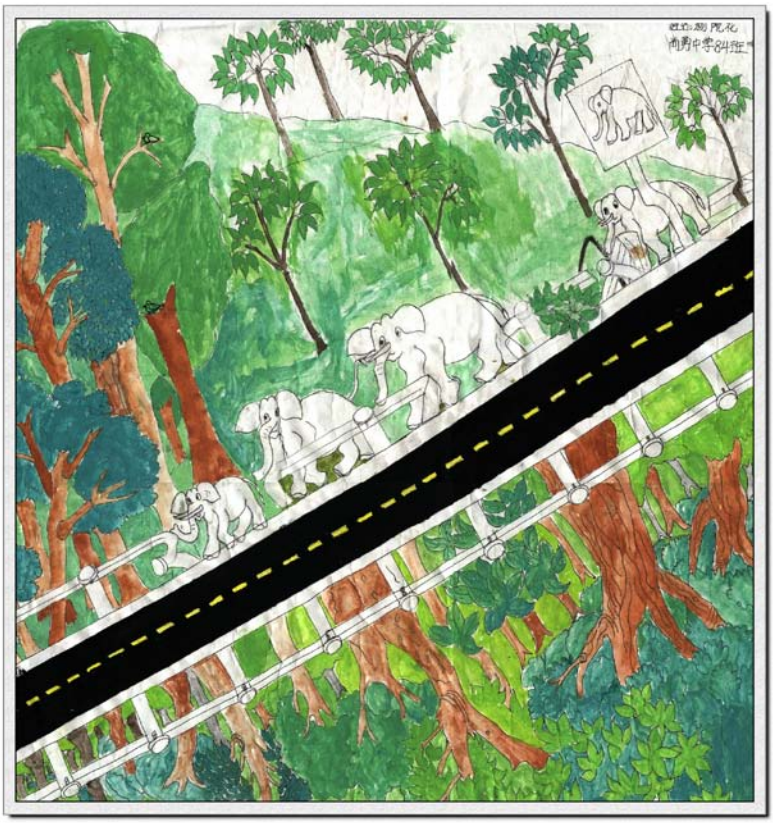
TA 6289-REG: Greater Mekong Subregion – Core Environment Program (CEP) and Biodiversity Conservation Corridors Initiative (BCI) Phase 1 (2006-2009) – National and Provincial Support to Implementation of the GMS Core Environment Program in P. R. China and BCI Pilot Site in Xishuangbanna



PROJECT COMPLETION REPORT

Yunnan Environmental Protection Department

June 2012

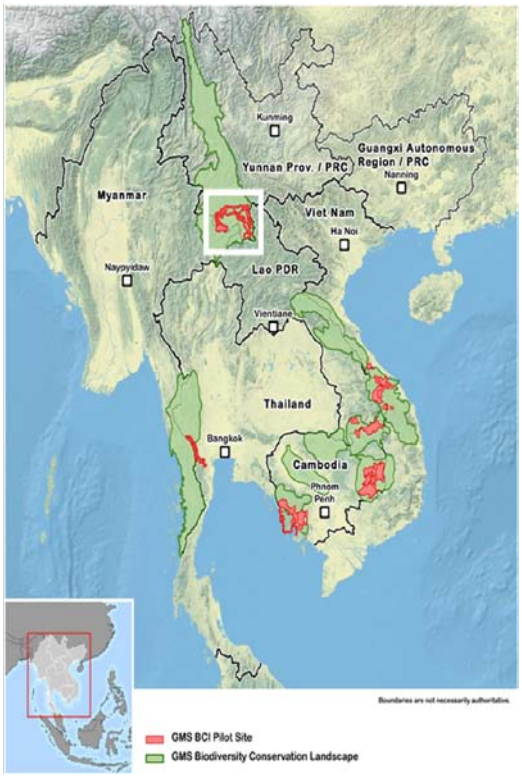
Content

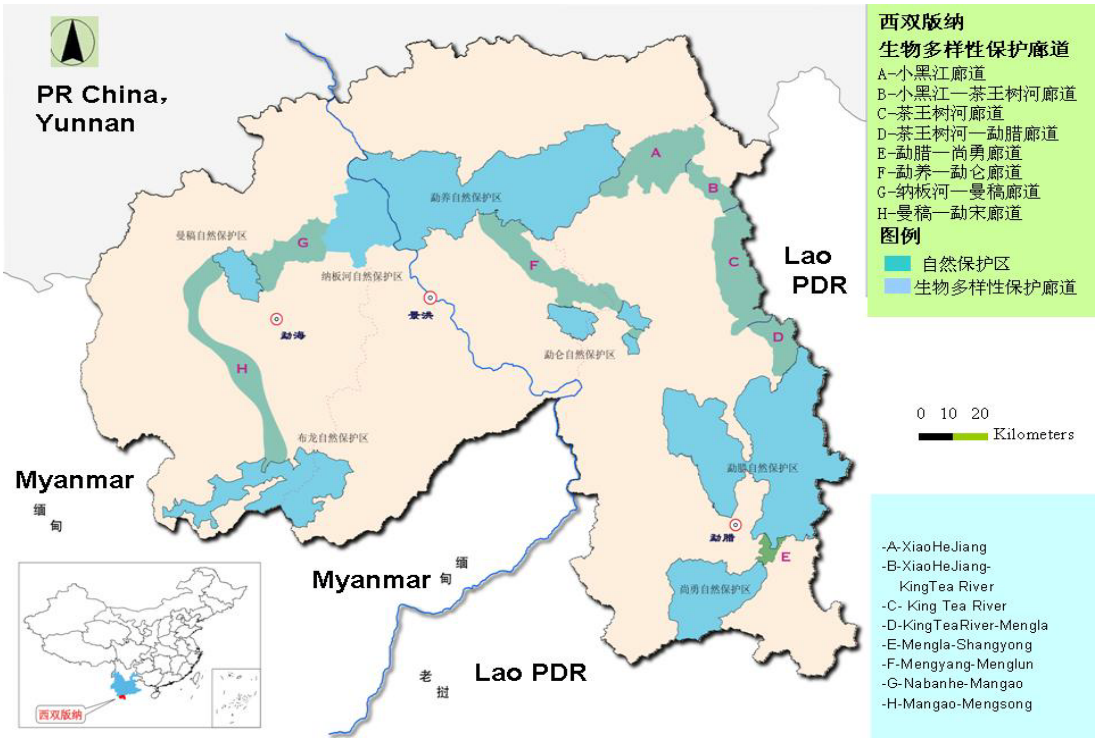
ABBREVIATIONS

ADB	the Asian Development Bank
BCI	Biodiversity Conservation Corridor Initiative
BL-NR	Bulang Nature Reserve
CBIK	Centre for Biodiversity and Indigenous Knowledge
CBRES	Yunnan Provincial Centre for Breeding Rare and Endangered Species of Flora and Fauna
CEP	Core Environmental Programme
CNY	Chinese Yuan
CSC	County Steering Committees
CV	Curriculum Vitae
DEPB	Deqin Environmental Protection Bureau
DQ	Deqin County
EOC	Environmental Operations Centre
GHG	Green House Gases
GIS	Global Information System
GMS	the Greater Mekong Subregion
KPIs	Key Performance Indicators
Lao PDR	Lao People's Democratic Republic
LoA	Letter of Agreement
LPCU	Local Project Coordination Unit
LPMO	Local Project Management Office
LUP	Lang Use Planning
M&E	Monitoring and Evaluation
MEP	Ministry of Environment Protection
NBH-NR	Nabanhe National Nature Reserve/ Nabanhe Nature Reserve Management Bureau
NPSU	National Project Supporting Unit
NR	Nature Reserve
PAO	Poverty Alleviation Office
PES	Payment for Ecological Services
PMO	Project Management Office
PPCU	Provincial Project Coordination Unit
PPMO	Prefectural Project Management Office
PRC	People's Republic of China
PSC	Prefectural Steering Committee
REDD	Reduced Emissions from Deforestation and Degradation
RETA	Regional Environmental Technical Assistance
SC	Steering Committee
SCI	Science Citation Index
SCM	Steering Committee Meeting
SEA	Strategic Environmental Assessment
TNC	The Nature Conservancy
USD	US Dollars
VDF	Village Development Fund
XEPB	Xishuangbanna Environmental Protection Bureau
XPG	Xishuangbanna Prefectural Government
XSBN-NR	Xishuangbanna National Nature Reserve/ Xishuangbanna Nature Reserve Management Bureau
XSBN	Xishuangbanna Prefecture
XTBG	Xishuangbanna Tropical Botanic Garden
YEPD	Yunnan Environmental Protection Department
YIES	Yunnan Institute of Environmental Science
YU	Yunnan University

PROJECT LOCATION MAP

The biodiversity conservation corridor pilot site in Yunnan, PRC, in located in the Xishuangbanna tropical rainforest landscape in south Yunnan that stretches down to the border of the Lao People's Democratic Republic (Lao PDR).





I. PROJECT DESCRIPTION

As defined by the Letter of Agreement (LoA) signed in December 2006 by the Asian Development Bank (ADB) and China Ministry of Environment (MEP) for the implementation of the 'National and Provincial Support to Implementation of the GMS Core Environment Program (CEP) in PRC and the Biodiversity Conservation Corridors Imitative (BCI) Pilot Site in Xishuangbanna (hereafter referred as "the project"), there are two key project components to be implemented in Yunnan Province under the overall responsibility of the Yunnan Provincial Environmental Protection Department (YEPD):

- BCI pilot project in Xishuangbanna, Yunnan Province, with a goal to restore and maintain the ecological integrity of the Xishuangbanna nature reserves Complex through improved management of corridors and core zones for biodiversity conservation and watershed protection and development of sustainable use areas that are part of proposed biodiversity protection corridors connecting existing nature reserves (protected areas);
- Preparatory and capacity building activities in Deqin County, Yunnan Province on a trial scale.

