



**Support to Building the Inter-American Biodiversity
Information Network**

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**Biodiversity Information for Decision Making – International
Experiences**

APPENDIX 1

**CASE STUDY: Experience in Developing the ASEAN Regional
Centre for Biodiversity Conservation**

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Case Study: Experience in Developing the ASEAN Regional Centre for Biodiversity Conservation

This Appendix accompanies the principal document *Biodiversity Information for Decision Making – International Experiences*. The principal author is Julian Caldecott, UNEP-WCMC.

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CHAPTER 1 INTRODUCTION

1.1 The Association of Southeast Asian Nations

The Association of Southeast Asian Nations (ASEAN), is an inter-governmental organization founded in 1967 to promote “peace, freedom and prosperity” (Bangkok Declaration, 8th August 1967). Initially it comprised Indonesia, Malaysia, the Philippines, Singapore and Thailand, but was later joined by Brunei Darussalam and eventually also Cambodia, Lao PDR and Vietnam, with Burma/Myanmar making the tenth and most recent ASEAN Member Country (AMC). These countries are extremely diverse in their national economic circumstances, and in their capacity for action in any area including that of biodiversity management. The ASEAN grouping contains countries with a very wide range of GDPs per person, which is strongly correlated with the UNDP Human Development Index (Table 1). This diversity means that it is often impossible for uniform standards to be applied across the region without being accompanied by special measures to strengthen the capacity to meet them among the less prosperous AMCs.

Table 1 AMCs ranked by GDP/person (sources: www.undp.org, www.fco.gov.uk)

Country	GDP/person (US\$ 2001)	GDP rank within ASEAN	HDI rank among 175 countries	HDI rank within ASEAN
Singapore	23,000	1	28	1
Brunei Darussalam	20,400	2	31	2
Malaysia	4,530	3	58	3
Thailand	1,991	4	74	4
Philippines	926	5	85	5
Indonesia	823	6	112	7
Vietnam	443	7	109	6
Lao PDR	328	8	135	9
Cambodia	278	9	130	8

Between them, the AMCs include virtually all the lands and seas that are commonly called South-east Asia, a region of immense importance for global biodiversity since it contains the natural habitats of up to 40% of all species on Earth. It includes three ‘mega-diversity’ countries (Indonesia, Malaysia and the Philippines), several biogeographical units (e.g. Malesia, Wallacea, Sundaland,

Indo-Burma and the Central Indo-Pacific¹), and numerous centres of concentration of restricted-range bird, plant and insect species. Species richness by area is higher in several ecosystem types (e.g. lowland rain forest, coral reefs) than anywhere else on Earth, and overall species richness is known to be very high although most species are little-studied invertebrates and unknown to science. These biodiversity resources have evolved and exist in the context of natural ecosystems, and cannot survive if those ecosystems are destroyed.

1.2 The ‘Biodiversity Sector’

As elsewhere, among the AMCs there is an emerging awareness of ecosystems and biodiversity as a cluster of resources with great potential to absorb productive investment by the public and private sectors. The concept of a ‘biodiversity sector’ is starting to develop, this being one that has distinctive investment needs and attributes, while also being extremely large, complex and interactive with other sectors. It can be defined by re-stating and synthesizing the guiding analysis and principles of the Convention on Biological Diversity (CBD), inter-governmental consensus represented by the deliberations of the CBD Conferences of the Parties, meetings of the CBD Subsidiary Bodies on Scientific, Technical and Technological Advice (SBSTTA), conclusions of the United Nations Environment Programme’s World Conservation Monitoring Centre (UNEP-WCMC), the EC’s *Biodiversity Strategy*, and consensus among practicing conservationists and conservation institutions. On this basis, the biodiversity sector can be defined to include everything to do with:

- **saving biodiversity** (e.g. the design, protective management, financing, use, planning, staffing and inter-sectoral significance of protected areas and protected area systems; the management of genetic resources, species, populations and ecosystems outside protected areas; the suppression of alien invasive species, fires and other factors that pose a threat to wild species populations; and relevant legislation and policies);
- **studying biodiversity** (e.g. all actions to do with research and inventory work involving the collection of information of any kind related to any aspect of genetic resources, species, populations and ecosystems and the organization and use of that information);

¹ **Malesia** is a phytogeographic region that includes New Guinea, Java, Luzon, Borneo, Sumatra and the Malayan Peninsula and all lands in between (i.e. the countries of Papua New Guinea, Indonesia, East Timor, the Philippines, Brunei Darussalam, Malaysia and Singapore). **Wallacea** is a zoogeographic region that comprises Sulawesi and Maluku in Indonesia, and East Timor. **Sundaland** comprises the Malayan Peninsula, Borneo, Sumatra and Java, all of which have dipterocarp forests and a characteristic biota associated with them. **Indo-Burma** includes all lands between southern peninsular Thailand, the Vietnam coast, south China and eastern India. The **Central Indo-Pacific** is a distinctive region of exceptional marine biodiversity enclosed by the Malaysia-Philippines-New Guinea triangle.

- **teaching about biodiversity** (e.g. all actions that use information about biodiversity for an educational purpose whether commercialised or not); and
- **using biodiversity** (e.g. in agriculture, medicine, bio-prospecting, ecotourism, natural history film-making and journalism).

These four dimensions of the sector respectively concern the survival of the raw material upon which it is based (and vital ecological services as well, such as stable water supplies and avoided floods and droughts), the expansion and organization of our knowledge about it, the stimulation of our minds to think creatively about how to use it, and the application of our energies to creating wealth from it. Biodiversity can be thought of as the information contained in living systems, having accumulated there during the four billion years since the origin of life on Earth, and particularly over the last 560 million years of post-Cambrian evolution. From an economic viewpoint, living systems are themselves valuable since they sustain systems of food production and waste absorption, and the biodiversity they contain is potentially much more valuable than currently perceived since it amounts to an almost infinite information resource for new information technologies (IT) to manage productively of new ideas, products and processes. As the biological revolution takes hold in industry, agriculture and medicine, the biodiversity sector is moving into a primary economic role, one in which the ASEAN countries have an advantage since they control so much raw material and have already invested so much in IT.

