THE MANAGEMENT OF PROTECTED AREAS IN BORDERLANDS: Understanding the Processes of Transboundary Biodiversity Conservation

by

Dr. James K. Gasana
Swiss Organization for Development and Cooperation
Maulbeerstrasse 10; CH-3001 Bern, Switzerland
Tel: 41 31 382 08 62; Fax: 41 32 382 36 05; Email: jgasana@intercooperation.ch

Dr. Paul P.K. Chai
ITTO Project, Lanjak-Entimau Wildlife Sanctuary
Forest Department of Sarawak, Wisma Sumber Alam
93660 Petra Jaya Kuching, Sarawak, Malaysia
Tel: 6 82-445713; Email: itto@po.jaring.my

Prof. Dr. Yongyut TRISURAT
Faculty of Forestry, Kasetsart University; Chatuchak, Bangkok 10900, Thailand
Tel: 66(2)-579-0176 Ext 516; Fax: 66(2)-942-8107; Email: fforyyt@ku.ac.th

1 Introduction

Transboundary conservation represents an important means to coordinate the efforts of those countries which share important trans-border ecosystems. Among the cases that are well known transboundary ecosystems for their biological richness are those found for example in the Amazon, Borneo, and the Congo Basin. Those areas are important not only as habitats for the plant and animal species they harbour, a large number of which are rare and endemic, but in many cases they are the home of many human communities. In most cases if not all, the long history of human presence in those ecosystems is an indicator of the compatibility of satisfaction of community needs through traditional activities, with biodiversity conservation. In addition to the noble aim of biodiversity conservation, there is therefore an equally noble goal of supporting the economic and socio-

cultural development of local people who depend on those resources for their subsistence. Experience has also shown that international cooperation for biodiversity conservation can promote peace and friendship through constructive dialogue on border issues between nations, and can strengthen mutual arrangements for sustainable development and stability in border regions. This is of course essential for biodiversity conservation in transboundary forest ecosystems.

There is an increasing awareness that the transboundary biodiversity conservation (TBC) approach to manage transboundary ecosystems can be used to reconcile the conservation of biodiversity while promoting sustainable development in remote areas. Since the mid-1990s, ITTO has supported the efforts of some of its member countries in implementing transboundary conservation projects, by funding several projects in Asia, Africa and South America (see Table 1). These projects have demonstrated an enormous potential for cooperation in research, ecological monitoring and exchange of information. They have also demonstrated how cooperation can contribute to reduction of irregular cross-border activities such as illegal logging and illegal trade of biodiversity. With the promising results obtained from the earlier initiatives, namely in Malaysia with Lanjak Entimau Sanctuary (LEWS) and in Indonesia with Betung Kerihun National Park (BKNP), transboundary conservation was deliberately underlined as one of the priority activities spelled in ITTO's Yokohama Action Plan 2002-2006. In this paper we present the concept and the characteristics of transboundary conservation and summarize key achievements in two ITTO supported transboundary conservation projects.

2 The concept of Transboundary Biodiversity Conservation

TBC is an expanding topic of discussion in international cooperation for biodiversity conservation. Its distinctiveness rests first, as we shall see, in a methodological approach in which the landscapes and the ecosystems are the basis of conservation management. Secondly, it rests in the development of processes that mobilize cross-border relations to support the goals of biodiversity conservation. It also lies in the comprehensiveness of the effort deployed by neighbor countries to fulfill a whole range of interests, public, communal and private, at local, sub-national and national levels. For this and many other reasons it is increasingly being considered as a good strategy to prevent the deterioration of transboundary ecosystems and to enhance the quality of life of the communities living in or close to the border regions.

TBC is based on the ecological interdependence across the international boundary, without ignoring the interdependence of communities located along or close to the border. Many countries realize that the increasing economic and environmental interdependence between neighbor countries offers opportunities of cooperation, particularly in matters regarding biodiversity conservation. In this regard, international boundaries play an important role given their multi-faceted functions as filter zones for illicit activities, gateways for people and goods, and also as zones of socioeconomic, cultural and environmental integration.

As an area of decentralized cooperation, TBC covers binational local relations and fits them to the national goals of each participating country and in the international preoccupations. This enhances a decentralized diplomacy based on a formal binational political framework, to work out a process that builds up informal relations among stakeholders.

TBC requires therefore a broader view than is usually the case in international cooperation, in order to include institutional, organizational, political and social dimensions, in addition to conservation and other technical dimensions.