In Xishuangbanna (XSBN), the BCI pilot project has five objectives:

1) Poverty alleviation through sustainable use of natural resources and development of livelihoods
2) Clear definition of optimal land uses and harmonized land management regimes
3) Restoration and maintenance of ecosystem connectivity
4) Capacity building in governmental staff and local communities
5) Sustainable financing mechanism and structures integrated with government planning and budgeting procedures

And the project activities included:

1. Poverty Reduction

1.1 Update current socioeconomic profiles and assess levels of poverty in the corridor area;
1.2 Together with communities assess alternative livelihoods potential and livelihood improvement interventions (ecological farming, community forestry, etc.);
1.3 Explore specific market linkages in Xishuangbanna and build on existing studies conducted by the Yunnan Poverty Alleviation Office and other agencies;
1.4 In the corridors, provide small grants to communities (villages) that can be set up as revolving accounts for village groups to manage;
1.5 Identify incentives to promote natural forest protection and biodiversity conservation on competing land use (e.g. rubber or other cash crop);
1.6 Assess wildlife and people conflicts and propose options for managing these conflicts (including compensation system for damages);

2. Land Use Planning and Management

2.1 Nabanhe and Shangyong NR -Review current land use planning and land use patterns and strengthen land use rights within corridors;
2.2 Together with provincial and prefecture authorities prepare a detailed land use and zoning plan, including socio-economic studies, future development options and strategic environmental assessments;
2.3 Demarcate and delineate sustainable use corridors (experimental and multiple-use areas) that are surrounding nature reserves (core areas and buffer zones);
2.4 Identify and demarcate areas (e.g. along rivers and steep slopes) that require soil erosion and other conservation and soil erosion protection measures;
2.5 Formulate and secure approval for policy and legal regulatory framework for corridors;
2.6 Update land cover data and classification;

3. Restoring Ecosystem Connectivity

3.1 Promote landscape connectivity in key fragmentation points through natural regeneration and human assisted natural regeneration (including enrichment planting);
3.2 Biodiversity assessments/update surveys with regard to maintaining viable populations of globally threatened plant and animal species;
3.3 Undertake biodiversity assessment of the Mekong River Headwaters (basin-northern, central, and southern portions);
3.4 Update existing data of forest trees and plants of economic value which have potential to contribute to local livelihoods;

3.5 Monitor existing data of interventions and evaluate corridor establishment recommend for upscaling;
3.6 Assess technical feasibility of proposed Mengsong NR;

4. Capacity Building

4.1 Strengthen the capacity of prefecture and county officials and key provincial level staff involved in corridor and protected areas management;
4.2 Promote education and public awareness;
4.3 Support effort in strengthening the capacity of villagers to manage and protect forest and natural resources in the corridors and move towards effective community based natural resource management (with co-management of some parts of protected areas and protected forests).

The expected deliverables / key performance indicators (KPIs) are：

KPI-1 (within 4 weeks after signing of the LoA)

- Provide an Inception report within four weeks after signing of LoA, reporting on establishment of the project management office at Xishuangbanna EPB
- Holding of first Steering Committee Meeting (SCM) at Prefecture level
- An updated work plan covering remaining period in 2006 and the next 12 months of 2007
- Completion of mobilization of staff and field level officers/teams from EPB, collaborating partner agencies and XTBG in the Xishuangbanna BCI pilot site

KPI-2

- PRA training of at least 20 local EPB/PAO staff (2 months from inception)
- Socio-economic profiles and poverty levels at 3 pilot villages ready (3 months from inception)
- Production of PRA framework suitable to Xishuangbanna according to the experiences from the pilot villages and documented in a manual (2 months from inception)
- Socio-economic profiles and poverty levels of remaining 22 villages in the corridors ready and delivered to EOC (6 months from inception)

KPI-3

- Alternative livelihoods potential and livelihood improvement interventions identified at the 3 pilot villages (4 months from inception)
- Livelihood interventions identified in remaining 22 villages with production of Guideline and Manual (6 months from inception)
- Market products and market access/linkages investigated and report with plan of interventions prepared (6 months from inception)

KPI-4

- With assistance of local PAO (or other local government department) village level revolving fund system established and tested in selected villages (12 months from inception)
- At least 10 villages are operating revolving fund with loans to households (by 15 months from inception)

KPI-5

- Incentives for promoting biodiversity instead of rubber identified - Report on competing land uses (12 months from inception)
- Testing of incentive scheme with recommendations - with at least 3 villages and selected households (15 months from inception)
- Expansion and propagation plan with additional households (18 months from inception)

KPI-6

- Case study and assessment on wildlife-human conflict situation carried out with recommendations (submitted 12 months from inception)
- Development and testing of options (15 months from inception)
- Assisting of local department to improve compensation system - compensation system report with proposed improvements (18 months from inception)

KPI-7

- Pre-project land cover data map and classification done (1 month from inception)
- Current land use (at project start) in the Nabanhe and Shanyong NR corridors reviewed (4 months from inception)
- Map with land use pattern produced (GIS) and recommendations made/participatory land use planning done in 3 pilot villages (5 months from inception)
- Participatory land use planning manual/guideline produced (10 months from inception)
- Land use planning done in additional 7 villages (12 months from inception)
- All 10 villages have agreed land use maps (14 months from inception)

KPI-8

- Draft land use and zoning plan of Nabanhe and Shangyong corridors ready for discussion by Provincial and Prefecture authorities (15 months from inception)

KPI-9

- Based on results of discussions and agreements under KPI-8, Nabanhe/Mengyang-Mangao (hm2 to be determined) and Shangyong - Mengla (1,206 hm2) demarcated and delineated as corridor and multiple use areas (18 months from inception)
- Report prepared concerning layout of particular are of corridors with an illustration from 3S techniques attached and submitted to EOC (18 months from inception)
- Pre-project land cover data map and classification updated and to be included in the report to be submitted to EOC

KPI-10

- Key fragmentation points identified by consulting different stakeholders (2 months from inception)
- Plan for regeneration (natural and human assisted) formulated (4 months from inception)
- Local residents consulted using PRA methods on restoration of areas identified and restoration measures experimented with and tested at 3 points (6 months from inception)
- Human-assisted restoration of at least 200 hm2 initiated (8 months from inception)
- At least 500 hm2 under natural regeneration (18 months from inception)
- Land-use systems based on local agro-biodiversity species including trees, horticulture, and food crops established in at least 10 villages (18 months from inception)

KPI-11

- Biodiversity inventory in the proposed Mengsong NR completed (6 months from inception)
- Database of biodiversity inventory and populations of endangered species in Mangao-Nabanhe and Shangyong-Mengla corridors updated, accessible and submitted to EOC for integration into GMS database (12 months from inception)
- Biodiversity inventory and essential status of biodiversity in area of the Mekong River Headwater and its influence on local social-economic sustainable development ready (15 months from inception)
- Updated data of forest trees and plants of economic value and database establishment in Xishuangbanna Prefecture (22 months from inception)

KPI-12

- Upscaling recommendations for Phase II submitted to YEPD/EOC (16 months from inception)

KPI-13

- At least 10 staff from Prefecture and Provincial oriented in participatory area management and the importance of biological corridors (3 months from inception)
- At least 30 decision-makers exposed to local situation (5 months from inception)
- At least 50 local government staff oriented on corridor establishment and restoration techniques (8 months from inception)
- At least 5 staff are able to conduct LUP, resource assessment, identify potential corridors and draft proposals (15 months from inception)

KPI-14

- Materials suitable (i.e. visible, easy to understand by local peoples, interesting) for local community education and awareness building developed and tested in pilot villages and target areas (3 months from inception)
- 15 local staff trained and sent to local communities to carry out education and awareness building

activities (6 months from inception)

- About 100 villages exposed to LUP techniques, corridor management and co-management (15 months from inception)
- At least 20 villagers have skills for village-level LUP (27 months from inception/end of project)

At the provincial level, the objectives of the pilot project are to facilitate, coordinate and implement BCI pilots in Yunnan as well as support the activities of preparatory and capacity building in Deqin County.

The provincial (including Deqin) project activities are:

1) Establish Provincial Level Coordination Unit YEPD and make operational (office equipment and support staff);
2) Convene Provincial Steering Committee and other advisory group meetings (on a half yearly basis) and report on progress;
3) Recruit consultant for M&E and Cross Sectoral Work;
4) Conduct Domestic Waste Management Study & Mgmt Plan in selected areas of Deqin;
5) Conduct Ecological Function Zonation Planning-Deqin County;
6) Support to initiate detailed Zonation Planning of Meili Biodiversity Core Area;
7) Conduct study to identify Poverty Alleviation Interventions and conduct Socio-Economic Assessments, Deqin;
8) Provides support to and monitoring BCI implementation in Xishuangbanna;
9) Undertake site visit;
10) Provide technical and financial reports and submit invoices for liquidation of accounts to EOC; submit request for replenishment of funds; facilitate audits;

The KPIs for provincial and Deqin activities are:

KPI-15 Socio economic assessments conducted and updated datasets submitted to EOC 6 months from inception;
KPI-16 Poverty alleviation interventions identified in selected villages based on current investments and experience of TNC, 12 months after inception;
KPI-17 Domestic Waste Management Study and Mgmt Plan in selected areas of Deqin ready 12 months after inception;
KPI-18 Ecological Function Zonation Plan - Deqin County ready 14 months after inception;
KPI-19 Initiate a detailed Zonation planning of Meili Biodiversity Core Area ready 16 months after inception;
KPI-20 Capacity of staff at Deqin EPB improved for full scale implementation in phase II by end 2008.

