

**SEAMEO BIOTROP:
ITS ROLE IN THE NATIONAL DEVELOPMENT IN INDONESIA**

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ABSTRACT: The BIOTROP - SEAMEO (Southeast Asian Ministers of Education Organization) Regional Center for Tropical Biology, a Center which is active in Training and Research on Tropical Biology, has been a partner of scientists in tropical biology. The Information Resource Unit, to which the library is attached, has played an important role in providing information on its subject interests both to BIOTROP staff and its other end users from Indonesia and Southeast Asian countries.

As Indonesia has just embarked into the third millennium, Indonesia's responses to the emerging knowledge economy, the massive information explosion and rapid knowledge obsolescence are to be that of a learning nation. It means that the entire population of Indonesia, regardless of their socio-economic backgrounds, are encouraged to learn and make productive use of knowledge all the time. The learning process requires good-quality services of the libraries. The libraries have crucial roles to play in supporting the entire spectrum of Indonesians in the lifelong process of acquiring new knowledge and skills - in science and technology. BIOTROP, with its innovations achieved in librarianship, must provide good library services. The programs and services being offered by BIOTROP library are discussed in this article.

I. INTRODUCTION

BIOTROP, the SEAMEO Regional Center for Tropical Biology was established on February 6, 1968, in Bogor, Indonesia. BIOTROP has been developed to provide the SEAMEO member countries with increased capability in biological science relevant to regional economic needs. Its enabling instrument mandates that the objectives of this organization are to identify and help solve critical biological problems, the solution of which will enhance economic development in the respective member countries and to that end, undertake research, publication and training programs and other related activities within and outside of Indonesia.

Bogor was considered appropriate for the location of BIOTROP, as this city is noted for its Tropical Biological Institutes, namely the Botanical Gardens, the Herbarium Bogorienses, the Treub Laboratories, and the Muzeum Zoologicum Bogorienses. Furthermore, Bogor is the center of scientific activities in agriculture of Indonesia, where the Forest Research Institute, the Central Research Institute for Agriculture, the Central Institute of Estate Crops, the Central Research Institute for Industrial Crops, the Animal Husbandry Research Institute, CIFOR, Asia Pacific Agroforestry Networks (APAN), and the Bogor Agricultural University (IPB) are located.

The goals and objectives of BIOTROP, as mandated by SEAMES (SEAMEO Secretariat at Bangkok) are:

1. To develop into a regional center of excellence of international stature in Tropical Biology
2. To strengthen BIOTROP's management capability and leadership needed in the pursuance of its vision and mission
3. To develop the organizational capability to initiate and manage change in development
4. To provide leadership in networks, partnership, and linkages through enhanced cooperation/collaboration among SEAMEO-member countries as well as other countries and relevant organizations
5. To ensure financial viability by exploring alternative sources of funding

After 32 years of dedicated service to the region through cooperation, BIOTROP has proven its viability and has gained international recognition for the impact of its professional and technical program activities and services in tropical biology. On the threshold of the next millennium, BIOTROP has just completed its process of restructuring with the end-in-view of revitalization in response to the changing needs and developmental conditions. BIOTROP's Governing Board, which is the policy-making body, has identified for the next five years the following program thrusts, namely:

1. Tropical Ecosystems and Environmental Impacts.
Priority Areas:
 - Tropical ecosystem structure and function
 - Tropical production systems
 - Environmental impacts assessment and modeling
2. Biodiversity Conservation and Sustainable Development
Priority Areas:
 - Biological resource utilization and conservation
 - Biodiversity exploration for conservation and sustainable development

3. Biotechnology and Pest Control

Priority Areas:

- Biological control of pests and diseases
- Biological control of pollution (bioremediation technology)
- Agricultural and forest biotechnology

II. BIOTROP OBJECTIVES AND ITS ACTIVITIES

BIOTROP's objective is to contribute to the economic development of the Southeast Asian region by identifying and solving critical biological problems, the solution of which will enhance regional development and help solve these problems through appropriately designed research and training programs (Seventh Governing Board Meeting, 1972).

In particular, BIOTROP concentrates on research programs, developing the tools and principles of research in its defined program areas, and on training professionals in the region in their efforts to stimulate further biological research in member countries, thus producing the maximum multiplier effect from BIOTROP programs. The dissemination of findings and results of experimentation is fundamentally important in helping BIOTROP attain its objectives.