Malaysia, for example, comprises three territorial units – the Peninsula (where the Federal Government is located), and Sarawak and Sabah on the island of Borneo. The Federal Government founded ‘Cyberjaya’ during the 1990s in Peninsular Malaysia to encourage development of a ‘Silicon Valley’-like aggregation of IT businesses, and followed up in 2003 by founding ‘Biovalley’ to do the same for bio-prospecting and related industries. Following proposals in 1988 for a Natural Products Institute in Sarawak (Caldecott, 1996), the Sarawak Government has been active (and secretive) in promoting bio-prospecting ever since. Sabah followed suit with the *Sabah Biodiversity Enactment* of 2000, which was formulated primarily to regulate access to biodiversity resources with a view to allowing bio-prospecting and preventing bio-piracy under the auspices of the Sabah Biodiversity Council (Caldecott, 2002). With a far more limited biodiversity resource base, Singapore has also been active in bio-prospecting since the 1990s, and has announced several commercial pharmaceutical discoveries from coral reef organisms. The combination of IT, species richness and targeted investment, suggests that biodiversity will be an important factor in the future economies of the region, and this potential is also recognized by corporations such as IBM, which founded its Life Sciences Solutions business unit in early 2000. This increasing public- and private-sector recognition of the value of biodiversity has the corollary, however, that the value is also becoming recognized of the lost

opportunities represented by high and increasing rates of genetic erosion and species extinction.

1.3 ASEAN and EU Responses to Environmental Threats

Awareness has been growing for some time within the AMCs that the region's valuable biodiversity resources are under extreme threat from human activities, whether local (e.g. land conversion), global (e.g. climate change), direct (e.g. dynamite fishing) or indirect (e.g. alien species invasions), and that the natural beauty and diversity of the entire region has already been substantially degraded in recent years. In response to this, regional governments have taken numerous individual measures to preserve their biodiversity resources, and many important samples of natural ecosystems still survive, mostly in protected areas (PAs) managed by governments, sometimes in co-operation with other actors. Almost all the AMCs have undertaken some type of biodiversity sector analysis, such as a country study or action plan, while at the regional level there was a 1997 *Review of the Protected Areas Systems of the Indo-Malayan Realm*, a 2003 overview of the ASEAN protected areas network for the World Parks Congress in Durban, South Africa, an IUCN study on *Biodiversity Planning in Asia*, and every two years the *ASEAN State of Environment* reports by the ASEAN Secretariat. All these studies reveal the very serious condition of the biodiversity sector in the region and the many tasks that need urgent attention.

ASEAN is the main vehicle for regional co-operation in South-east Asia. Its founding declaration included a commitment to inter-generational equity ("posterity"), which is a central concept in conservation, and ASEAN has developed a number of mechanisms to promote regional co-operation on environmental and biodiversity issues. These include ASEAN task forces on particular subjects (such as haze and forest fires), the ASEAN Working Group on Nature Conservation and Biodiversity (AWGNCB), meetings of ASEAN Senior Officers on the Environment (ASOEN) and the ASEAN Ministerial Meeting for the Environment (AMME). The *Hanoi Action Plan* adopted by AWGNCB specifically identifies the need to have a regional centre to help coordinate actions, policies and knowledge management in relation to the environment. This decision was informed by awareness that many environmental issues can only be effectively addressed if neighbouring countries co-operate with one another. Examples include:

- managing trans-frontier reserves and migrating wildlife populations;
- addressing trans-frontier wildlife and timber trade and poaching issues;
- conserving river-system, river-basin, coastal and marine ecosystems;
- addressing root causes of forest fire and smoke pollution;
- promoting common understanding of governance and legislative features that encourage and enable conservation;

- establishing common professional competence standards for key functions in the sector (e.g. in protected area management);
- protecting common interests in bio-prospecting and resisting bio-piracy; and
- sharing experiences in facing common challenges in bio-security (e.g. alien invasive species and genetically-modified organisms).

Hence the concept had developed, by the mid-1990s, of establishing an ASEAN institution to promote knowledge sharing about best practices and common efforts in the biodiversity sector, and led to a proposal for European Union (EU) collaboration in establishing an ASEAN Regional Centre for Biodiversity Conservation (ARCBC). This idea was developed in the context of the long-term, EU-ASEAN region-to-region partnership, the evolution of which is explained in the Commission's Communication *Europe and Asia: A Strategic Framework for Enhanced Partnership* (2001, 469 final), which stresses combating poverty by addressing links between environmental conservation and poverty, and notes the importance of the dialogue on social policy, human rights, good governance, scientific/technical co-operation, and educational/scientific exchanges. The Commission's Communication *A New Partnership for SE Asia* (2003, 399 final) further identifies environment and forestry as requiring strengthening in less prosperous countries, and the environment as an area in which to intensify dialogue and co-operation.

CHAPTER 2 PURPOSE AND ESTABLISHMENT OF THE ARCBC

2.1 Problem Analysis

The ARCBC project was conceived as a co-operative enterprise to promote biodiversity conservation within ASEAN, by relieving constraints on the flow of knowledge about biodiversity, ecosystems and how to manage them among stakeholders within the participating countries, and between them and the EU. This conception was based on a problem analysis that is summarized in Table 2.

Table 2 Analysis of problems concerning biodiversity in South-east Asia (adapted from ARCBC, 2003a)

Problem	Direct Cause	Underlying Cause	Recommendations
Resource use or disposal decisions made at all levels (national to private lands) without adequate knowledge of biodiversity issues involved.	Information unavailable, unanalysed, lacking scale or out of date.	Weak data flow, lack of sharing, lack of standards. Poor collaboration within and outside region.	Adopt standards, upgrade data flow and improve sharing network.
Governments severely burdened by reporting to too many conventions and programmes.	Duplication of effort and poor access to relevant data.	Compartmentalisation of overlapping functions in different government units.	Streamline reporting functions and develop and promote harmonized reporting systems.
Weak management practices in protected areas and other conservation functions.	Lack of capacity and knowledge. Inadequate training for the job, poor in-service training.	Weak access to suitable materials and courses ill designed to meet job requirements.	Promote use of occupational standards. Develop or provide access to better training tools and materials. Promote e-learning.
Alienation of local people through loss of access to traditional resources.	Poor governance. Inadequate involvement of local people in resource management or in obtaining rewards for benign environmental practices.	Weak policy and weak use of financial tools (compensations, taxes, incentives) to promote equitable sharing of benefits Little effort to allocate resource management to local communities.	Formulate policies that safeguard ancestral rights, indigenous intellectual property and tax downstream beneficiaries to pay for upstream ecological services such as forest protection.
Unsustainable use of forest, land, fisheries and	Inefficient resource use practices still	Lack of applied research and failure of	Direct research into pressing problem areas

