southeast Asia, as follows:

1. Current/User Issues

1. How do people decide what they need to know? How do they learn about or find out what they need to know?
2. How can artificial intelligence (AI) applications and expert systems facilitate access to source and content information?
3. How will AI applications and expert systems change user access and interaction with computerized databases?
4. What are the information-seeking and -using behavior of people from different professions or fields of work?

2. Measures of Productivity and Value

1. What are the existing productivity measures and value systems that result from information access and use? How can these measures be used by special libraries?
2. How do clients/users value information?
3. To what extent is there a difference between the cost of information and its perceived value?
4. What is the relationship between library/information services and corporate or institutional success?

3. Client/User Satisfaction Measures

1. How can existing consumer satisfaction measurement methods be adapted to the needs of special libraries? What additional measures are needed?

2. What is the role of client/user expectations in measuring the quality and value of the service provided?
3. What are client/user perceptions about the quality of information services?
4. What techniques can be used to measure the potential value of new services?
5. What can librarians learn from other service businesses, e.g., airlines, hotels, hospitals?
6. What corporate marketing strategies can be adapted to market the services of special libraries?

4. Staffing

1. What measures and methods are available to assess optimum size of staff and organizational structures in special libraries?
2. What data and criteria are needed to optimize library staffing?

END NOTES:

- 1 Susan Henczel, "The information audit as a first step towards effective knowledge management," *Information Outlook* 5(6): 48-62, 2001.
- 2 Julie N Oman, "Information literacy in the workplace," *Information Outlook* 5(6): 32-43, 2001.
- 3 Djajanegara, Oetomo, "Jaringan kerjasama akademik P2SLPT DIKTI," p 18.
- 4 ASIA Fellows Program: Asian Studies in Asia, Circular.
- 5 Widharto, "Increasing access to scientific and technical information on tropical biology for users at SEAMEO-BIOTROP and other Institutions during and after the economic crisis in Indonesia", final report. Bogor, 2000, p 65.
- 6 Rashidah Begum and Wong Sook Jean. "Internet use in Libraries in Southeast Asia with Special Reference to the Role of the University Sains Malaysia Library in Promoting the Use of the Internet for Teaching and Learning." Paper presented at the 65th IFLA Council and General Conference, Bangkok, Thailand, August 20 - 26, 1999, p 13.
- 7 Judith Galernter, "The internet: Yesterday, Today and Tomorrow," in: *Information Outlook* 5(6): 67-68, 2001.

REFERENCES

ASIA Fellows Program, Asian Studies in Asia. 1999. Circular. Bangkok, Thailand: Institute of International Studies - Council for International Exchange of Scholars. Various pages.

- Begum, Rashidah and Wong Sook Jean. "Internet use in Libraries in Southeast Asia with Special Reference to the Role of the University Sains Malaysia Library in Promoting the Use of the Internet for Teaching and Learning." Paper presented at the 65th IFLA Council and General Conference, Bangkok, Thailand, August 20 - 26, 1999, 13 pp.
- Djajanegara, Oetomo. 1999. Jaringan kerjasam akademik P2SLPT - DIKTI: Networking. Report on the "Pelatihan Singkat Jaringan Kerjasama Akademik Bidang Penginderaan Jauh dan Sistem Informasi Geografis", Palu, Indonesia, 1-22 Februari 1999. Vol II: Kumpulan Materi Kuliah: 12-42. Bogor, Indonesia; Proyek Pengembangan Sebelas Lembaga Pendidikan tinggi (P2SLPT) ADB Loan No 1253 INO, Ditjen Dikti. Dan SEAMEO BIOTROP.
- Galernter, Judith. 2001. "The Internet: Yesterday, Today and Tomorrow," in *Information Outlook* 5(6): 67-68.
- Henczel, Susan. 2001. "The information audit as a first step towards effective knowledge management," in *Information Outlook* 5(6): 48-62.
- Oman, Julie N. 2001. "Information literacy in the workplace," in *Information Outlook* 5(6): 32-43.
- Widharto. 2000. "Increasing access to scientific and technical information on tropical biology for users at SEAMEO -BIOTROP and other Institutions during and after the economic crisis in Indonesia," final report, Bogor, 65 pp.