To implement this, BIOTROP is supported by its Information Resources Unit (IRU). The library, under the supervision of the Head of the Information Resources Unit, and has the following functions: to lend out library materials; provision of interlibrary loan services, photocopying services, general reference services, and circulation of journals among BIOTROP staff; display of new library materials and the conduct of training courses.

BIOTROP research projects, handled by its scientists, are problem oriented and geared toward developing model solutions. Through research in tropical biology and agriculture, BIOTROP has developed technologies for accelerating agricultural development, concern about the Southeast Asia's rich forests, aquatic and agricultural resources, and its sustainable development.

III. DATA AND INFORMATION SYSTEM OF BIOTROP

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

To allow easy access to information resources available at the SEAMEO BIOTROP, the IRU produced different kinds of databases for different purposes. Until recently, five databases have been established. After the WEEDOC (Weed documents), RESABS (abstracts of research), and HERBAR (herbarium data bank) were developed, the choice was made for developing a user-friendly software, INMAGIC. The five databases are:

- **WEEDOC**, database which contains bibliographical information on weeds of Southeast Asia. IRU is proud to have a database on Southeast Asian weeds that 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 of published and unpublished and reports, and/or other articles/papers written by BIOTROP staff;
- **BIOTRO**, a database which contains bibliographical data on books acquired by the BIOTROP library; and
- **SERIAL**, a database which contains bibliographical data of the serials by title acquired regularly by the BIOTROP library.

Those databases were initially established with financial assistance from the International Development Research Center (IDRC), Canada. Under the Project, BIOTROP established the Southeast Asian Weed Information Center (SEAWIC) in 1985. It is a specialized information center about undesirable plants that grow in the region. SEAWIC has been created to select, screen, analyze, process, store, and disseminate information that can be gathered in Southeast Asia. In addition, SEAWIC was established to collect and disseminate information on weeds. With the databases it has created and the publications it distributes all over the world, the project has shown its merits in terms of providing information to weed scientists all over the world.

IV. BIOTROP ROLES IN THE HIGHER EDUCATION PROJECT (HEP)

There are a number of important roles for regional universities to fulfill in regional development which constitute the overall developmental mission of these universities. The regional universities have not always been able to fulfill the mission because of the limitation caused by their isolation, lack of adequate qualified staff, inadequate facilities such as information services, and lack of communication with regional authorities and communities.

Through the HEP, the Ministry of Education and Culture designated BIOTROP as a resource center for Indonesian universities to promote scholarly research via networking. Through this project also, BIOTROP has performed its function to share its experiences by providing training courses for junior staff members at the target universities, supervise

research projects proposed by them, and facilitate any activities related to those at BIOTROP.

In the last few years, under said project, the library of BIOTROP has been a partner of the University of Indonesia in organizing training courses on library management and library staffing for junior librarians of target university libraries funded by the HEP. Library management covering strategic planning, total quality management, information technology, human resource management, and marketing of information were selected topics given in the courses. More than two hundred librarians and information specialists from the target universities participated in the courses organized jointly between BIOTROP and the School of Library Science - University of Indonesia.

V. BIOTROP AND ITS RESEARCH PROGRAMS

SEAMEO-BIOTROP, the Southeast Asian Regional Center for Tropical Biology is one of the thirteen Regional Centers of SEAMEO⁵⁾, established in 1968. The objective of the Center is to assist the Member States to identify biological problems, the solution of which will enhance economic development in their respective countries and to that end, to undertake research, publications and training programs and other related activities within and outside Indonesia.

BIOTROP's Research Projects, conducted by its scientists, are problem-oriented and geared towards developing model solutions. The Tropical Aquatic Biology (TAB) Program of BIOTROP, since mid 1976 until mid 1996, had focused their research activities on inland water ecosystems with special emphasis on natural and man-made lakes of Java. The studies covered a broad range of topics including eutrophication, water quality monitoring, aquatic weeds, water pollution, fish population structure and dynamics, feasibility studies on the use of lakes for aquaculture and the formulation of the appropriate fisheries management concepts.