Cooperation in TBC aims at seeking to increase the protection of natural habitats beyond the border of each cooperating country. Such an effort must allow each party to have an important extension of its protected area on its neighbor's territory be put under a matching biodiversity conservation effort, as a transboundary biodiversity conservation area (TBCA) without incurring additional cost for its protection and management. In addition, this type of cooperation contributes to the strengthening of good neighboriness between countries which share a common border.

A TBCA can be defined as a protected forest area extending across a neighboring country. TBC stems from the transboundary nature of many biodiversity conservation problems and threats, and the inadequacy of unilateral efforts alone to deal with them effectively. It can be defined as an integrated effort of two or more countries in identifying issues of common interest and problems that require concerted approaches of solutions, in a way that transcends the international borders and the nationally based management units and practices. This integrated effort is rooted in a political will of participating parties to recognize the existence of mutual transboundary interests, the need to establish coherence in the management practices of their respective adjacent conservation areas, and the interdependence in problem solving. On its turn, the political will of the parties concerned has motivations and concerns. Therefore, the important premise for success of TBC is that there is a genuine desire for the nations, groups, and institutions involved to coordinate efforts and activities that aim at identifying issues of common concern, in order to obtain benefits that would otherwise be difficult or costly to obtain in isolated approaches.

3 Characteristics of TBC

3.1 An ecosystem-based management (EBM) process

One of the justifications for cooperation between neighbor countries in biodiversity conservation is the increasing commitment of nations to apply the ecosystem-based management approach as most appropriate to maintain biodiversity. EBM integrates conservation biology with sociopolitical values to maintain or enhance the integrity of ecosystem in order to ensure the preservation of biodiversity and human sustainability. As biodiversity can only be maintained at landscape level, for crossborder resources EBM focuses the attention on entire unsegmented ecosystems. For transboundary resources, this requires a binational understanding to harmonize conservation management practices in order to secure the integrity of transboundary habitats. With the EBM approach individual resources are not considered in isolation. TBC seeks solutions to address EBM concerns associated with shared ecosystem components, or with land use practices on adjacent lands across the border. This is why in its initial stages, the process focuses, among other things, on assessing how to mobilize a binational multidisciplinary collaboration in order to reach modalities for applying optimal management across the ecological, institutional and professional boundaries, with a concerted action on each side of the border.

3.2 TBC is a stepwise process

The lowest level of TBC is the informal arrangement between parties to achieve certain objectives of

conservation. The highest level that can be envisaged is a formal arrangement based on an appropriate bilateral agreement and aiming at putting the TBCAs under a co-management plan as an organically integrated unit. This would include joint transboundary programs or activities, action plans for certain ecological features, or selected species or species groups, targeted research on critical biology conservation issues, coordinated implementation of relevant aspects of international biodiversity related conventions, etc. It would constitute a good strategy to slow down the worldwide loss of biological diversity, which undermines sustainable development opportunities. The binational or trinational cooperation arrangement (agreement, memorandum of understanding, etc…), particularly if it is rooted in international conventions and in regional governmental initiatives, provides orientations and principles that are likely to guarantee the viability of TBC process.

Orang Utan, a totally protected species of transboundary ecosystems of Indonesia and Malaysiain Borneo. *Foto: ITTO*

3.2 TBC is a process that builds on transboundary interrelationship

Conservation is one among the numerous issues that constitute the broader bilateral agenda in cooperation for TBC, whose goals are therefore a subset of larger goals of cross-border relations between two neighbor countries. The particular aspects relating to biodiversity conservation are specified in a manner that operationalizes a larger cooperation agenda in a process of building a stronger sense of transboundary relationships. Among the elements that can help cooperating parties elaborate the principles of their cooperation for TBC, with a particular emphasis on EBM practices, are the following:

- Develop and sign a treaty, an agreement, a protocol or a memorandum of understanding that lays the political framework for cooperation and defines a common conservation vision and common goals;
- Set principles to guide the binational decision-making process and the involvement of stakeholders in that process;
- Adopt the ecosystem as a primary planning planning unit, and if possible, adopt joint management plans for transboundary ecosystems and a joint implementation authority;
- Establish a GIS to support the decision-making process for conservation management, and to facilitate monitoring and evaluation;
- Set priority TBC issues, monitor TBC effectiveness and satisfaction of stakeholders;
- Develop ways to ensure long term sustainability of resources to fund TBC;
- Develop common strategies for human resource development, environmental education and information.