II. DESIGN AND IMPLEMENTATION

A. Relevance of Design and Formulation

Yunnan is one of the top ten biodiversity hotspots worldwide, also the province in China with the richest biodiversity, therefore biodiversity in Yunnan is of global significance. Yunnan provincial government has been giving high priority to biodiversity conservation. Since 2008, it has issued a series of policies and documents to strengthen biodiversity conservation in Yunnan. Biodiversity conservation is and will remain a major component of ecological development and environmental protection for the provincial government and provincial party committee.

Meanwhile, Yunnan is one of the least developed provinces in China, with the largest number of poverty stricken counties in the country. Like other GMS countries, developing local economic will remain the top priority for Yunnan for a long period in the future. However, in Yunnan places with richest biodiversity resources are normally located in the mountainous and remote areas where poverty is deeper and more extensive. In these areas, protecting the depleting natural resources and improving living standard of local people sometimes are conflicting to each other, as the poor have been for years relying on the environment, particular the forest, to meet their basic needs.

The CEP-BCI pilot project was proposed to address this conflict that Yunnan is facing by focusing on landscape management and poverty reduction through an advanced biodiversity conservation corridor approach. Moreover, the country pilot objectives and activities have been developed strictly following the focuses of the project under the regional project framework but also look into particular interests of Yunnan. Therefore, design of BCI pilot project in Yunnan is not only highly relevant to the overall project objectives stated in the Strategic Framework of May 2005, but also closely linked to the local issues and priorities of biodiversity conservation.

B. Project Outputs

B-1 BCI Pilot Project in Xishuangbanna

B-1-1. Poverty Reduction

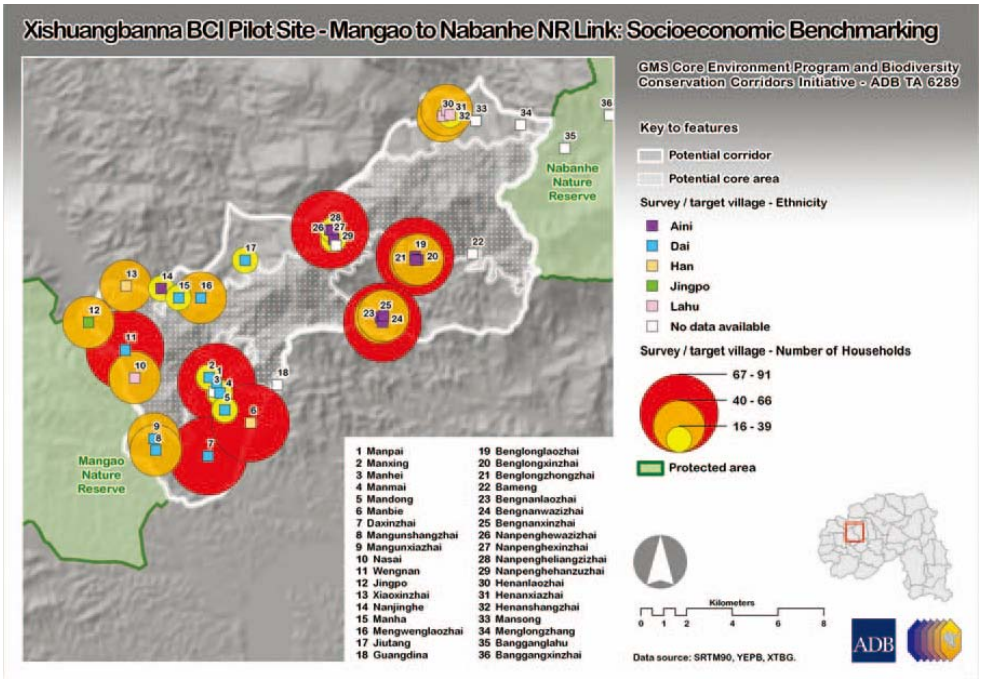
1.1 Update current socioeconomic profiles and assess levels of poverty in the corridor area

In 2007 three project teams conducted detailed site investigation in two potential corridor areas. Natural and socio-economic status data of 48 villages located in or on the two corridors were collected and poverty level assessed. Through second hand data collection, household interview, and consultation with relevant governmental departments, problems, as perceived by the villagers, were discussed and possible opportunities for future development of the corridor areas were outlined.

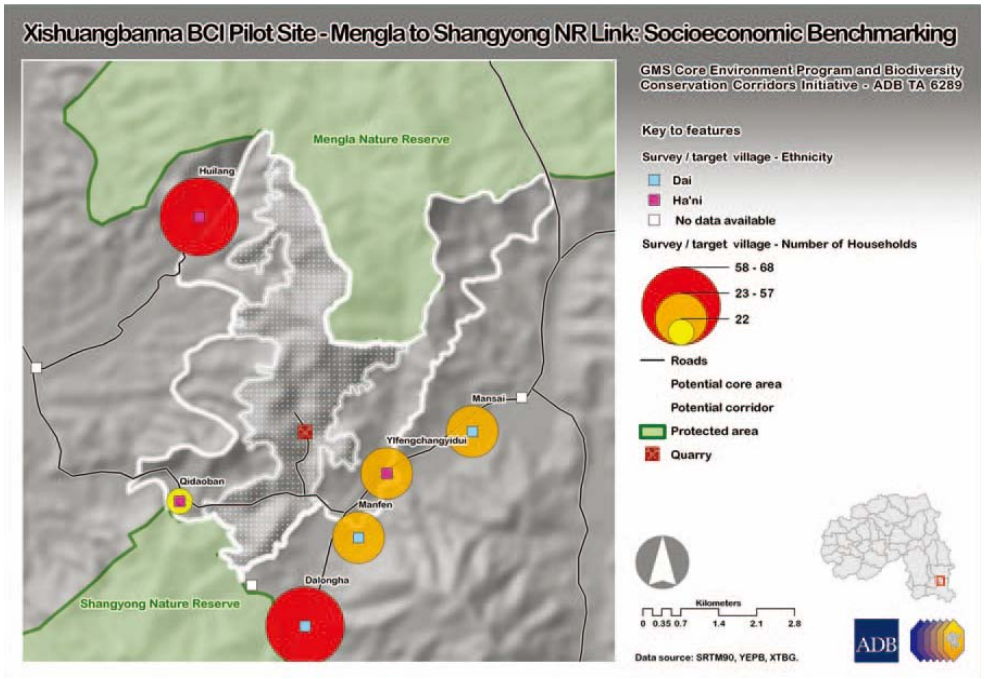
In phase I, the BCI project has targeted on 48 villages belonging to four townships in two counties. The pilot project intended to benefit a population of 11,233 comprising 2,433 households, representing five different ethnic groups (Dai, Hani, Lahu, Jingpo and Han). The concentration of ethnic communities was very high in the pilot site with only 4 out of the 37 villages in Nabanhe and 2 out of the 8 villages in Mengla-Shanyong mainly inhabited by the Han majority.

With a rural population of 4,542 comprised of an estimated 969 households, the western part of Mangao-Nabanhe corridor hosted ten Dai villages, four Han villages, two Lahu villages, one Hani village and one Jingpo village spreading across 18 natural villages in the Mengwong administrative village of Menghai town in Menghai county. The eastern part of Mangao-Nabanhe corridor hosted 22 natural villages belonging to Banglong administrative village and Manlei administrative village respectively in Mengsong town of Menghai county. Villagers in the corridor mainly belong to Hani, Lahu and Han ethnic groups. The total population is 4, 402 comprising 969 households.

The Mengla-Shangyong corridor, with a population of 2,289 from 495 households, covered eight natural villages (six Dai and two Han villages). This area was part of the Manzhuang and Mannasan administrative villages in the townships of Shangyong and Mengla respectively.



Socio-economic benchmarking of Nabanhe-Manggao corridor



Socio-economic benchmarking of Mengla-Shangyong corridor

Agriculture remained the engine of growth and socioeconomic development in the area, along with industry and trade. Other sectors contributing to livelihoods included livestock and forest products. In Nabanhe-Manggao corridor, rice, corn, hemp, tea, sugar cane, fruits and vegetables were the main crops planted. Affected by the market price, corn plantation was reducing while tea plantation was increasing. With governmental support, recently hemp cultivation was gaining its importance in the communities. In 2006 the average annual income per capita of the western section of the corridor was 2,405 yuan ($359, USD1=CNY6.7, same rate applied in the rest calculations in the report), while that of eastern section was 1,074 yuan ($160). Rice, rubber, sugar cane, fruits and vegetables were the main crops in Mengla-Shangyong corridor, of which rubber plantation was the largest in area size due to constantly high rubber market price. The average annual income per capita of the corridor in 2006 was 2,682 yuan ($400), slightly higher than that of Nabanhe-Manggao corridor.

Household expenditures in 2006 were mostly for agricultural inputs such as fertilizers, pesticides, seeds and fuel oil. Other significant costs reported were related to health services, education and social obligations such as wedding or funeral. Less than 5% of surveyed households also noted expenses for building or improving houses, buying television sets or telephones (after connection to electricity grid), and for acquiring motorbikes as part of the household expenditure.

Six pilot villages, two in the eastern part of Nabanhe-Mangao corridor, two in the western part of Nabanhe-Mangao corridor, and two in the Mengla-Shangyong corridor have been selected for testing village revolving fund supported livelihood interventions and implementing ecological restoration.