Since April 2000, three training courses have been offered at BIOTROP. The first was on "Eutrophication of lakes and reservoirs", held on 10-20 April 2000; the second occurred 16 - 26 January 2001 on the topic "planning and management of eutrophication in lakes and reservoirs", and the third course on "bioremediation on aquatic ecosystems with emphasis on aquaculture" was held on 6-15 June 2001. To underline the importance of eutrophication, the courses had attracted the support of international institutions such as MAB (Man - Biosphere) UNESCO for the courses, by providing the funds to conduct these.

VI. TRAINING COURSES

Training is the major activity of the BIOTROP and is handled by the respective scientific programs. The problem-oriented training courses emphasize the critical biological problems facing the SEAMEO member countries. The courses aim to develop experts

which could identify priorities, analyze, and suggest solutions or alternative approaches to critical biological problems in the region.

Training programs are included as a part of BIOTROP's annual programs. Training is one of the BIOTROP's outlets in dissemination of information. Experiences of the last decades of development have made it clear that human capital is ultimately the key factor behind all progress. Thus, from July 1968 up to present, 1268 junior scientists and scholars have participated in short-term and long-term training courses organized by BIOTROP.

BIOTROP's regular training courses are developed from the center's experience with its research and development programs. BIOTROP can serve as a catalyst to ensure that basic knowledge related to a specific problem is acquired when needed. This ensures that existing knowledge is interpreted and is translated into principles and guidelines for potential application, and that scientists in the region are properly trained both in the methodology of this transfer as well as the development of principles and guidelines.

VII. SCIENTIFIC MEETINGS

Information exchange is what BIOTROP does best and has done for the past 32 years through presentations at our scientific meetings and publication of research papers in BIOTROP's official publication source "BIOTROPIA". In addition to the information exchange, the scientific meetings were organized in response to the current needs and emerging regional, and global concerns that are congruent with BIOTROP's overall mission and objectives.

The scientific meetings offer an opportunity for scientists from the Southeast Asian countries to discuss and share what they have achieved, as well as to relate their practical research needs.

VIII. THE INFORMATION RESOURCE UNIT (IRU)

To provide current information for its staff, the IRU screens, digests, and organizes information from institutions, agencies and other sources.

To meet this goal, the IRU has as its objectives to:

1. Provide information and library services to the following target groups: (a) BIOTROP staff ; (b) Non-BIOTROP staff which includes scientists, students (both of undergraduate and graduate schools; and (c) other communities concerned with the tropical biology and BIOTROP subject areas.
2. Provide advice and training in the management of information to: (a) BIOTROP project-related jobs; (b) Local and international institutions concerned with

tropical biology as well as BIOTROP subject areas; (c) Institutions concerned with the training of information specialists.

3. Develop data-bases useful to scientists and researchers in the Southeast Asian region.
4. To promote BIOTROP programs and activities.
5. Increase networking and linkages.

VIII.1 THE LIBRARY AND DOCUMENTATION SERVICE

- The Library

The BIOTROP Library and Documentation Service is classified as a special library and is headed by a librarian who is directly under the supervision of the Head of the Information Resource Unit. The Library has seating capacity for forty readers. It provides up-to-date references and learning resources both in print and non-print media. Currently the library holdings consist of 15,500 volumes of books, more than 1,000 serial titles, voluminous pamphlets, and microfiches. They are acquired and collected from a large variety of sources within and outside the Southeast Asian region, with 80% of the books collected written in the English language. Due to budgetary constraints, the acquisition of books and other library materials has been reduced. However, with the higher activities programmed through the program thrusts, we hope that BIOTROP can exchange publications with local and international institutions that will contribute greatly to the growth of the library collection.

- The Documentation

The first step to build up the documentation of the institute's publications and, unpublished and published reports, is the systematic collection of this material. Further dissemination of BIOTROP's research results would not be possible if the materials could not be located or be made available for consultation. These materials are stored separately from the library and are catalogued using its own systematic classifications approach. As required by SEAMES, every year BIOTROP has to submit the list of published and un-published reports and papers, which will be accumulated along with those from the other Centers under SEAMEO. These publications are very important as it is the medium to promote as well as to disseminate "gray literature" (unpublished material) collections available at the Centers.

IX. CHALLENGES TO ACCESS INFORMATION

Other challenges in providing access to scientific and technical materials can also be encountered in Indonesia as institutions try to develop comprehensive access. These include:

1. There is concern about the accessibility of domestic or local information to the international arena. This raises the issue of relationship between open information flow, and information restricted to concerns of national interest. Examples are: cultural sovereignty issues, including values related to indigenous heritage, customs, language, and national security. This reminds us that, although information production and information industries are global, information policies are local.