other resources.	prevalent. Lack of knowledge.	research findings to feed into improved practices. Weak extension.	and review research findings to derive quick benefits.
Vulnerability to bio-piracy (genes, proteins, medicines, commercial germplasm).	Lack of adequate controls.	Weak access protocols and regulations. Lack of physical enforcement measures. Poor collaboration outside of region.	Promote access protocol and train customs control officers in recognition of prohibited trade items. Clearinghouse of reliable and black-listed bio-prospectors.
Unfair or environmentally unsound land-use or resource use allocations authorised.	Lack of understanding of ecological principles. Regional needs frustrated by personal motives.	Lack of coherent and integrated land and resource use planning. Poor access to pertinent information. Lack of transparency Failure to involve all stakeholders.	Empower more stakeholders by establishing widely assessable and user friendly web-based information systems.
Increased levels of environmental catastrophe – climate change, floods, droughts.	Loss of forest cover.	Unsustainable land-use policies and practices. Pressures of population growth and poverty.	Generate better ecological awareness and formulated better resource management policy.
Loss of harvestable renewable resources.	Over-harvesting and illegal trade	Poorly calculated quotas or lack of controls. Lack of markets and marketing for potentially saleable products.	Base quotas on real field research. Strengthen monitoring and trade controls.
Threat to endemic species, habitats or loss of/damage to ecological services as a result of spreading AIS or GMOs.	Absence of adequate controls.	Lack of AIS strategy, weak legislation, lack of assessment and field release trials. Lack of reporting.	Develop suitable strategies, laws, assessment procedures and release controls. Develop rapid response and eradication methods.
Increasing pollution of natural habitats.	Weak emission and dumping controls and regulations.	Lack of awareness, weak monitoring and weak reporting.	Improved habitat condition monitoring and reporting.

The key problem to be addressed by the ARCBC project was the lack of an institution able to build capacity among AMCs to formulate and coordinate biodiversity-related policy, strategy and action, to fulfil relevant treaty obligations, and to promote and advance common positions on matters related to biodiversity conservation, management and sustainable use. The lack of these strengths contributes to high rates of biodiversity loss in the ASEAN region, which result from many interacting factors, all of which are aggravated by weak AMC capacity to monitor, analyse, understand and intervene in appropriate and effective ways.

2.2 Objectives

In formal terms, the overall objective or goal of the project, as originally designed and articulated in the Financing Agreement of 1997, was “*to intensify biodiversity conservation through improved co-operation in a comprehensive regional context, by assisting in setting up a network of institutional links among ASEAN countries and between ASEAN and EU partner organisations*” (Agreement ASEAN/B7-300/IB/96/22, page 11). The project’s logical framework was re-formulated in the *Global Workplan* of 1999, in which the overall objective was re-stated as follows: “*Benefits from Biodiversity (germplasm, species, etc) and biodiversity services (water catchment, heritage value, climatic regulation) in the ASEAN Region are sustainably enhanced*”. This was again revised by the Mid-term Review of 2002 to state: “*Significant reduction in the rate of biodiversity loss in the ASEAN region is achieved by 2010*” (GFA, 2002), though delays in EC processing and communicating this document meant that ARCBC managers were not officially advised of this until late 2003 when the project had only a few months left to run. The last formulation was however retained in proposals for a successor institution (see Chapter 5).

In summary, the basic purpose of the ARCBC project was to promote regional co-operation and strengthen human and institutional capacity across the biodiversity sector within ASEAN, its activities being organized around several themes. These are to:

- make the ARCBC office operational and sustainable;
- establish a functional network of biodiversity conservation institutions;
- develop and deliver biodiversity conservation training;
- upgrade conservation research standards by funding research projects;
- develop an adaptive biodiversity database system;
- promote regional policy development; and
- establish National Biodiversity Reference Units (NBRUs) in each AMC to act as national focal points for biodiversity conservation and to serve as

contacts with each other and with ARCBC - hence the aim was a network of NBRUs served by central functions provided by the ARCBC.

2.3 Stakeholders

Key stakeholders in the ARCBC project include: AMC institutions responsible for conservation, management and sustainable use of biodiversity, or for managing knowledge on these subjects; supra-national entities that look to those institutions for results at a regional level, including the ASEAN Secretariat; and other state and non-state actors of AMCs who look to those institutions for national services, including educators, journalists, planners, decision makers, researchers, NGOs, ecotourism operators, bio-prospectors, local communities and the public.

To these can be added a vast array of people and institutions that are affected by events in the biodiversity sector within ASEAN, including everyone with an interest in the fates of wild species and natural ecosystems, the prosperity of the ASEAN peoples, and the consequences of a failure to preserve these things in terms of its impact on the global environment, economy and international security.

2.4 Budget and Schedule

The Financing Agreement for a project to support the establishment of ARCBC was signed in July 1997 between the EU, represented by the European Commission (EC), and ASEAN, represented by the Government of the Philippines (GoP). Participation in the ARCBC project was initially limited to seven AMCs, these being Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore, Thailand and Vietnam, but Cambodia and the Lao PDR also became participating AMCs from June 2002, making a total of nine².

The project had a total budget of €11.514 million, consisting of €9.240 million from the EU via the EC, and €2.090 million from ASEAN. Total EU operational funds for direct disbursements of the project amounted to € 6.491 million of which the biggest line item was for Applied Research Grants amounting to € 2.750 million or 29% of total EU grant funds. The EC manages €2.673 million or 29% of its total grant contributions using its own procedures: 27% for technical assistance (TA) and 2% for Evaluation and Audit. The ASEAN contributions are in the form of salaries for local personnel, other operating expenses, and office facilities to house the ARCBC and NBRUs.