1.2 Together with communities assess alternative livelihoods potential and livelihood improvement interventions (ecological farming, community forestry, etc.)

During the field surveys, facilitated by the project filed teams, participatory assessments on alternative livelihoods potential and interventions were conducted among villagers. Following priorities areas have been identified:

1) Promote establishment of corridors based on the conservation of the community ecosystems with a view to improve their livelihoods
2) Reform and enhance land rights, tenure and ownership
3) Address water shortage problem, especially in rubber plantation areas
4) Improve village sanitation and waste disposal
5) Prevent and control plant and livestock diseases
6) Enhance farming techniques for cash crop production
7) Improve quality and coverage of education and health services
8) Expand sources of funding for community infrastructure needs

1.3 Explore specific market linkages in Xishuangbanna and build on existing studies conducted by the Yunnan Poverty Alleviation Office and other agencies

This study was contracted to a grass root NGO TianZi in 2008. Biodiversity products in this connection are considered products from plant species which are local to the project area or have been introduced from similar eco-regions of Asia. Emphasize has been given to the possibility for local processing to generate added trade values. Though the expected study results could not be fully achieved due to the accidental depart of the leading scientist, the study did identified the mostly important plant species and their economic potential for communities in the corridor areas. Their uses in ecosystem maintenance, home/garden economy, and market economy were also explored. The study indicated that:

1) The Nabanhe - Mangao corridor area still presents a landscape with a largely intact cultural and natural coexistence of communities with nature. The compartmentalization of the watershed into small parcels of diverse ecosystems with varying degrees of intensity of utilization requires only comparatively little attention for a management, which is supporting and enhancing the corridor functions.

2) If new developments, particularly in industrial crop production can be prevented, the corridor requires mainly support to maintain existing ecosystems. In some places, especially where sugar cane is growing on steep slopes, land-use changes are necessary and options for useful local species and their cultivation, processing, and marketing are proposed in this report.

3) The farmers will also require improved processing facilities for various crops, which now have little market value, but should be promoted through the project as they provide keys for establishing functional corridor farming systems.

1.4 In the corridors, provide small grants to communities (villages) that can be set up as revolving accounts for village groups to manage

In Mengla-Shangyong corridor and Nabanhe-Mangao corridor there were 48 villages (2,433 households and 11,233 villagers in all), six of which mainly resided by Han ethnic group while others mainly resided by Dai, Lahu, Hani and Jinpo ethnic groups. The income and development level of different villages differ quite a bit. Among these villages, for example, the highest annual income per

capita could reach CNY3,062 ($457) while the lowest was only CNY(144). The main source of household income of farmers was farming, followed by processing industry, trade, and cultivation, while their household expenditures were mainly for buying chemical fertilizers, pesticides, seeds and fuel oil. Along with the rising education and health care cost, expenses for this part were also becoming the major burden of some families.

In recent years, however, with the increased price and demand for rubbers and teas, a large area of farmland and forest land around some of the villages had been planted rubbers and teas. So, even the local people's income level has been greatly increased, their net income per capita, due to the poor capacity to withstand various risks caused by single-crop plantation of rubber or tea, will sharply reduce once the prices of rubber and tea fall. Besides, disafforestation and the use of farmland to plant rubbers and teas have greatly damaged the local ecosystems, especially the biodiversity.

Therefore, in order to enhance villagers' self-development capacities, help them to improve the quality of life, and reduce the conflicts between development and resource conservation, alternative livelihoods development assisted by village development fund (VDF) have been carried out in 15 pilot villages. 238 households living in these villages have benefited from CNY850,000 ($101,953) seeds money injected by the project.

The purpose of the VDF was to support activities which can help farmers improve their income level or protect the ecosystems within the corridors under the management by community themselves. The fund management was determined by villages of each village, following a jointly agreed management code. In different villages, the size of microcredit, interest, guarantee conditions and the repayment period of the seed money were different, but the following were in common:

1) VDF management committee

In each village, a management committee made up of a president, an accountant and a cashier democratically elected through the villagers' meeting have been set up. The said management committee was responsible for managing the loans and repayments, keeping relevant documents, bookkeeping, and informing borrowings, paybacks and interest once half a year. The committee would be supervised by the villagers and the project field teams.

2) VDF management code

The VDF management code of a particular village was formulated by the whole villagers of that village, clearly specifying the rules for fund use and management, application requirements, credit limit, interest, guarantee conditions, repayment period, penal methods, etc.

3) VDF management agreement

Upon signing the VDF management agreement by the project team and village fund management committee, project seeds fund would be transferred to account newly opened for this purpose. The agreement should be strictly followed by the management committee. In case of incompliance, the project would withdraw the fund.

4) Voluntary borrowing

Any family, when encountering temporary capital shortage, could fill in an application form and submit to the management committee. The committee would determine whether to grant the loan or not after assessment. When lending requirements are met, the applicant would sign a borrowing agreement with the management committee. The applicant then shall properly use the fund and pay back on time and the committee would supervise the fund use and ensure timely return of seed money and interest.

5) Self-decided lending conditions

Each pilot village has different lending conditions for loan limit, repayment period, and who has the priority to use the capital, etc. In some villages, for example, the loan limit was high, thus the households borrowing fund were fewer and the repayment period was relatively longer. Mostly important, all these lending conditions were decided and agreed by the villagers through villagers' meeting.

6) Physical or third-party guarantee

When signing the loan agreement with the management committee, the borrower was required to provide physical or third-party guarantee, so as to urge the capital user to repay the loan in time, thus ensuring that the revolving capital not be reduced on any account.

7) 10-yuan membership fee

A 10-yuan membership fee for each household was required and all membership fees collected had been added to the VDF pool and revolved along with the project seed capital. Thus each household had the pressure to supervise its "own" money uses and those who borrowed also felt the peer pressure from his/her neighbourhood in case of any delayed payment.

8) Lending with interest

The interest rates were decided by the communities and it varied from village to village. Part of the income generated from interest would be used to cover the staff input (the president, the accountant and the ashier), and the minimal administrative expenditures, such as account books, pages, etc. The rest would be put in the capital pool for next round of borrowing.

The VDF lending situation in the first batch of pilot villages are shown in table 1.

Table 1 Alternative livelihood pilot situations in the six pilot villages

Village	House-holds	Total amount of VDF capital (RMB)	Amount of the first-round of borrowing (RMB)	Household(s) of the first round of borrowing	Amount /household (RMB)	Interest rate (annual)	Term of loan	Purpose of borrowing
1. Mengla-Shangyong Corridor								
Huilang village	56	40000	40000	1	35000	0.25%	2 years	To build pigsties, buy boars and feedstuff
				1	5000	0.25%	2 years	To buy boars and feedstuff
Dalongha village	68	40000	39000	65	600	4%	6 months	To buy seeds, pesticides, fertilizers and other agricultural production materials
2. Mangao-Nabanhe Corridor								
Upper Mangun village	91	50000	19000	8	2000	4%	5 months	To buy seeds, pesticides, fertilizers and other agricultural production materials
				3	1000	4%	5 months	To buy seeds, pesticides, fertilizers and other agricultural production materials
Manpai village	50	50000	30000	15	2000	4%	5 months	To buy seeds, pesticides, fertilizers and other agricultural production materials
Nanpenghe village	12	50000	29000	5 (no more than 7 for each round)	5000 (5000 is the upper limit)	3%	2 years	To raise cattle or sheep and process teas
				2	2000	3%	2 years	To raise pigs or cattle and process teas
Old Baotang village	53	50000	17500	9 (no more than 9 for each round)	4000-1000 (4000 is the upper limit)	3%	1 year	To recover empty wine bottles, build houses, raise pigs and treat diseases

The VDF operation is flexible, with simple operating procedures. Even the loan amount was small, could it meet the urgent needs of the households. The communities have maximum freedom to manage the fund according to the villagers' will. In the process, villagers' enthusiasm to participate in decision-making has been fully mobilized, and VDF provided the villagers with opportunities to tap new income generation sources. At the same time, villagers were guided by the project towards more rational utilization of natural resources.

1.5 Identify incentives to promote natural forest protection and biodiversity conservation on competing land use (e.g. rubber or other cash crop)

Direct financial or policy incentives for promoting natural forest protection and biodiversity conservation was seen impracticable at this stage, even as a trial in the pilot site. As rubber, tea or other cash crops' great economic value to the local farmers were far more important than any

incentive could be provided at this moment. The Xishuangbanna BCI pilot project did try to encourage farmers to cross-plant some local tree species in the existing mono-cultural cash crop plantation, to increase the agricultural diversity, reduce plant diseases and improve their resilience to market shocks and natural disasters. More information can be found from “B-1-3. Restoring Ecosystem Connectivity" in this report.

1.6 Assess wildlife and people conflicts and propose options for managing these conflicts (including compensation system for damages)

The assessment found out that the existing compensation for damages caused by wild life was extremely low, which jeopardized the activeness of local dwellers’ enthusiasm in protecting wild animals. Considered that wild life damage might increase due to establishment of corridors, local people generally hesitated in supporting the corridor idea at the very begining.

In western section of Nabanhe-Manggao corridor, increasing number of wild boars often destroy corn and sugar cane field, but the damage was not so serious. While in the eastern section, in 2006 alone 12 villages out of 19 villages had suffered from wild animal’s destructive behaviours, in total 229 households with affected area of 650.5mu had to look for compensation. The total loss calculated according to the market price was CNY163,538 ($24,409); however the compensation made was only CNY32,922 ($4,914), accounting for 20% of the loss.