3.4 TBC is a multi-actor process

There is a diversity of goals, perceptions and interests of national governments, sub-national and local governments, local communities, public and private institutions, NGOs and particular individuals whenever conservation decisions must be taken on a given conservation area. TBC projects must take into account this diversity to build an integrative process. They cannot accomplish their objectives without enhancing not only binational programs of joint activities, but also binational strategies promoting a pluralism of actors in a flexible networking, addressing a broader range of issues. These stakeholder interactions aim at varying objectives and take various forms depending on the issues that the parties wish to address, problems they want to solve, the strategies they chose for the implementation of projects of common interest, and their expectations.

TBC represents therefore an evolution from solely national government actions in the implementation of conservation policies to a network approach that recognizes the relevance of the direct participation of non-state actors. Embedded in this approach is the recognition that stakeholders interaction is mutually beneficial and promotes conservation as well as other directly or indirectly related interests. These may be tangible or intangible, like socioeconomic development, cultural and biodiversity values, promotion of peace and good neighborliness, security, etc.

Potential transboundary benefits and advantages may include the following:

- Possibility of protecting a wider range of a country's biodiversity;
- Better control of cross-border illegal activities such as illegal logging;
- Contribution to political confidence building between neighbor countries and between their provincial/local governments;
- Creation of a forum for cooperative conservation management of shared ecosystems and biodiversity values and for problem-solving in resource protection;
- Greater opportunity for joint scientific programs, with the advantage of a larger pool of specialists, skills and equipment, and exchange of knowledge;
- Economies of scale on joint programs/activities, particularly those relating to development of ecotourism, information and education materials, mapping, training of conservation staff and ecoguards, etc;
- Where and when ecotourism is feasible, there is a greater potential because tourists can enter two TBCAs of two or more countries from one entry point;
- Possibility of preserving and strengthening transboundary cultures and broadening the base of the indigenous knowledge (IK);
- Enhancement of the possibility of a country to fulfill its international obligations in good faith, by preventing the harm to biodiversity values of a neighboring country and to the global environment.

3.5 TBC is a process that builds on and benefits from local strengths

In many countries today, there is a changing relationship between people and resources, between national, sub-national and local levels of administration, and between state actors and those of the civil society and the private sector. As far as

management conservation of natural resources is concerned, these changes often justify the reallocation of responsibilities to local actors. In this regard, the development or the strengthening of institutions and instruments that mobilize local actors for the conservation goals characterizes TBC. It strengthens public participation in the implementation of conservation policy in the border region. There is an effort in building social capital through networking and broad participation of local and regional stakeholders. A postulate behind TBC is that the inclusion of a diversity of local and regional stakeholders will lead to a better biodiversity conservation and a higher legitimacy of the conservation policy.

3.6 TBC is a process whose progress should be measurable

It is important to show how TBC is providing an added value compared to unilateral initiatives. Assessing its political success and measuring its effectiveness can help achieve this. Although TBC is process-oriented, it should serve the goals of interested parties at national and sub-national levels, as well as those of their respective stakeholders. TBC projects should be designed with relevant indicators that can allow measuring their performance, and showing whether the intentions for cooperation are realizable. Indeed at any given point in time cooperating partners need to see how well TBC serves their interests. Since there are always base line data on different aspects of concern, it is possible to measure changes through appropriate indicators. These indicators allow assessing how cooperation agenda is implemented, how the binational cooperation structures are functioning and where changes are taking place. Results should allow to identify barriers and to design new ways to remove remaining cooperation barriers or to improve the performance of cooperation structures and instruments.

3.7 TBC is a process whose success may be enhanced by supportive structures and institutions

Countries that are parties to TBC sign agreements, protocols or memoranda of understanding that lay the framework and give provisions for the institutionalization of stakeholder participation in the processes of preventing the deterioration of natural resources and achieving sustainable development on both sides of a given border. Although formalization in any one of these forms is essential, its implementation requires effective TBC organizational structures and decision-making procedures designed to address the issues of binational ecological interdependence and to facilitate the mobilization of relevant institutions. Effective structures are those that allow stakeholder representatives that are relevant to resource use and conservation to sit and participate in the debates of transboundary groups at various levels of decision or consultation.