Regardless of the reform era in Indonesia, access to public information is still limited mainly due to a bureaucratic culture where officials remain reluctant to disseminate information. Many people still find it difficult to obtain data or information from government institutions because the government still perceives information as its personal domain. Data are strictly for private use and confidential. For example, satellite data on forest fire hot-spots should be shared with the Environmental Impact Control Agency (Bapedal) which then should pass it on to the Ministry of Forestry. Data about the weather should be shared with the Meteorological and Geophysics Agency.

Of course, there is also information the disclosure of which would have serious prejudicial consequences, such as violating a person's right to presumption of innocence; disrupting or threatening the survival of a business; undermining the nation's defense and security; and threatening the lives of others.

2. Lack of technological sophistication, including compatibility of systems, unreliability of telecommunications, interrupted electrical supply, insufficient maintenance of equipment, and even shortage of supplies plagues efforts in many locations. In some areas, particularly outside Java, there are not enough telephone lines for institutions to develop basic online networks. Lacking in some instances is an infrastructure to ensure continuity of access. Traditional methods of information collection, processing, storage and dissemination are prevalent.

In addition, the library automation programs in Indonesia are heterogeneous. It always depends on the need and capability of each library. Some libraries implement existing standards that are internationally accepted, while others have been creating their databases using a very simple format. It is understandable that the libraries do not opt for future cooperation. The argument against implementing a uniform standard is that the time spent for document processing becomes longer.

3. Lack of organized access presents problems. This includes insufficient classification or retrieval systems with a need to develop and apply a common standard. Also there is a lack of depth in many collections. It is very important to keep in mind that library development is not a priority of the national budget.

Thus, very little money is available for acquisition of books, periodicals and other library materials. Furthermore, for university libraries this has caused a halt to the purchase of library materials the past several years.

Moreover, the depository act, imposed by the National Library for the national bibliographic control of all publications in Indonesia, is not well-implemented. As a result, needed information may be present but not available, since there is no place to look for it.

It is good news that many biomedical journals are available via the Internet. Developing country researchers and students will benefit from this, as they may access the information at no cost to themselves or their institutions. But how many of them have access to the Internet and at high bandwidth? It is essential to bear pressure upon governments in these countries, and others interested such as international funding agencies, to help spread high bandwidth Internet access development. Only then, can researchers take advantage of this offer by journal publishers.

4. In Indonesia there is a severe shortage of educated information professionals who can develop the services to store, process, analyze, package and deliver scientific and technical information. In a report published by UNESCO³⁾ it mentions that "effective management of information requires professionals who understand information, how it is created, organized, sought, and used by people in both their work lives and their professional lives. One of the most important activities in an information society is to maintain a cadre of qualified information professionals". In order to assist librarians in Indonesia to cope with the numerous pressures on current innovations, as well as adapt challenges of the new millennium, appropriate training courses should be provided for them.
5. Inconsistency and lack of control of the publishing regulations have caused publishers of some serials to change the "titles" very often - particularly in recent times with the flush of enthusiasm for "reformation". Pursuing missing issues of serial titles is one of the most difficult and time consuming tasks in Indonesia.
6. Newspapers, serials and books published in the provinces are very difficult to get, if not impossible to obtain in the other provinces. This necessitates librarians or other interested users to travel around to collect these.

IX. CONCLUSION

Notwithstanding internal and external obstacles, BIOTROP has become established as a well-recognized institute of tropical biology in the Southeast Asian region, particularly in Indonesia. Among the SEAMEO-BIOTROP professional programs that the Center contributes to are:

- (1) The Center has established its credibility as a prime source of information in response to the demand for biological subject matter. The experience SEAMEO BIOTROP has achieved, especially in the field of weed biology and management, as well as the pests of stored products, have indirectly contributed to programs related to food sufficiency .
- (2). Indirectly, the BIOTROP has made an impact in the development of the Indonesian' socio-economic development. Accordingly, SEAMEO BIOTROP has helped the country to alleviate the disparity among the regions to secure qualified manpower, and the capacity building of the universities in carrying out their research and development functions.
- (2) The results obtained by SEAMEO BIOTROP so far, though modest, have contributed significantly to the development of the nation and have become internationally recognized.

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