In the past, nature reserves were managed by the nature reserve authorities, while the forest beyond the boundary of nature reserves were under forestry department’s administration, therefore compensation of losses caused by wildlife in the nature reserve and nearby forest were dealt by different governmental bodies, which brought about some difficulties for the farmers to get their compensation in time.

As the proposed corridor areas also include a good portion of land whose tenure belongs to the communities and on which plenty of grains and cash crops were planted. Once corridors are established, wild animals movements in the corridors would be more intensive, more damage to the crops and more threat to human safety could be envisioned. Therefore a special fund for compensating wildlife caused damage should be set up. In response to this issue, the first case in the world, a green insurance for elephant caused damage was enacted on 1 January 2010 in Xishuangbanna, through which traditional compensation responsibility of the local government was then shifted to the commercial insurance company, and the losses could be evaluated and compensated at a market price basis.

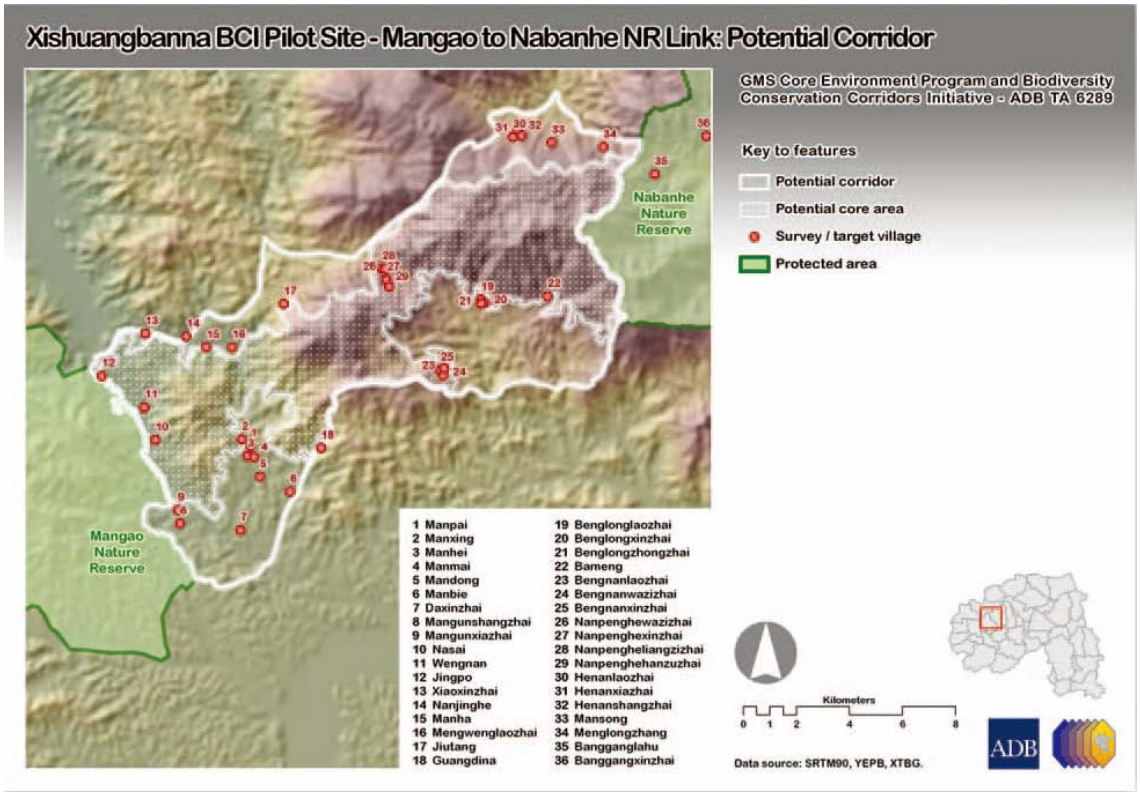
B-1-2. Land Use Planning and Management

2.1 Nabanhe and Shangyong NR-Review current land use planning and land use patterns and strengthen land use rights within corridors;
2.2 Together with provincial and prefecture authorities prepare a detailed land use and zoning plan, including socio-economic studies, future development options and strategic environmental assessments;
2.3 Demarcate and delineate sustainable use corridors (experimental and multiple-use areas) that are surrounding nature reserves (core areas and buffer zones);
2.4 Identify and demarcate areas (e.g. along rivers and steep slopes) that require soil erosion and other conservation and soil erosion protection measures;
2.5 Formulate and secure approval for policy and legal regulatory framework for corridors
2.6 Update land cover data and classification;

Land use and land cover mapping was conducted by the project team in May and July 2007. The team visited the two selected sites (Nabanhe-Mangao; and Mengla-Shangyong) for ground-truthing of information on satellite images, and interviewed villagers in the process. During the field assessments 45 villages were surveyed. A consultation workshop was conducted on 15 August 2007 with different stakeholders (nature reserve management authorities, Forestry Bureau, Prefecture Land Resource Bureau, and local governments of Menghai and Mengsong). Three sets of proposed boundaries (three scenarios) were presented for the corridors. Land use data for each corridor was computed and

summarized. Stakeholders agreed to a moderate scale for the proposed corridor boundaries. With changes proposed by the stakeholders, there are now a total of 48 villages included in the proposed corridor areas. A draft report on proposed biodiversity corridors has been submitted by the local PMO to the Xishuangbanna Prefectural Government (XPG) for approval on November 5, 2007. In April 2008 XPG called on a workshop presented by more than 40 leaderships of local governments and governmental departments involved in the corridor establishment to discuss the delineation and demarcation of the two proposed corridors. The workshop reaffirmed that the moderate schemes were the most feasible solutions. Shortly after the meeting, the proposed corridor design was approved by XPG on 5 May of the year.

Nabanhe-Mangao corridor



Potential Nabanhe-Manggao corridor boundary and villages distribution in the corridor

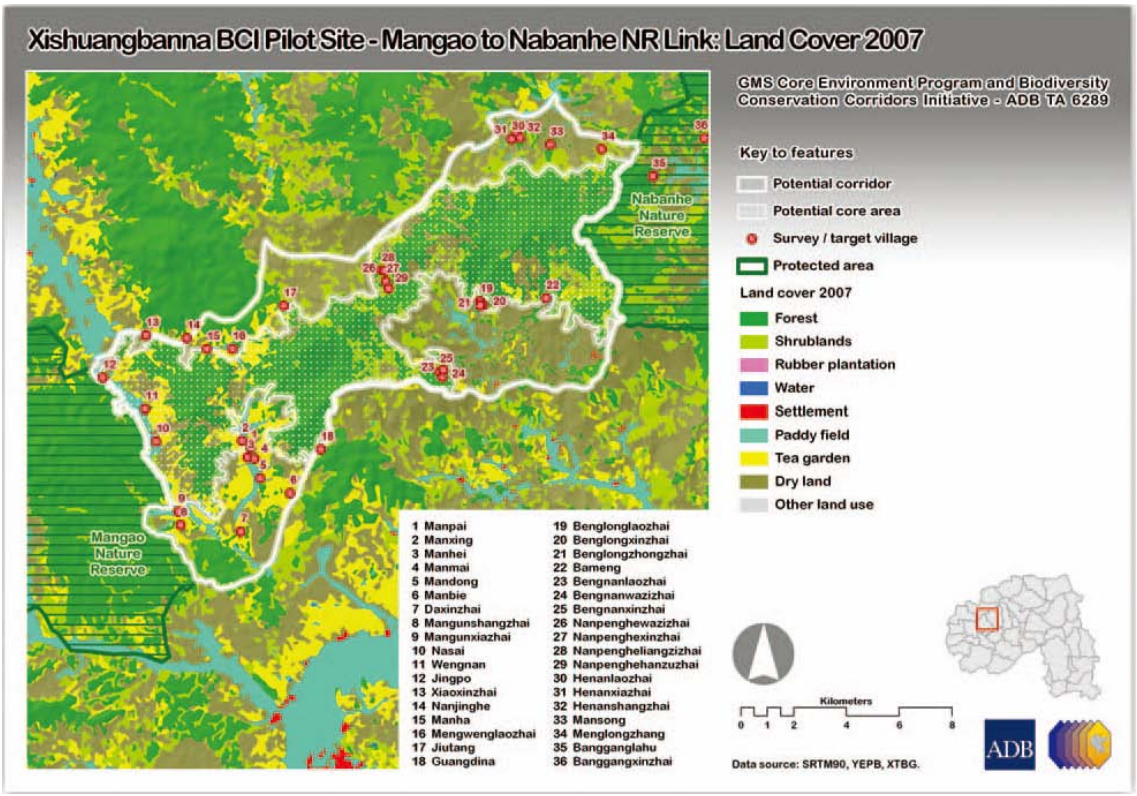
The proposed corridor area between Nabanhe Nature Reserve (NBH-NR) and Mangao Subreserve is estimated at 15,446.74 hm2 with an outer perimeter and an inner core having a linear forest connectivity stretching to roughly 25 km. This corridor covers 40 natural villages in three administrative villages of Menghai and Mengsong townships in Menghai county.

All villages are located inside the proposed boundary. There are 1,938 households with a total of 8,944 rural populations. Ethnic composition includes Lahu, Hani, Dai, Jingpo and Han.

Current land use includes 6,447.67 hm2 as forested area, of which 3,870.02 hm2 is state forest, and 2,607.65 hm2 is described as collective forest under the management and use right of the villages. There is an additional 8,944.73 hm2 under other land use, which includes bush, tea plantation, rice paddy, upland field, settlement, etc.