The Implementing Agency was the GoP's Department of Environment and Natural Resources (DENR), which in the course of the project contributed about € 1 million in cash and kind, including the ARCBC building and numerous staff members, making it the biggest single ASEAN contributor to the ARCBC. The

² Although a member of ASEAN, Burma/Myanmar is under sanction by the EU and cannot receive benefits from the EC. Various UN and bilateral agencies have however allowed it to participate to some extent in ARCBC-related activities.

project was implemented over a five-year period commencing 17 Feb 1999, and was therefore scheduled to come to an end on 16 Feb 2004. During 2003, however, it was agreed in principle between the EC and AMC governments that the project would be extended until the end of 2004 to allow arrangements for a successor institution to be put in place (see Chapter 5). Latest reports suggest that arrangements for this are not yet in place and all but a skeleton staff have left their posts, so the ARCBC project is described below in the past tense.

2.5 Main Features of the Project

The project was active at both the regional and national levels. At the regional level, the aim was to establish a permanent institution to provide knowledge services to participating countries and the ASEAN Secretariat that derive from a regional perspective which is not available to individual countries acting on their own. This regional value added is of critical importance to biodiversity conservation, where solutions to cross-frontier, multi-country and ASEAN-wide challenges can only be obtained through co-operation, and where sharing regional knowledge can help stakeholders to find new and effective ways to resist and reverse the degradation of natural ecosystems, alien invasions, and genetic erosion. From this point of view, the ARCBC really has something to offer that is more than the sum of individual national biodiversity conservation efforts. Its main features are as follows. It has networking and training components to deal with ‘meeting, talking, teaching and learning’ (MTTL) activities and policy development, a research programme to help fill in knowledge gaps, and a databasing component to promote the management and exchange of knowledge that is organized in digital form. It is therefore designed conceptually to operate and impact holistically and in favour of a wide range of beneficiaries across all participating countries.

At the national level, the aim was to establish a network of National Biodiversity Reference Units (NBRUs) in all participating countries. These each comprised a co-ordinator and technical support staff with a kernel of digital data-management and communications technology. The role of the NBRU was never particularly clear, since there was some doubt over whether it should be: (a) mainly a data repository and information manager for its country, or (b) mainly concerned with promoting MTTL activities and the exchange of biodiversity-related knowledge among networks of knowledge-holders within the country and between it and the regional level. In any case, the nine participating AMC governments appointed the following institutions as NBRUs:

- **Brunei Darussalam:** Forestry Department, Ministry of Industry and Primary Resources (NBRU established 1999);
- **Cambodia:** Department of Nature Conservation and Protection, Ministry of Environment (NBRU established 2001);

- **Indonesia:** Research Centre for Biology, Indonesian Institute of Sciences (NBRU established 2000);
- **Lao PDR:** Forest Resources Conservation Division, Department of Forestry, Ministry of Agriculture (NBRU established 2002);
- **Malaysia:** Nature Conservation and Environmental Management Division, Ministry of Science, Technology and Environment (NBRU established 1999);
- **Philippines:** Protected Areas and Wildlife Bureau, Department of Environment and Natural Resources (NBRU established 1999);
- **Singapore:** National Parks Board, Nature Conservation Branch, Singapore Botanic Gardens (NBRU established 1999);
- **Thailand:** Office of Environmental Policy and Planning, Ministry of Natural Resources and Environment (from Oct 2002) (NBRU established 1999); and
- **Vietnam:** Nature Conservation Division, National Environment Agency (NBRU established 1999).

As summarised by the ARCBC's Global Workplan of 1999, in line with the scope of work of the ARCBC the following key considerations were included in the design of project activities, which gave rise to 45 distinct tasks (many of them subdivided) in the project's original logframe:

- **Institutional support:** particularly to strengthen the NBRUs with delivery of hardware, software and training. To a lesser extent this also included the next layer of national agencies exchanging biodiversity information and cooperating with the NBRUs;
- **Capacity building:** training delivered to ARCBC staff, staff of NBRUs, trainers trained to deliver new modules developed by ARCBC, staff of ASEAN Heritage Reserves and Mt. Makiling (as model PAs);
- **Research:** promoting research directed at solving important biodiversity conservation problems and improving policy and standards of research by catalysing collaboration between ASEAN and EU partners;
- **Training:** delivered to many target groups – planners and decision makers, university trainers, biodiversity managers and operators etc;
- **Networking:** collaboration between technical agencies within ASEAN and between ASEAN and EU and through information exchanges, symposia, etc;
- **Raising of awareness:** distribution of analysed data in the form of awareness materials through newsletter, web, data exchanges and building into training materials;

- **Collation and analysis of information:** compilation, collation and regular updating of data, overlaying other related data sets and applying various levels of analysis;
- **Data sharing:** promoting data exchange at every level so that those needing data to make important decisions have available the best possible information possible;
- **Technological exchange:** holding technical workshops on shared problem issues to bring together the best methods and solutions found within ASEAN or EU; organising expert exchanges and other forms of technical collaboration;
- **Improved data management procedures:** improve the ability of data managers at all levels to manage biodiversity-related information;
- **Adoption of ASEAN standards:** streamlining as far as possible procedures of data management, data recording and reporting, nomenclature adopted, etc, to facilitate easier technical collaboration and transfer of information among ASEAN countries; and
- **Formulating the ASEAN framework on access to genetic resources:** safeguarding access to regionally shared biological resources from outside bio-prospecting by developing suitable cartel arrangements between member ASEAN countries.

The ARCBC was led by a co-directorate (i.e. an European Co-director and an ASEAN Co-director), supported by two service branches (for Finance and Administration, and Networking and Institution Building), and three technical branches (for Training and Extension, Research and Development, and Database and Information Management Systems). It was housed in a purpose-built office on the roof of the Ecosystems Research and Development Bureau building in the campus of the University of the Philippines at Los Baños, on the island of Luzon in the Philippines.

CHAPTER 3 PROGRESS OF THE ARCBC

The project started slowly in 1999-2001, and was initially plagued by delays in the release of funds. It began in February 1999, and the project management unit (PMU) was deployed full-time in March, but start-up funds were received only in June. Administrative procedures required of the project by the EC, EC Delegation and GoP caused various implementation problems thereafter. Long response times and processes of referral and approval applied to the Initial Plan of Activities, the Global Workplan and the annual workplans caused costly delays in all areas of project activity.

