

Biodiversity Research and Training Program (BRT) The Biodiversity Research and Training Program (BRT) was established to provide support and funding for research into, and management of Thailand's biodiversity resources.

Thailand has varied forest types and aquatic habitats. These may support up to 12,000 species of vascular plants and roughly 3,500 species of vertebrates. Many species, however, have suffered because of environmental damage; smuggling of genetic resources also occurs. The present state of the country's biodiversity is not well documented.

The BRT Program addresses the need for research and training to assess the biodiversity remaining in the kingdom and to investigate the present and potential benefits of biodiversity for human life.

The BRT Program, established by the national Center for Genetic Engineering and Biotechnology (BIOTEC) under the National Science and Technology Development Agency (NSTDA), together with the Thailand Research Fund (TRF), makes funding available for basic and applied research in disciplines related to biodiversity.

#### WHO MAY APPLY

The program funding is intended to aid Thai researchers and institutions; foreign researchers will be welcomed into the program provided that their project proposals satisfy the following requirements.

- They should work closely with local governmental, non-governmental or educational institutions or organizations.
- Thai principal investigators must be included in the project meaningful ways.
- The project must be carried out in Thailand or in a neighboring country of interest to Thai researchers.
- The project must provide benefits to Thailand such as technical training, institutional strengthening, improved research capacity, shared useful data, and increased public awareness.

#### PROGRAMS AND OBJECTIVES

The BRT provides support and funding in seven programs under two broad areas: Research and Training in Biodiversity, and Development of Technology, Policy Development for Management of Biodiversity. Program particulars are described herein.

#### Research and Training in Biodiversity

Studies of the ecosystems of Thailand and their diversity must lead to improvements in the quality of the environment; contribute to Thailand's agriculture, medical sciences, economy, and industry; and enhance the expertise and effectiveness of Thai scientists.

## Program 1 Systematics, Genetics and Ecology

Projects might include:

- taxonomic work, identification keys, manuals;
- surveys and inventories of particular environments or ecosystems;
- research on population genetics and evolution;
- studies of the ecology and distribution of important species or species groups;
- research to improve census techniques;
- research on the function of ecological communities, including inter-species relationships;
- studies of the dynamics and functioning of ecosystems, including those influenced by human activity.

## Program 2 Monitoring of Populations and Ecosystems

Monitoring Changes in populations, communities and ecosystem processes over time has two objectives: i) describing and understanding the dynamics of natural systems, and ii) examining the effects and long term consequences of human disturbance.

Research and monitoring objectives must be clearly defined and proposed activities included in the project proposal. Monitoring should be quantitative; methods of measurements, sampling or census taking must be described to facilitate replication by other researchers. Monitoring should be combined with field experimentation in order elucidate causes of change.

BRT supports the establishment and management of Long Term Ecological Research Sites (LTERS) (permanent plots, relatively secure and protected from inadvertent disturbance) which facilitate detailed inventory and mapping. Standardized methodologies for LTERS exist, developed by the Man and Biosphere/Smithsonian Institution Program and the Smithsonian Tropical Research Institute (STRI)

Worthwhile subjects for monitoring include:

- endangered species populations
- abundance, distribution and genetic composition of pest and vector populations;
- abundance and harvest of commercial fish and shellfish populations;
- physical characteristics and biological populations in rivers and reservoirs; changes in coastal environments;
- growth, recruitment, mortality and reproduction of forest trees; responses to climatic variables; long-term changes in ecosystem variables.

### Program 3 Economics, Society and Biodiversity

This program focuses on the knowledge and uses of biodiversity by local residents and communities. Projects should promote collaboration between local leaders, academic researchers, government officials and NGOs. Research findings and local wisdom should combine for sustained benefit of local people.

Projects which qualify for funding include:

- systematic collection of local knowledge of biodiversity;
- study of the local uses of indigenous plants and animals for medicine, food, tools and handicrafts;
- management and economic viability of community forests and the role of local wisdom and experience in management.
- the effects of tourism on local biodiversity and means of promoting sustainable ecotourism;
- study of ecologically sustainable mixed cropping systems in agriculture and the role of local knowledge.

### Program 4 Information Coordination

Rapid developments in information technology create opportunities for biodiversity data analysis and distribution. This program funds projects which enhance the capability of biodiversity researchers to organize and store data efficiently and make it available to others.

There are three areas of focus.

- Biodiversity databases are most valuable when they contain information on distribution, habitat, abundance, species attributes and uses, and are linked to geographic information systems (GIS). As database development and maintenance is labor intensive, proposals will be assessed on the efficiency of organization, potential availability to a wide network, and contribution to long term institutional support.

- LTERs inventory and monitoring programs are elaborate databases designed to map, store and analyze information about all biological populations in a given site. Standardized monitoring programs available may not necessarily be appropriate for all types of research and monitoring plots. The BRT may assist researchers select or design databases appropriate for particular LTERs.
- Thai Studies in Biodiversity, a monograph series initiated by the BRT Program, facilitates publication of biodiversity inventories, surveys, monitoring data, environmental assessment and other works too descriptive or detailed for publication in existing scientific journals.

BRT favors publication in English as that has the potential to reach a broader scientific audience. BRT experts will review all reports and assist with editing to meet internationally accepted standards. Publication will be financed by the BRT Program and copyright will be retained by TRF/BIOTEC, unless other special arrangements are made.

Funds may also be requested for private publication of manuscripts if this arrangement is more desirable.

## Program 5 Human Resources Development and Training in Tropical Biology

The BRT program welcomes proposals for high quality training programs and educational activities such as:

- improvement of graduate programs in fields related to biodiversity; preference will be given to departments which already have some excellence in research or good local research opportunities;
- biodiversity research grants for undergraduate, graduate and post graduate students;
- training programs and workshops in biodiversity and tropical biology.

## Development of Technology, Policy and Management of Biodiversity

### Program 6 Development of Technological Proficiency for Sustainable Social and Commercial Use of Biological Resources

The objectives of this program are:

- to identify organisms with potential for pharmacological, agricultural and industrial products with social and commercial applications;
- to increase technological proficiency;
- to develop human, scientific and technological resources for research and development of natural products.
- Proposals may be developed for the following types of projects:

- collection, culture or storage of species such as bacteria, fungi, lichens, plants or their tissues, insects, and marine organisms which show potential for scientific or commercial application;

- establishment of appropriate research and testing centers to expand the capacity to develop natural products;

promotion of research on sustainable uses of biological resources.

## Program 7 Policy Development and Management of Biodiversity

The objective of the program is to develop policies and management capacities for the sustainable use of biological resources. Project proposals should foster collaboration among local communities, government officials, biologists and social scientists which aim:

- to collect data on the current state of biodiversity in Thailand in order that appropriate research and management policies may be initiated;

- to examine the roles and values of biodiversity in society, the economy and the environment, particularly those presently undervalued;

- to analyze the social and economic incentives for managing a particularly valuable biodiversity resource with the aim of evolving policies or customs to improve management.

Proposals in this sector should develop recommendations for realistic action at the national level.