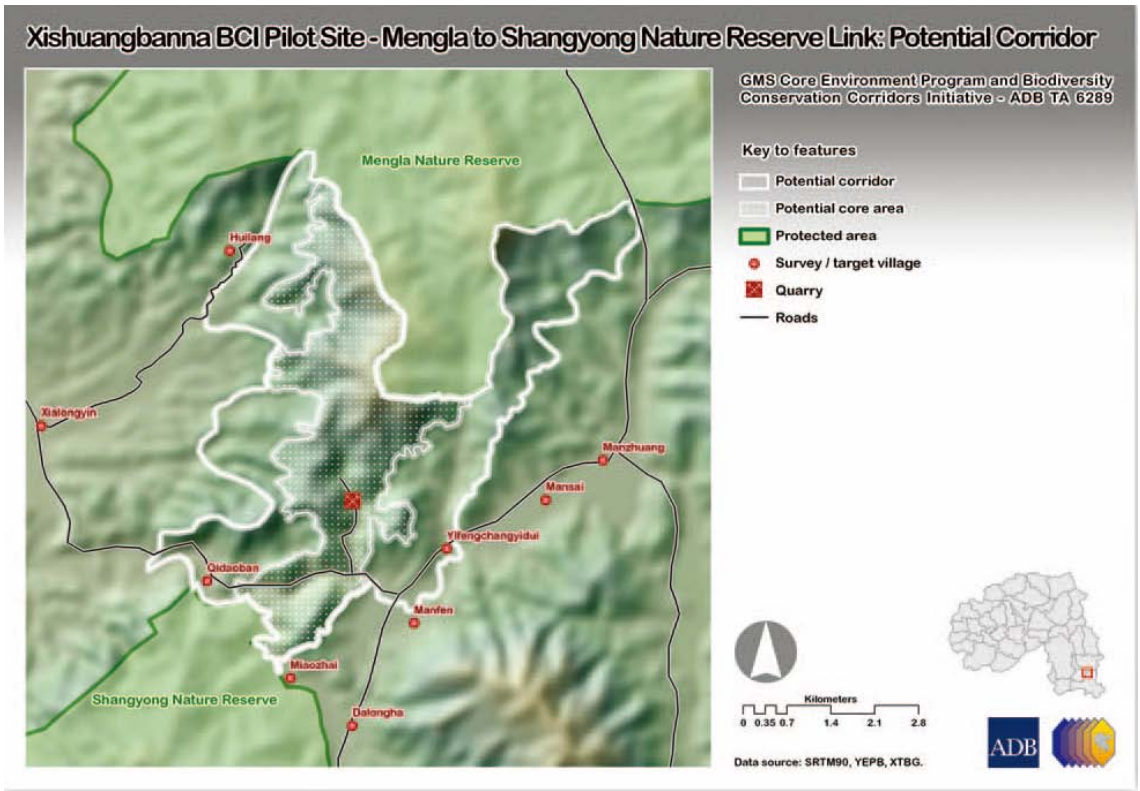
The total length of the proposed corridor boundary is 75.4 km of which a border of 9.16 km is shared in the east with NBH-NR; and in the west, the border of 12.14 km is shared with the Mangao Subreserve. The northern boundary is 29.94 km in length while the southern is 24.15 km.

Within the corridor, a linear forested “core” strip has been identified that is dissected in the north and the south by two roads. This area also has the weakest link in the forest cover and requires stabilization and restoration measures.



Land cover of Nabanhe-Manggao corridor

Mengla-Shangyong corridor



Potential Mengla-Shangyong corridor boundary and villages distribution in the corridor

The biodiversity corridor strip between Mengla-Shangyong Subreserves covers a total area of 2,471.43 hm2. It is a narrow strip of forest connectivity that still remains between Mengla and

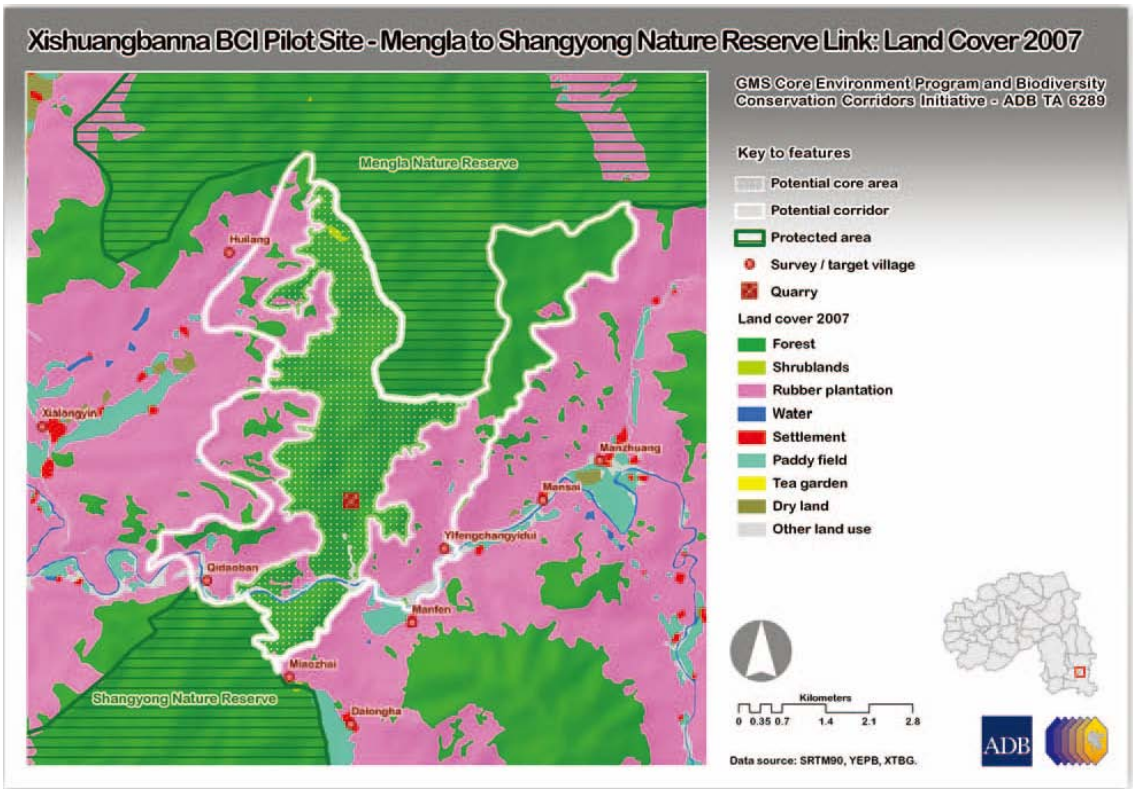
Shangyong. This corridor covers eight natural villages in two administrative villages of Mengla and Shangyong townships in Mengla county.

All village settlements are located outside the proposed corridor boundary but some of the village lands fall within. There are 495 households with a total population of 2,289. Among these eight villages, 6 are Dai, and 2 are Han Chinese.

Within the proposed corridor area, 1,475.81 hm2 are forested, and the remaining land use includes bush, rubber plantation, rice paddy, upland field, settlement, etc. covering 955.62 hm2. Out of the total forested area, 466.82 hm2 is state forest while 604.62 hm2 is classified as collective forest. However, there is an area of 404.37 hm2 with unclear tenure. Currently, quarry operations are ongoing in the forested area of the corridor.

The total length of the boundary for this corridor is 40.63 km and the northern border is shared with the Mengla Subreserve with a length of 11.89 km, while the south borders with the Shangyong Subreserve (3.14 km). The western border of the corridor measures 12.43 km while the eastern border is estimated at 13.17 km.

The entire small strip of connectivity between the two subreserves is surrounded by rubber plantations, some of them even covering critical watershed areas and mountain ridges. Watershed areas require restoration of natural forest cover in order to ensure sustainability and protection of vital water sources, both for human consumption and agriculture.



Land cover of Manggao-Shangyong corridor

Based on the approved boundary, the project placed four big sign boards and 31 boundary posts at important or visible locations along the boundary of the two corridors.

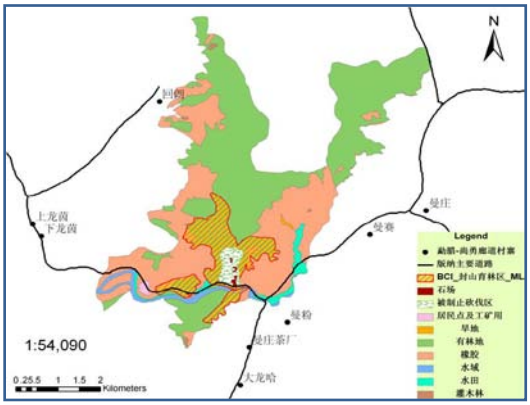
Signboard and boundary post

To support future corridor management, a team led by the Governmental Policy Research Department of XPG and joined by staff of EPB, Forestry Bureau, Nature Reserves and School of Administration was teamed up by the project to develop a research report on necessary policy and legislative framework for the future corridor management. The report suggested:

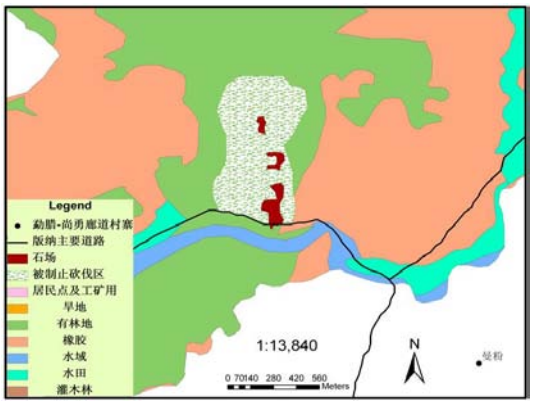
1) to establish a management guideline for biodiversity corridor management;
2) to set up a corridor management office at XSBN-NR Management Office, under which management station offices should be established at Menghai and Megnla;
3) to speed up the establishment of Payment for Ecological Services (PES) for managing and maintaining collective forest and natural agro-forest in the corridors, as well as for wildlife caused damages;
4) to draw eco-tourism planning of the corridors as soon as possible, so that the natural resources could be utilized and protected in a harmonious way;
5) to develop forests as carbon sink through REDD+ mechanism and other carbon financing opportunities.