As a result, by its mid-point in August 2001, the project was well behind its operational schedule, with only 27% of total project funds under PMU control having been disbursed. Adverse effects on project performance of this particular problem were most evident in the research grant component of the project. Significant delays in taking action, and numerous requests for revisions of the research plan by the EC and EC Delegation resulted in there being no implementation of research projects in 2000. The Mid-term Review (MTR) in August-September 2002 (GFA, 2002), however, found that the ARCBC project had put this dismal beginning behind it, and had been making accelerating progress on a number of fronts. The main conclusions of the MTR were as follows:

The **networking component**, whilst having accomplished a great deal and being critically important to the project, was only partly compliant with its mandate under the Financing Agreement, and required a higher level of priority in the remainder of the project to broaden, deepen and multiply intra-sectoral and cross-sectoral links, personnel exchanges and policy-development processes within ASEAN, between ASEAN and EU, and globally.

The **training component** was fully compliant with its mandate and with approved operational plans, although some modifications in activities were proposed during the implementation process, were agreed, and were being implemented. Rather than delivering standard 'one size fits all' training modules to all AMCs, the training branch opted to develop professional competence standards for PA management staff (ARCBC, 2003b), with the kinds of training needed to attain them being adapted by each country in their own way, and this approach met with widespread approval.

The **research component** was compliant with the strategy envisioned in the Financing Agreement, but even though the resulting research was useful in many ways, very few individual projects were relevant to trans-frontier, multi-country, ASEAN-wide or policy-relevant issues. Hence the ARCBC research agenda could have been much better in line with the project's purpose and goal, instead of

supporting predominantly a national rather than a regional research agenda. Moreover, few of the projects were orientated to finding solutions to real-life problems such as the degradation and weak protection of natural ecosystems, alien invasions, and genetic erosion. There was little provision for research grantees to exchange knowledge, skills and experiences among themselves, and the research programme as a whole suffered from poor communication between ARCBC, the NBRUs and the researchers, significant delays, and complex and unclear contractual, monitoring and evaluation procedures.

The **databasing component** was compliant with the strategy envisioned in the Financing Agreement, although in scale and concept it had grown far beyond the intentions expressed earlier (and therefore also well beyond its original budget allocation). Technical and other challenges to progress had been significant, being mainly due to a reluctance by AMC governments to share data or assign personnel to key tasks. However these had been or were being overcome through design effort and dialogue focussed on re-defining the roles of NBRUs in certain countries, and providing user-friendly software such as the biodiversity information sharing system (BISS) modules, and training to a broader range of potential users.

The **finance and administration (FAD) component** was functioning well after a difficult start in the first half of the project, with most structural issues having been resolved, satisfactory audits having been performed, and effective procedures being put in place to provide adequate FAD support for the remainder of the project.

The MTR also assessed the networking, training, research and database components from the point of view of their **relevance** (to the project goal), **efficiency** (i.e. whether similar results could have been achieved by other means at lower cost in the same time or less), **effectiveness** (i.e. what difference the project was making in practice, as measured by how far the intended beneficiaries really benefit), **impact** (i.e. whether the project actually contributes to conserving ASEAN ecosystems and the biodiversity they contain) and **sustainability** (i.e. the likelihood that positive outcomes will continue after external funding ends). An overview of this assessment for 2002 is given in Table 3, and the anticipated situation in 2004 is given in Table 4.

In the latter half of 2002, the MTR described a project that had moderate relevance in all areas but research, and moderate to high efficiency and effectiveness in all areas but databasing. It was expected that there would be a substantial increase in positive indicators across the future of the project. In particular, by project's end, **networking** would score moderately well in all areas; **training** would score very well in all areas except sustainability; **databasing** would score moderately well in all areas, and would have caught up markedly in

Table 3 Qualitative project assessment in 2002 (from GFA, 2002)

	Networking	Training	Research	Database
Relevance	Moderate	Moderate	Low	Moderate
Efficiency	Moderate	Moderate	Moderate	Low
Effectiveness	Moderate	Moderate	High	Low
Impact	Moderate	Moderate	Low	Low
Sustainability	Moderate	Low	Low	High
Score¹	15	12	9	9
% of max	50%	40%	30%	30%
% of max (all)	38%			
¹ High (6), Moderate (3), Low (0); max for component (30); max for project (120).				

impact and sustainability; and **research** would be limited by low scores in relevance, impact and sustainability from a project perspective, but may be perceived as having a powerful long-term impact from a broader point of view. These predictions were consistent with the findings of the preliminary report of the design mission for a successor institution a year after the MTR (Agrifor, 2003), and with the final report of the same mission by a different team a year after that (Agrifor, 2004).

Table 4 Qualitative project assessment, as expected in 2004 (from GFA, 2002)

	Networking	Training	Research	Database
Relevance	High	High	Low	Moderate
Efficiency	Moderate	Moderate	Moderate	Moderate
Effectiveness	High	Moderate	High	Moderate
Impact	Moderate	Moderate	High ²	High
Sustainability	Moderate	Low	Low	High
Score¹	21	15	18	21
% of max	70%	50%	60%	70%
% of max (all)	63%			
¹ High (6), Moderate (3), Low (0); max for component (30); max for project (120).				
² Reflecting especially indirect impacts from completion of research projects.				

CHAPTER 4 LESSONS LEARNED

4.1 Trust and Commitment

There are multiple constraints on developing a multi-national data-sharing network. Leaving aside issues of hardware (computers, phone lines, etc.) and software (tools to manage information), which are relatively easy to resolve, the main challenges are institutional and perhaps cultural. One is that few if any governments have spare staff capacity, or spare funds to correct this through recruitment or out-sourcing, so adding the task of participating in a network can over-load capacity. In the ARCBC project, NBRU staff were expected to be contributed by the AMCs, with the result that NBRU roles were simply added to the job specifications of existing civil servants who were already fully occupied. In some cases, however, this was relieved in an *ad hoc* way by selecting individual civil servants on the basis of their particular personal capacity. The NBRUs in Brunei Darussalam, Indonesia, Malaysia, Singapore and Thailand functioned well mainly because of the quality of the individuals assigned as NBRU coordinators. This allowed considerable progress to be made by ARCBC in networking the NBRUs, or by the NBRUs in networking with each other, but was not an entirely satisfactory model for the future.