It must be recognized that each cooperation context is different, and depends on a diversity of political, ecological and socio-economic conditions. However, good governance of TBCAs needs cooperation structures allowing contacts and dialogue at different levels. Some recent ITTO's TBC projects have proposed structures that are close to the framework presented in Table 2. The framework can be summarised as follows, at different levels:

- Higher level: TBC Binational Inter-governmental Conference;
- Provincial level: TBC Provincial Commission;
- Conservation Zone: Protected areas technical committee.

The Binational Inter-governmental Conference should be convened once

every two years, or in extraordinary session if any member requests. Meetings of expert teams from both countries will prepare the work of the conferences. The provincial commission will meet once a year, or in extraordinary session if the need is felt by consensus by the Authority of respective border provinces. The protected areas technical committee meets twice a year, or in extraordinary sessions if the need is felt by consensus by the concerned parties. Meetings will be held in each country on a rotating basis. At any level, the host country will assure the organization and the chairmanship of the meeting, and the guest delegation will assure the secretariat.

4 Experiences from 2 of the on-going ITTO Projects

4.1 Lanjak Entimau Wildlife Sanctuary (LEWS), Sarawak, Malaysia

4.1.1 Introduction

LEWS was gazetted in 1983 as the largest wildlife sanctuary in Sarawak, covering an area of 168,758 ha. It is situated in SW Sarawak between 1° 19'N to 1° 51'N and 111° 53'E to 112° 28'E. It shares a common boundary in the SE with Betung Kerihun N.P. (BKNP) in West Kalimantan. The two TPAs were inaugurated as the first TBCA in the tropical world in 1994 covering an area of nearly 1,000,000 ha. In 2001, the Sarawak Government approved the inclusion of Batang Ai N.P. (BANP) south of LEWS into the TBCA.

ITTO started funding the project in 1993 to develop LEWS into a totally protected area with the objective of making LEWS a model for biodiversity conservation and sustainable utilization of the resources.

One of the specific objectives is to develop processes through which the project assists, encourages and guides the local Iban communities to be more enterprising by embarking on more systematic and permanent socio-economic activities so they will be less dependent on the Sanctuary's resources. They were also given the opportunity to participate actively in the planning and management process. Selected candidates have been appointed Honorary Wildlife Rangers to help check illegal activities, and as members of the Special Wildlife Committee for LEWS. Under the project's training and guidance, plots for indigenous fruit trees and vegetables, and ponds for the culture of high-value fish were established in the buffer zone.

LEWS assisted local communities in establishing ponds to produce high value fish. Foto: Dr. P. Chai

4.1.2 Processes of Community Involvement – Problems and Opportunities

A total of 102 longhouses with a population of over 12,000 are scattered in the watersheds of LEWS, and have in one way or another exploited the Sanctuary's rich resources for many generations. After gazettement, only residents of 12 longhouses situated close to the boundary enjoy special privileges given by the Government to hunt and collect jungle produce in three designated areas in the Sanctuary. However, these activities are not limited to the 12 longhouses only. Visitors from outside the area

often claim privileges by saying they are relatives of the residents from the 12 longhouses and often bring their friends along. On the other hand, the majority of those who enjoy the privileges have, through their association with the project, begun to practice controlled hunting and fishing and sustainable use. This reversed trend seems to have become more evident lately, and this is partly due to the fact that, due to increasing logging and plantation activities, there are fewer suitable forest areas left outside the Sanctuary for the traditional hunters and fishermen. There is therefore a need for the relevant authority to reinforce its awareness campaign and strengthen its enforcement unit.

The perception of the local communities in the buffer zone is that conservation has benefited them. However, their dependence on the TPA's resources continues. By tradition, they are shifting cultivators, hunters and jungle produce gatherers and are slow to accept new ideas and switch to more stable socio-economic activities that will improve their livelihood. The project's new approach is to support the processes of community involvement through the promotion of joint socio-economic activities in the ranger stations between the wildlife rangers and their staff and the local people. Only longhouses or groups who are really keen and enterprising will be selected. It is envisaged that by involving the rangers as the officers-in-charge, the activities can be sustained and success is better assured.

4.1.3 Opportunities

The ITTO project supported processes which have brought new opportunities for employment and participation in socio-economic activities. Other than indigenous crop cultivation and fish culture, the people are taught to propagate and grow ornamental plants for sale and to improve their skill in handicraft making. They also participate directly in planning and management through the Special Wildlife Committee. There will be new opportunities for employment as rangers, research and technical assistants, and enforcement personnel. Those with higher academic qualifications can become managers, wardens and scientists. Further opportunities for active participation exists under collaborative programmes and activities of the TBCA.