B-1-3. Restoring Ecosystem Connectivity

3.1 Promote landscape connectivity in key fragmentation points through natural regeneration and human assisted natural regeneration (including enrichment planting)



Restoration area in Mengla-Shangyong corridor



Location of illegal quarry has been close down

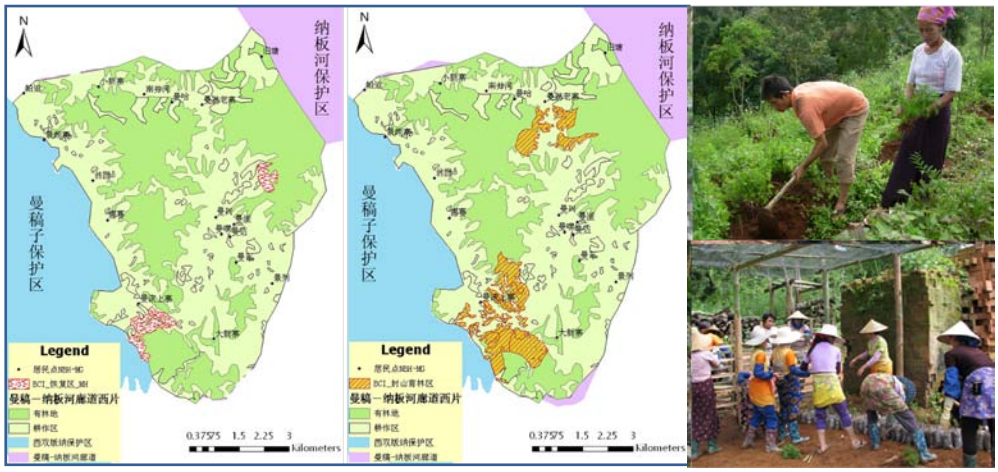
Six pilot villages have been identified, in which forest restoration work will be undertaken. Later restoration was extended to an additional 12 villages in the corridors.

Restoration in Mengla-Shangyong corridor

Though local communities supported restoration idea, there was no surplus land could be used for human-aided restoration, as rubber plantation has pre-occupied the free land. And the farmers didn't want to risk the losses caused by implementing ecological improvement or upgrading at rubber field.

The project team therefore adjusted the original plan of natural and human-aid mixed restoration into pure natural restoration. In total 268.6 hm2 forest located at the southern part of the corridor where the forest quality was poor was left for natural restoration. The restored area included national forest, quarry and area prohibited for logging. In this area, the project requested Mengla government to close down an illegal quarry located at the main migrating route of elephants in the corridor, and let its vegetation recover naturally.

Restoration in western section of Nabanhe-Manggao corridor



Restoration in western section of Nabanhe-Manggao corridor

1) Village nurseries: two nuserires were constructed in Manpai and Mangun villages and some tree seedlings were purchased. In total there were 95,100 seedlings were transplanted;

2) Natural restoration: mainly by forest closure, and joint forest management agreements were signed with communities. 180hm2 monsoon evergreen broad-leaved forest and 66hm2 *Pinus kesiya Royle ex Gordon var. langbianensis (A.Chev) Gaussen* resotred;

3) Human-aided restoration: local fast-growing timber plantation, such as fir, Schima superb, *Bennettiodendron leprosipes (Clos) Merr., Cinnamomum camphora* and *Alder birch*, mainly planted at tea gradens near Mangun and Manpai villages, barren land and land along highway which are within the migration passage of *Bos gaurus*. In total 75hm2 were planted and 85% of transplanted seedlings survived;

4) Agro-forestry: Interplanted local tree species (camphor + tea, and chest nut + tea) at existing 200 mu cash cropplantation (mainly tea farms in Mangun and Manpai villages). In total 6,500 seedings of camphor and chest nut seedlings were transplanted.

Restoration in eastern section of Nabanhe-Manggao corridor

Restoration in eastern section of Nabanhe-Manggao corridor

1) Village nurseries: a village nursery about one mu size was set up in Nanpenghe village. Local villagers were trained the seeding skills. Nearly 20,000 seedlings of local species were breeded there;

2) Natural restoration: 200hm2 forest closed for restoration and attended by forest guards;

3) Human-aided restoration: interplanted 5,000 *Calamus platyacanthoides* trees and 3,000 trees of local species such as *Spondias purpurea L.,Spondias pinnata (L. F.) Kurz, Magnolia rostrata W.*

W. Smith, Aquilaria sinensis (Lour.) Gilg at 75hm2 human accelerated restoration field;

4) Agro-forestry: improved 200mu maize and tea plantation by planting 3.2 million tea trees and interplanting more than 15,000 walnut trees and 1,000 trees of *Alnus nepalensis D.Don* and some other local species.

3.2 Biodiversity assessments/update surveys with regard to maintaining viable populations of globally threatened plant and animal species

Biodiversity survey and assessment in two corridors were completed in April 2008. Quadrat method and line-intercept method aided with topography map, GPS and TM satellite data were deployed in surveying plant species and vegetation types. Field interview, quadrat method, line-intercept method and GPS were used in animal survey, where animal trace, habitat and other data were recorded.

Nabanhe-Manggao corridor

The corridor belongs to the south subtropical area and the natural vegetation is seasonal evergreen broadleaf forest dominated by *Castanopsis sp, Schima wallichii* etc. Wild boar is common while *Bos gaurus* roam occasionally in this area. Animals like tiger, bear, and Red Deer disappeared from the corridor because of habit destruction and impact of increasing human activity. On the other hand, population of Bos gaurus and wild boar increased because of in-migration and propagation after the hunting ban.

Low economic development in the corridor area resulted in high dependence of the communities on nature forest. Remaining natural forest is facing the danger of reclamation. Invasion of alien species, such as Crofton Weed has caused biodiversity loss and habitat loss of herbivores, and hindered the natural generation of some part of the natural forest.

The corridor area has similar rich habitat conditions, vegetation and species as the nature reserves to be connected. Large connected natural forests are good places for wildlife to use as habitat, foraging, or communication. More than ten *Bos gaurus* have been observed in the survey area.

Mengla-Shangyong corridor

Wild animals such as tiger (in Shang Longyin village), monkey, bear, boar, and wild elephant used to be in the corridor area but cannot be found anymore because of denudation of forests and replacement with large areas of rubber plantation. Elephants started to re-appear in this area in 2001; walked across the road from Shangyong to Mengla, eating crops on the way. Since the construction of the Xiao Mo expressway started in 2003, there has been no elephant sighting in this area except near the corridor border areas such as Dalongha, Manfen, Chachang and Huilang villages.

Before large areas of rubber plantations came into existence, the corridor area had tropical forests, longan in the channel area, and shaw around the hill. Currently, besides rubber plantations all around the villages, there are few remaining species such as teak, *Anthocephalus chinensis, Cassia siamea* and some fruit trees. Mulberries such as linden tree, which has a religious significance, are well protected in Dai villages. Furthermore, there are some big banyans on the border of the protected forests.

Luckily Xiaomo expressway didn't fully disconnected the migration route of elephant. If other part of the migration route is not broken, the corridor will be used by the elephants living in the Mengla and Shangyong nature reserves. To help the elephants to get use to the new express way, there is a need to prohibit the further expansion of quarries, and restoration of habitats at key areas of the both sides of express way and river banks are necessary for providing shade to elephants.

The survey also found out that despite access difficulties, human intervention in this area was serious – 90% of the natural vegetation has been destroyed to different extents. Illegal logging and hunting, and natural forest encroaching were still existing. Due to human interventions, rain forests in the corridor area have moved away from primitive rain forest in terms of community structure and plant richness, and the species biodiversity is much lower and the forests are highly fragmented.

3.3 Undertake biodiversity assessment of the Mekong River Headwaters (basin-northern, central, and southern portions)

A biodiversity survey was completed in October 2009 in Deqin in the Mekong River Headwaters landscape. The survey covered all vegetation types on the banks of the Mekong River and in the valley between Fushan township and Cizhong township in Deqin county. Five main vegetation types were identified: dry and warm valley scrub, semi-humid evergreen broad leaf forest, *Pinus yunnanensis-sclerophyllous* oak forest, *Sclerophyllous* evergreen broad-leaved forest and *Picea asperata Mast.-Abies.* forest. An inventory of plants in the Mekong River Headwaters landscape in Deqin county was compiled based on data collection and field floristic surveys. 2,150 plant species in 585 genera of 147 families were recorded. Of which, national class-II protected plants *Pseudotsuga forrestii, Dipentodon sinicus* and *Corylus chinensis*, class-III protected plant *Paeonia delavayi var.lutea* and Yunnan provincial class-III protected plant *Taxus yunnanensis* were found in the mid-upper part of alpine forest.