Where governments are concerned, this sort of constraint can only be sustainably relieved by the evolution of government policy to give priority to the investments that are needed. None of the AMCs can be said to give a very high level of priority to the biodiversity sector as a matter of established routine, though this is changing. Since the ARCBC project was designed in early 1997, the worst forest and land fires in recorded history devastated large areas of South-east Asia, choking Singapore, Malaysia and Indonesia in a toxic photochemical smog. The Asian financial crisis slashed economic performance and injured the fiscal position of participating AMCs. Indonesia, the largest and most biodiverse AMC, entered a time of fundamental social change, leading to greatly increased rates of deforestation. Two relatively poor and war-damaged countries (Lao PDR and Cambodia) joined the ASEAN family. Despite all this, ASEAN is still making progress on biodiversity conservation and is still committed to the ARCBC, implying that the idea of the ARCBC is sound and remains meaningful at some level to its stakeholders. Securing financial support from AMC is difficult and will remain so, but in many cases public opinion is well ahead of government policy, and the enthusiasm and human capacity of environmental NGO networks in several countries far exceeds that of government. Finding ways to harness this NGO capacity, either directly (by letting NGOs do some of the work of government) or indirectly (by helping them validate and encourage appropriate government investments) is an important part of the solution.

Another major constraint on developing a data-sharing network is that many data holders are less than enthusiastic about submitting their data to what they perceive as the public domain, where their rivals or critics can have free use of it. A connected issue is that it can be difficult to organize information in ways that allow it to be shared, since there are issues of language, scientific names, data format, database compatibility, digital transfer protocols, mapping and georeferencing quality, etc. to be overcome. These difficulties can be used as convenient excuses not to share information by those who are reluctant to do so. The solution found by ARCBC was to ensure that data holders at all times had the choice as to which data would be shared, and to develop a biodiversity information sharing system (BISS) module that was intended to be extremely easy to use and robust to different kinds of input. The emphasis was thus on reassurance and functionality.

4.1.1 Lessons for IABIN

The issue of trust is likely to be just as important in the Americas as it is in Southeast Asia, perhaps more so because the great differences in social wealth (GDP per person, or HDI) among American countries are distributed in an opposite way with respect to country size. Thus, within ASEAN, the most prosperous AMCs are the smallest (Singapore – dismissed by Indonesian commentators as ‘a town half the size of Jakarta’ – and Brunei Darussalam), while in the Americas they are the largest (USA, Canada, Brazil). In particular, there is no tradition in Southeast Asia of any one country being so overwhelmingly dominant as the US is in the Americas. Moreover, with the exception of Thailand as a regional influence in Indochina, and Indonesia on the island of Borneo, there is no equivalent of the regional power of Brazil which is able to project its settlers, infrastructure and political influence across land frontiers (e.g. to the north into Guyana, and to the north-west into Colombia). All of this means that international sensitivities are inherently more problematic in the Americas than in Southeast Asia, and every aspect of IABIN is likely to be a potential flashpoint of suspicion. In these circumstances, an issue such as data sharing must be approached with extreme circumspection, and the larger countries especially must try very hard to convey a commitment to principles of behaviour that distance themselves from any hostile interpretation. In this, IABIN would be well advised to draw its operating principles from international experience – for example the IUCN-sponsored ‘Global Biodiversity Commons’ process – rather than from hemispheric ideas of equity. Furthermore, experience (e.g. of linkage between Indonesia and Costa Rica in the field of biodiversity management; Caldecott, 1996) suggests that exchange visits between distant countries of the global South may be a better way to promote understanding than closer or North-South exchanges. This is because similar challenges are being faced and comparable

lessons are learned, but reciprocal learning is not blocked by regional rivalries and historical suspicions.

On the issue of governmental capacity and NGO participation, a notable trend in the Americas is a growing decentralisation of decision-making authority over forest resources (Ferroukhi, 2003), which to some extent can be extended to biodiversity. As the sense grows that ecosystems are local assets, required for local livelihoods and benefits, people will become increasingly resistant to the expropriation of biodiversity information for the benefit of techno-bureaucratic and capitalist elites elsewhere. Conversely, if IABIN is seen as a mechanism to support local empowerment, then it will be able to call on a deep well of local enthusiasm which, through popular and NGO participation, can help to relieve many of the established limitations of governmental capacity.

4.2 Usefulness

All signatories to the Convention on Biological Diversity, including all the participating AMCs except Brunei Darussalam (Thailand acceded to the treaty in 2004), are faced with reporting requirements that they perceive as onerous. Their governments are also continually approached by NGOs, journalists, bio-prospectors, foreign governments and others who place challenging demands on their policies and information holdings in the biodiversity sector. These responsibilities usually end up on the desks of one or two civil servants, who are often overwhelmed. In these circumstances, a regional information-sharing network must be useful if it is to be used, and it must be used if it to be perceived as valuable, which places a particular premium on utility and ease of use.

The ARCBC therefore invested considerable effort in researching stakeholder needs through very large numbers of bilateral discussions, workshops (with over 1,026 participants in 2002-2003), training needs assessments, regular meetings of NBRU coordinators, the Scientific Experts Committee, the Project Steering Committee (back to back with ASOEN meetings) and other means, while developing its services in an adaptive fashion. International networking, research support, training (and particularly development of professional competence standards for PA staff), other forms of capacity building, and institutional strengthening by provision of hardware, software and IT-related training were all regarded as very useful and valuable by participating AMCs, and as a critical basis for sustainability by the ASEAN Secretariat.

This perception of usefulness created a tolerance of delay while other services were developed, and a willingness to accept and experiment with new ideas and an increasing range of services as the project became steadily better established. This in turn supported the development of a consensus in favour of making the ARCBC a permanent ASEAN institution, which was the basis for the planning of

the successor arrangements described below. This is significant, since not all ASEAN experiments with specialist institutions have the same outcome: the ASEAN institutes of Forest Management and Plant Quarantine Training were both closed once external funding was ended, for example.

4.2.1 Lessons for IABIN

To be perceived as useful by its stakeholders, an intervention must be designed and implemented in ways that are responsive to their needs, and explained as such. Both the design and the explanation can be accomplished through elaborate participation supported by detailed, trusted information based on objective analysis, preferably from a global perspective formulated in a way that is relevant to American issues. Because conflicts of interest amongst stakeholders may be entrenched (e.g. between cattle ranchers and forest-dwelling indigenous peoples), dialogue may need to be pitched at a level that transcends competition for resources – for example, about the equitable sharing of new forms of social wealth derived from biodiversity. Similarly, a regional institution such as IABIN must always clearly justify itself in terms of regional value added, by giving its participants new opportunities that they could not achieve by acting independently. It will be up to the IABIN stakeholders to define these for themselves, but in ASEAN particular value was given to relieving national constraints on fulfilling treaty obligations (i.e. making it easier for government institutions to claim success) and to addressing trans-frontier, multi-country, ASEAN-wide or policy-relevant issues that had previously left individual countries at a loss.