4.1.4 Co-operation under TBCA

LEWS was the first ITTO's TBC project, and with BKNP they were the first ITTO's TBCAs. TBC was a new experience for both LEWS and BKNP. Through its implementation some useful lessons on TBCA management have been learnt:-

- Biodiversity conservation especially at the landscape level in the tropics has been recognized as increasingly important and urgent in view of the fast-disappearing tropical rainforest. To be meaningful, such "rescue" operations must be sustained and continued to be supported by host governments and the relevant NGOs concerned;

- Collaborative management cannot be effective without sufficient manpower at all levels of implementation. This also includes bilateral research. Furthermore, only people who are interested and committed to working for long periods under remote and difficult conditions should be recruited. The lack of such manpower resource can be critical for the effective implementation of collaborative activities. It is important for the relevant authorities to consider these requirements while committing to TBCA projects. For LEWS there is an urgent need to address

manpower issue at both the managerial and technical levels.

4.1.5 Conclusion

In the light of rapid destruction of world's tropical rainforest, TBCAs will be seen as an important and necessary tool for saving the world's remaining forests at the landscape level. Having agreed to participate in the TBCA initiative, host countries must make sincere commitment to ensure their sustainability and success. In many countries this transboundary co-operation is also necessary to promote peace and friendships among the border communities. The recent TBCA Workshop at Ubon Ratchathan (17-21 February 2003) lauded the effort of ITTO for its effort to make TBCA initiative in the tropics a reality. It is hoped that other concerned and interested international NGOs will complement this initiative to expand the TBCA network. Success in the establishment of the TBCA between LEWS and BKNP was seen as a result of a direct and friendly approach between the host governments of Sarawak and Indonesia, and ITTO. It should work elsewhere.

4.2 Pha Taem Protected Forests Complex (PPFC), Thailand

4.2.1 Introduction of the Pha Taem Protected Forest Complex

ITTO has provided assistance to the Royal Thai Government to initiate cooperation in trans-boundary biodiversity conservation between Thailand, Cambodia and Laos. The Pha Taem Protected Forests Complex (**PPFC**) in Ubon Ratchathani Province in Northeastern Thailand has been selected as a pilot project because there is an increasing pressure on biodiversity from trade in plant parts and animal poaching across the border. The PPFC is located between latitude 14° 12.5′- 15° 13.9′ N and longitude 104° 58.5′- 15° 13.9′ - 105° 8.5′ E covering an area nearly 173,000 ha. There are five protected areas in Thailand, namely Pha Taem, Kaengtana, and Phu Jong Na Yoi National Parks, and Yot Dom Wildlife Sanctuary, as well as the proposed Buntrik-Yot Mon Wildlife Sanctuary. Currently, 18 ranger stations have been established and eight park officials as well as 350 temporally employees are deployed to operate the PPFC To the east of PPFC is Mekong River and Phouxeingthong National Biodiversity Conservation Area (NCBA) (120,000 ha) of Laos, and to the south is Chom Ksan Forest (190,000 ha) of Cambodia (see Map 1).

Specific objectives of the project's Phase I (October 2001 – September 2003) are to start a management planning process for the PPFC in a framework of trans-boundary biodiversity conservation and to initiate cooperation between Thailand, Cambodia and Laos. Most activities are implemented in Thailand and preliminary findings reveal that PPFC contain 3 main vegetation types i.e., dry evergreen forest, mixed deciduous forest, and dry dipterocarp forest. Lowland mixed deciduous forest is predominant in Cambodia and Laos. Large animal species such as wild elephant, banteng, gaur, tiger and possibly kouprey are observed only along the national borders. Survival of landscape species is dependent on contiguous habitats of both sides. In addition, there are 82 villages all together 89,000 individuals are located in the buffer zone of PPFC.

4.2.2 Threats, Opportunities

The PPFC Project has been implemented for one year and four months. It is found that there are both weaknesses or threats and opportunities to achieve the designated objectives of PPFC TBCA.

4.2.2.1 Threats:

- Laos is reluctant to nominate Phouxeingthong NBCA to

participate in trans-boundary conservation in the 2nd phase as prior agreed in the 1st Tri-national Meeting. Even though, Cambodia officially proposed Chom Ksarn Forest to join PPFC but diplomatic ties between Thailand and Cambodia were downgraded and suspended due to sacking of the Thai Embassy on 29 January 2003.