4.3 The Project as a Support Mechanism

The point has been made many times before that EC procedures make for extremely slow implementation schedules. For example, more than five years elapsed between the beginning in 1988 of a feasibility study for EC support to the Cross River National Park in Nigeria and the beginning of implementation in 1993, with further years of delay before much began to happen on the ground (Caldecott, 1996). In the case of the ARCBC project, planning began in the mid 1990s, the financing agreement was signed in 1997, the project started in 1999, and little happened before 2001 (GFA, 2002). In any given case there are, of course, a host of reasons for delays, encompassing the personalities, politics, priorities and procedures of the EC and its partner institutions³. The ‘typical’ EC support mechanism for large enterprises involving multi-million euro expenditures is a project formulated in a particular way consistent with a host of established laws, procedures and document formats laid down by the

³ In both the cases cited, however, the Nigerian and Philippines governments respectively fulfilled their commitments to the letter and exactly on time.

Commission, many motivated by the need to minimize fraud, and implemented by a European consulting firm. Moreover, until recently these projects were managed in a centralized manner by the Commission itself, with the EC delegation in the beneficiary country acting mainly as a go-between.

Such arrangements are inherently vulnerable to delays and inefficiencies, because of the long lines of communication, the over-stretched resources of the Commission, and the institutional separation between those on the ground (i.e. consultants) and those setting and implementing oversight procedures. In the case of ARCBC, it was notable that financial and administrative (FAD) difficulties with the EC were greatly relieved after two false starts, by deployment of a third FAD adviser who had spent time with the EC, and who understood exactly what the donor organization required. This in effect mimicked standard operational practice at the IBM Corporation, in which projects are carried out by mixed teams of outside contractors and IBM staff who specialize in the field to which the project relates. These staff return to IBM duties after the project in order to share lessons learned with other project specialists. The cost of IBM project-specialist staff is more than offset by cost savings in service contracts, efficiency savings in project implementation, and knowledge increments within IBM itself. The EC might reasonably consider adopting a similar strategy for its global sustainable development and biodiversity conservation programme.

In any case, by the early 2000s the EC had become disillusioned with these arrangements and had begun to decentralise project supervision to the delegations. In the case of ARCBC, it had also begun to question whether the ‘project’ model was the best one to use for the design of a support mechanism for a successor institution. The project formulation mission for the latter, in 2003-2004, was tasked with preparing documents both for a ‘project’ and also for another kind of support mechanism, called an EC contribution to an international organization, which would involve a much simpler process of disbursement (Agrifor, 2003, 2004). It was only at Final Report stage, however, that the decision was finally made to opt for a ‘contribution’ instead of a ‘project’, which itself precipitated another complex series of negotiations with the participating AMCs and the ASEAN Secretariat. From all this it can be seen that EC support can be a mixed blessing for a conservation enterprise, and although the Commission is trying hard to improve matters, this reform is as slow a process as the implementation of the typical EC project in the past.

4.3.1 Lessons for IABIN

Networks should grow rather than be created by projects. It is more important for informed, inclusive dialogue to lead to a shared perception of genuine needs, which can then be met by the judicious application of technology, than for skills and technologies to be offered at the front end. Hence investments should be

formulated with an initial focus on consensus building, with implementation budgets available but not committed to any particular items from the beginning, and mechanisms in place to allow needs to be responded to as soon as they are identified. Thereafter, a long-term perspective is required, as cooperation among multiple institutions across national frontiers is a slow business.

4.4 The Role of the NBRUs

The success of the NBRU approach was mixed, since although the NBRU coordinators themselves were reasonably effective, despite being civil servants with many other duties to perform, the NBRUs often overlapped in function with other institutions and few of them really achieved an independent or sustainable existence. The stakeholder consensus towards the end of the ARCBC project was that the NBRUs should be re-named and if necessary re-aligned or consolidated with government agencies of overlapping function, and that they should be supplemented by the appointment of a focal individual point of contact within each AMC, who would represent the regional institution locally. This function would in principle be similar to that of the NBRU coordinator under ARCBC, but with the important difference that the focal point need not be a government official, instead being chosen according to who is best able to perform the function of matching knowledge holders to knowledge needers across the biodiversity sector. This person would work with the regional institution and with stakeholders in the AMC concerned to identify needs and to define a capacity development process to meet those needs across the sector as a whole. This means that participating AMCs would be much freer than under ARCBC to decide how tasks can best be undertaken in each case, and to agree with the regional institution appropriate packages of support or contribution to maximize the effectiveness of the system as a whole.

4.4.1 Lessons for IABIN

The NBRU model arose because of the preconception of the AMC governments, that biodiversity was a government matter so civil servants should ‘deal’ with it. With experience a more relaxed and diversified approach became possible, in which AMCs became more willing to consider other options. This flowed in part from the increasing perception that the biodiversity sector was important – in some instances ‘too important to be left to government’. In the Americas there is perhaps a wider range of institutional types available, for example the private, non-profit public-interest corporation (like INBio in Costa Rica), which could substitute from the beginning for an approach founded solely on using the public bureaucracy. For IABIN, the priority should be to encourage and enable the selection by stakeholders of the most appropriate and effective participants in each national case.

CHAPTER 5 THE FUTURE

Key ASEAN stakeholders in the biodiversity sector have expressed a wish for the momentum achieved by the ARCBC project to be maintained, and have indicated their preferences regarding the main features of a successor institution. All concluded that there is a need for a permanent, autonomous, regional institution directly under ASEAN auspices, the key features of which would be its operational autonomy, its regional nature and staff composition, its more diverse sources of funding support, and its clearer focus on regional, trans-frontier and policy issues, with special reference to helping AMCs meet obligations and obtain greater benefits under international agreements.