– Forest in buffer zone along PPFC has been encroached for agriculture while disappearance of forest cover in Laos and Cambodia is mainly due to unsustainable commercial logging.
– Wildlife poaching and collection of plant part for trading are practiced along the border of three countries. This is due to the fact that wild meat is the main source of protein for rural households. In addition, Laos has not ratified CITES Convention and there in only one CITES Checkpoint along 11 checkpoints (317 km).
– Management of protected areas both in Cambodia and Laos is very poor. Both countries lack the capacity and professional training of staff at all levels. There is a lack of budget to hire park rangers and to finance the activities on the ground.
– Thousands of explosions were mined along the border between Thailand, Cambodia and Laos named as *Emerald Triangle*. It is a major threat for researchers and park rangers to conduct biodiversity survey and to patrol poaching, respectively.

4.2.2.2 Opportunities:

- Multi-lateral cooperation in this region is on-going and several regional and international organizations such as Mekong River Commission (MRC), FAO and Greater Mekong Sub-region (GMS), etc offer to mediate conflict between Thailand and Cambodia, as well as to initiate cooperation at decision-making level.
- Trends of protected area management have changed from individual protected area to protected forest complex using ecosystem and landscape approach. Lesson learned from ecosystem management in Western Forest Complex jointly implemented by DoNp and DANCED are a driving force to support PPFC Project.

- Chief Technical Advisor (CTA) and Project Manager (PM) are highly respected by junior staff therefore operation of PPFC both at local and national levels are fruitful.

- PPFC is only protected forest complex in Thailand that contains both terrestrial and aquatic ecosystems. It is expected that rare and endangered species such as freshwater crocodile, tiger, and possibly kouprey can be found in this region. It is challenge to international and national scientists.

4.2.2 Strategies for trans-boundary biodiversity conservation

The proposed strategies to increase effectiveness of PPFC Project in broader landscape planning are as follows:

- Use multi-lateral relationship existing in the region as a gateway to rebuild relationship between Thailand and Cambodia, in addition to invite international organizations to support cooperation among three countries, especially at decision-making level.

- While Laos is reluctant to participate in TBCA, cooperation can start with soft cooperation on training program or joint research program on flagship species and

followed by a mutual visit among park officials.

- Planning of PPFC should focus on broader landscape both inside protected areas and surrounding landscapes. Conservation corridor between two isolated clusters should be studied, and created while any form of conservation area in Laos to the left of Phu Jong Na Yoi should be created.

- Veterinarian to check animal disease must investigate transported domestic animals across the national border. In addition, ecological management zones using Biosphere Reserve Zoning Concept should be developed (in process) to define core biodiversity area, buffer zone and transition zone where domestic animal raising is allowed.

- Managing PPFC as a TBCA can make it a tourism destination in Indochina. Nature-based tourism and/or ecotourism to explore scenery along Mekong River, visiting Thai and Laotian community could bring benefits to local communities and finally reduce encroachment and poaching in PPFC.

Mekong River between Laos and Cambodia, a key feature of PPFC: ecotourism potential could bring benefits to local communities. *Foto: J. Gasana.*

- Integrated joint task force among three countries to combat encroachment and poaching should be conducted as necessary. In remote area where accessibility is limited due to landmine, cooperation with military staff and border patrol police to reduce poaching and illegal logging is essential.

- Regional and international organizations such as ITTO, IUCN, WWF, MRC and others should encourage the Government of Laos to be aware of the impacts of logging on biodiversity if concessions continue to practice unsustainable logging.

4.2.4 Conclusion

The PPFC Project funded by ITTO is a pilot project to conserve biodiversity in the tri-border area between Thailand, Cambodia and Laos. Most activities are implemented in Thailand and preliminary findings of the project are accomplished as planned. The great challenge of the future Phase II is to further encourage Cambodia and Laos to participate in TBC initiative. This is due to the current bilateral relationship between Thailand and Cambodia is suspended while Laos is reluctant to participate in the coming phase. Other issues and threats on biodiversity conservation in this region include unsustainable logging concession, trading of wild animal and plant parts into Thailand, poor management of protected areas in Laos and Cambodia, as well as landmine.

Future strategies to increase effectiveness of Pha Taem TBCA should cover two main areas. The first one is to strengthen cooperation, with the support of organizations such as MRC, GMS/SEMIS, ARCBC, CITES. Cooperation should start from soft activities such as joint research project, training program and followed by mutual visit. The second area is the boarder PPFC landscape planning in

terms of areas and participation or partnership. Community-based forest management and alternative income generation through ecotourism are important measures to reduce impact of natural resources exploitation. Finally, political will and commitment among three countries is the most significant factors to the success of the PPFC TBCA Project.

5 Concluding Observations

Conservation of biodiversity in ecosystems straddling international borders not only renders service to nature, but also constitutes an opportunity to strengthen processes for socio-economic development of border areas of the cooperating countries. TBC is compatible not only with international conservation policies aiming at nature conservation, but also with the mutual dependence and traditional relations of borderland peoples. Hence TBC provides an excellent opportunity whereby partners can cooperate to tackle a diversity of issues, to combine their efforts for the common objective of protecting biodiversity in their shared ecosystems and to combine their resources and expertise to achieve the common goals. Through the support to TBC projects, ITTO is assisting member countries in their efforts to protect biodiversity in internationally shared forest ecosystems. As many actors and a diversity of issues are involved, a process approach for the implementation of TBC projects is the most appropriate. These projects need a relatively long implementation time horizon. TBCAs management processes and the respective political processes leading to the formalization of TBC require a considerable amount of dialogue and are the building blocks for peace and development at the borders. It is therefore essential that the concerned countries from the beginning jointly promote such TBC project initiatives. A consensus between them is necessary for mutual interests and for the international challenges of the TBCAs. It is also essential that appropriate bi-national management structures are designed and joint activities are undertaken as early as possible.

Table 1: TBC projects funded by ITTO in Africa, Asia and South America

Initiative	Type of initiative/ cooperating countries	Area (million ha)	Funding countries
Condor Range	Bilateral: Ecuador and Peru	2.420	Japan, Switzerland, USA, Korea
Tambopata-Madidi	Bilateral: Bolivia and Peru	2.850	Japan, Switzerland, USA
Phatam Protected Forest Complex	Unilateral: Thailand, Cambodia and Laos	0.130	Japan, Switzerland, USA, France
Buffer zone of Kaeng Krachan National Park	Unilateral: Thailand	0.348	Japan, Netherlands
Lanjak Entimau/Betung Kerihun Transboundary Conservation Area	Bilateral: Indonesia and Malaysia	0.980	Japan, Switzerland
Kayan Mentarang National Park	Bilateral: Indonesia and Malaysia	1.400	Switzerland, Japan, USA
Buffer Zone of the Nouabale-Ndoki National Park	Trilateral: Congo, Central African Republic and Cameroon	1.690	Switzerland, Japan, USA, France, Germany
Mengamé Gorilla Sanctuary	Bilateral: Cameroon and Gabon	0.137	Switzerland, Japan, USA
Cahuinarí National Park	Unilateral: Colombia	0.600	Austria, USA, Denmark, Norway
Iwokrama Forest	Unilateral: Guyana	0.371	Japan, Switzerland, USA, Korea
TOTAL		10.9	

Table 2: Proposed structures for transboundary cooperation in conservation

Level	Functions	Structures/ Members	Instruments
National	Approval of binational agreements, political orientation, orientations for conflict resolution, promotion of new initiatives, funding, approval of the management and TBC action plans, review of the achievements.	TBC binational inter-governmental Conference (Ministers responsible for Protected Areas and Wildlife).	International conventions, binational governmental agreements and decisions, national policies and laws.
Regional	Political and administrative facilitation of TBC implementation, resolution of conflicts of its competency, review the execution of the projects and the management plans; review the implementation of the binational agreement, approve the annual operations plans and annual reports.	TBC Regional Commission (Regional authorities, Ministerial delegates in charge of Protected Areas and Wildlife, a representative of local communities, a representative of conservation NGOs, a representative of the private sector, representatives of other relevant public services.	Decisions of Inter-governmental Conference, decisions of Regional Commission, regional development plans, project documents, management plans of the protected areas.
Protected areas	Application of the binational agreements, elaboration of management plans, budgets and annual reports, preparation of draft binational agreements, coordination of the implementation of management plan.	Protected areas technical committee	Decisions taken at higher levels, project documents, Management plans of the protected areas, country's forestry, wildlife and fisheries laws.