Stakeholders also concluded that the ARCBC's successor should be more of a network than a centre, and that it should have linkages with national governmental and non-governmental institutions and centres of excellence relating to its major operational themes, such as those that act as Clearing House Mechanisms (CHMs) under the Convention on Biological Diversity, or that are responsible for biodiversity protection, research, policy and capacity development. The nature of these linkages would differ from arrangements under the ARCBC project, with participating AMCs being freer to decide how tasks can best be undertaken in each case, and to agree with the successor institution appropriate packages of support or contribution to maximize the effectiveness of the system as a whole. It is clear that partner institutions in some countries will require more support than those in others, while some AMCs have indicated their willingness in principle to contribute new facilities to support certain functions of the ARCBC's successor in a de-concentrated fashion, for example training and information management.

Guided by these stakeholder preferences, a successor institution known as the ASEAN Centre for Biodiversity (ACB) was designed by a project identification and appraisal mission (Agrifor, 2003, 2004), building upon the findings of the MTR (GFA, 2002), a review of the institutional sustainability of ARCBC (EDG, 2003), and various other documents prepared by the EC, EC delegation and ARCBC itself.

The impacts of the ARCBC were growing in the final year of full project implementation, and many of them were deemed to be sustainable. By embedding appreciation of the ARCBC and a wish for its continuation in resolutions of the ASOEN Steering Committee, an ASEAN commitment to the work of the institution has been established. This will be made even more concrete with the establishment of the ACB and commitments by AMCs to contribute to its support in partnership with the international community.

The activities of the ACB will be more focused than those of ARCBC on intensifying and diversifying sustainable impacts on AMC and ASEAN capacity

(e.g. with more appropriate AMC focal points and better targeting on regional policy development). An implementation plan for sustainable financing will be prepared, allowing appropriate structures to be put in place to sustain the ACB after project's end. Throughout the project, the ACB Director will coordinate efforts to endow the ACB with long-term funding commitments sufficient to sustain core elements of the institution indefinitely. This will most likely lead towards an endowment model similar to that of the ASEAN Centre for Energy, except with a larger endowment of some €20 million to support the ACB's higher cost operations.

With secured core resources, the blessing of ASEAN, close links with AMCs and a track-record of achievement, the ACB will be well able to raise additional project funds thereafter. Hence it is likely that the ACB will become a fully sustainable institution in due course, and will continue to contribute to environmental sustainability in the ASEAN region far into the future. Six main results are expected from a further EC investment in the ARCBC's successor institution:

- The ACB will be established and its institutional development planned and organized under the leadership of a team of senior, expert ASEAN nationals, to support its basic functions of policy development, human, institutional and digital knowledge management capacity building, public and leadership awareness raising, and partnership building with the international donor community;
- Policy development and coordination among AMCs and at the ASEAN level will be encouraged and enabled, through a series of commissioned studies on key subjects by EU and ASEAN experts to inform workshops of policy makers and the public;
- Human and institutional capacity will be promoted by meeting AMC priorities through development of professional competence and performance standards in relevant fields, and delivery of courses, materials, tools, exchange visits and study tours, and other measures to promote confidence;
- Digital knowledge management capacity will be promoted by meeting AMC priorities through courses, exchange visits and study tours, by developing regional data analyses and strategies for data exchange, and by harmonizing reporting standards among AMCs and ACB to meet national, regional and international needs and commitments;
- Public and leadership awareness of biodiversity values and conservation needs will be enhanced, by distributing relevant messages aimed at influential targets through diverse and effective channels; and
- A sustainable financing mechanism for the ACB will be planned, established and endowed.

The first result reflects ASEAN's determination to take advantage of the achievements of the five-year ARCBC project, and its extension during 2004, to launch a successor institution directly. The second, third, fourth and fifth results all reflect a 'learning by doing' approach that will help to build ACB's capacity while providing useful services to ASEAN stakeholders. The final result is critical to the future of the ACB, and envisions a co-financing arrangement between ASEAN and the international community to establish an endowment, the revenues of which are sufficient to meet the core funding needs of ACB indefinitely.

At the time of writing, the EC had agreed in principle to extend the ARCBC project to the end of 2004, allowing the ACB to be legally constituted and policy dialogue on outstanding issues between the EC and AMCs to be concluded. The EC had further agreed to contribute €8 million to the ACB over 3.5 years, in the form of a 'contribution to an international organization', and the AMCs had agreed to contribute €1 million in cash and/or kind over the same period, and to use their best efforts to allocate €5 million to the endowment and to encourage other donors to contribute a further €15 million. The outlook, therefore, is positive, though in such matters there is always scope for arrangements to be derailed by misunderstandings or difficulties of a political, bureaucratic or legal nature.

ANNEX 1 - Acronyms and Abbreviations

ACB	ASEAN Centre for Biodiversity
AMC	ASEAN Member Country
AMME	ASEAN Ministerial Meeting for the Environment
ARCBC	ASEAN Regional Centre for Biodiversity Conservation
ASEAN	Association of Southeast Asian Nations
ASOEN	ASEAN Senior Officials on the Environment
AWGNCB	ASEAN Working Group on Nature Conservation and Biodiversity
BISS	Biodiversity Information Sharing System
<i>ca</i>	<i>circa</i> ('about')
CBD	Convention on Biological Diversity
CHM	Clearing House Mechanism
DENR	Department of Environment and Natural Resources
EC	European Commission
e.g.	<i>exempli gratia</i> ('for example')
<i>et al.</i>	<i>et alia</i> ('and others')
EU	European Union
<i>ex situ</i>	'off site' (outside the place of natural occurrence)
FAD	Finance and administration
GEF	Global Environment Facility
GoP	Government of the Philippines
IBM	International Business Machines
i.e.	<i>id est</i> ('that is')
<i>in situ</i>	'on site' (in the place of natural occurrence)
<i>inter alia</i>	'among others'
IPR	Intellectual property right
IT	Information technology
MIS	Management information system
MTR	Mid-term review
MTTL	Meeting, talking, teaching and learning
NBRU	National Biodiversity Reference Unit

NGO	Non-governmental (non-profit) organization
PA	Protected area
PDR	People’s Democratic Republic
SFM	Sustainable Financing Mechanism
TA	Technical assistance
TNA	Training needs assessment
ToR	Terms of reference
UNEP	United Nations Environment Programme
WCMC	World Conservation Monitoring Centre
WSSD	World Summit on Sustainable Development

ANNEX 2 - References

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