This area is rich in animal species. 87 mammal species in 70 genera of 25 families were recorded. The number of species accounts for 29% of total mammal species found in Yunnan, and 13.94% of that of China. 238 bird species and 19 reptile species exist in this area. In total there are 24 mammal species and 20 bird species are of national importance, including six mammal species and eight bird species are listed under national class-I protection and 18 mammal species and 12 bird species are class-II protected species. Of which, *Rhinopithecusbieti* is the flagship specie under priority conservation and *Panthera uncia* is one of the mostly endangered specie in China.

Diversified ecosystems in Deqin provided habitat for rich fauna and flora species, it is one of the biodiversity-richest areas locating at the same latitude of the world, and one of the three biggest regions for Chinese endemic species. Many species have high economic or research value, or of valuable functions. This area is either a transitional zone or a strip of integration, from geological history, biological geography and natural geography point of view. Its biodiversity importance, resource utilization and research value is extremely high.

3.4 Update existing data of forest trees and plants of economic value which have potential to contribute to local livelihoods

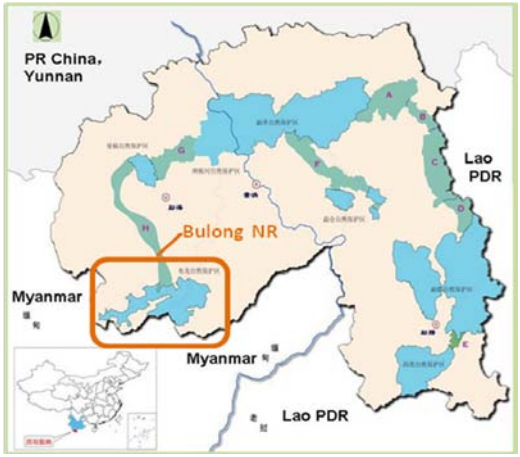
This activity was combined with activity 1.3.

3.5 Monitor existing data of interventions and evaluate corridor establishment recommend for upscaling

M&E consultants have been recruited for this purpose and partial M&E results could be found in this report.

3.6 Assess technical feasibility of proposed Mengsong NR

A study has been conducted with the aim of assessing potential for establishing a nature reserve in the adjacent Mensong and Bulangshan areas in Menghai county. Primary forest dominated with *Alcimandra cathcartii, Parakmeria yunnanensis* and *Mastixia euonymoides*, which is absent in present XSBN-NR, were found within this forest area. In order to assess biodiversity values, plots sampling and a complete floristic inventory were conducted in the upland area (between 1500 m to 2100 m). Two main forest types have identified: a) *Mastixia euonymoides-Phoebe megacalyx* forest and a *Parakmeria yunnanensis-Gymnanthes remota* forest based mainly on species composition and forest structures. A total of 623 native species in 327 genera and 115 families of seed plants were recorded from the upland area of Mengsong district. The specie *Parakmeria yunnanensis*, a national protected species of the first grade, as well as the rare and endangered species *Mastixia euonymoides* have been recorded dominant tree species in the Mengsong upland forest. This makes the forest very special and important in terms of biodiversity conservation. However, a new road, which goes through the margin of the primary forest in Mengsong district, has just been constructed. On the east side of the road, all forests were replaced by new rubber plantations, and on the west side of the road, the primary forests still remain. This creates a big threat to these remaining primary forests in Mengsong and its biodiversity.



Location of BL-NR

The formal proposal of establishing a corridor about 17,918 hm2 in Bulangshan-Mengsong area in XSBN was submitted to XPG by the local PMO. Official approval of establishing a prefectural level nature reserve named Bulong Prefectural Nature Reserve (BL-NR) from XPG was released on December 22, 2008. The approval area of BL-NR is 51,000 hm2. The official ceremony of establishment and mobilization event organised by XPG took place in Bulangshang Township on October 30, 2009.

B-1-4. Capacity Building

4.1 Strengthen the capacity of prefecture and county officials and key provincial level staff involved in corridor and protected areas management

In Yunnan, in addition to capacity building in targeted communities, capacity development of environmental protection departments of the pilot areas, local government departments at all levels, as well as other government departments and partner agencies related to ecological conservation, were carried out by the project.

In the preparatory stage and the initial start-up stage, visiting ADB experts introduced the corridor concept and the purpose, objective, and approach of the project to relevant persons, and communicated about the design and implementation of the project with local departments and research institutions concerned. During this process, the local institutions involved gradually understood the new corridor approach of biodiversity conservation and out of research interest and conservation mandate, they were willing to support the implementation of the project.

In the first half of 2007, MEP and EOC organized seminars and trainings, such as financial training in Kunming in 2008 and on BCI & community development workshop in Jinxi in August 2008 for implementing agencies and local PMO staff. Besides, unified trainings on the requirements for the project management and the financial management of ADB and EOC were carried out therein as well. For the two project sites, Xishuangbanna and Deqin, PPCU at YEPD also organized various trainings for the two PMOs and the sub-project implementing agencies.

GMS environment cooperation training seminar

In addition, PMO staff and the relevant governmental officers were invited to participate in the regional workshops held in Guangxi and Yunnan, such as “Colourful Yunnan” International Forum on Biodiversity Conservation, as well as other project seminars held in Bangkok or other GMS countries. At these events, Yunnan representatives could be updated with latest information and experience regarding to the global biodiversity conservation, which expanded their horizons.

In Xishuangbanna, the PMO has organized more than 130 working meetings, including more than ten times of project progress briefings and seminars, 19 project planning meetings, 32 sub-project workshops, and 73 PMO meetings,

according to the implementation requirements in different stages. On the one hand, through these meetings necessary coordination among relevant institutions were achieved, which ensured timely and smooth implementation of the project. On the other side, in these meetings, staff coming from different fields and shouldering different responsibilities could meet together for the benefit of the project, which provided opportunities for inter-departmental communication, exposure to new ideas, and experiences sharing and cooperation.

To ensure the technical quality of the project deliverables, technical trainings were organised for the task teams. For instance, Xishuangbanna PMO once organised training on “Participatory Rural Appraisal and Its Applications”, with 24 task team members participated. Training for 35 project members coming from each reserve station affiliated to XSBN-NR and NBH-NR on “Baseline survey knowledge and skills for animal and plants in corridor areas” were delivered. In Deqin training for the socio-economic assessments along the Mekong River was held in four administrative localities, more than 90 people participated in the survey and training.

Through the project, through learning-by-doing, teams that are familiar with management design, implementation, reporting, financial management, has grown up at PPCU and LPMOs. Not only personal knowledge, but also the institutional capacity have been both raised, which has laid firm foundation for deepening environmental communication and cooperation with GMS countries and for well playing the gateway role of Yunnan.

International study tour is another important form for institutional capacity building. Facilitated by EOC, one delegation composed of 37 representatives of EOC, Lao PDR, Thailand and Vietnam and one composed of 30 officials from ministries of environment of six GMS countries have been sent to Yunnan to learn environmental conservation experiences in March and September of 2009. In June of the same year, a 10-member delegation led by the vice governor of Xishuangbanna prefectural government also paid a 10-day visit to Vietnam and Cambodia, to exchange BCI experience with the local implementing agencies.

4.2 Promote education and public awareness

During the implementation of the project, diversified educational and public awareness raising activities have been carried out, targeting various groups within Xishuangbanna, for the purpose of seeking their understanding and support to the project and strengthening the biodiversity conservation awareness of government departments, the public and corridor communities. In addition, weight is also added to the academic influence of the project by publishing books and research papers in academic journals.

A public awareness survey among villages and primary & secondary schools in project areas was undertook by the Xishuangbanna PMO at the beginning of 2009. There were about 300 copies of questionnaires were distributed and 263 of them were returned. Among the returned 263 questionnaires, 220 were responded by adults (170 were villagers) and 43 by students. According to survey, 80% of the respondents were aware of the basic information of the project, mainly via television, network and publicity materials. The survey results indicated that awareness raising among the public was highly effective.

The main approaches adopted by the project for publicity, education and communication purposes include:

1) Field visit

The project teams have visited the villages several times to publicize the concept, significance and purpose of corridor, through which villagers gained a basic understanding of what the corridor is, what the corridor can do, what effects the corridor may bring about, as well as what benefits the corridor may bring about to the villagers, etc.

2) Newsletters, reports and science articles

35 issues of newsletters (more than 2,800 copies in total) were released by Xishuangbanna PMO and sent to the senior officials of the Party Committee, People’s Congress, government and People's Political Consultative Conference at prefecture level, the county and municipal governments,

members of Steering Committee (SC), as well as the concerned township government departments, allowing more leaders and departments at all levels updated with the project progress and the achievements. The PMO has also shared with the concerned government departments and technical units the project reports or summary reports of 15 sub-projects on different occasions, such as governmental meetings and workshops.

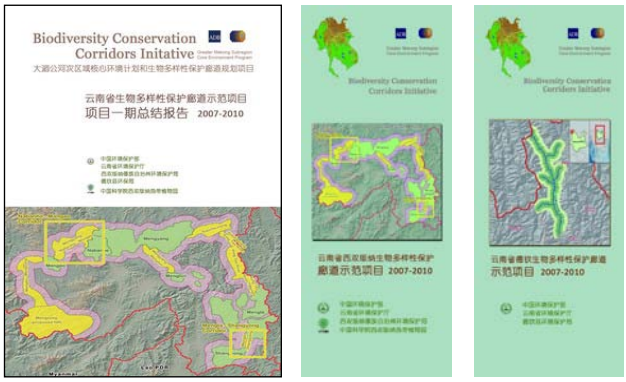
Newsletters released by Xishuangbanna PMO

During Phase I, two master theses, two SCI papers in English, three national core periodical papers and two monographs have been published or in print, summarizing the achievements of Xishuangbanna BCI pilot project from a technical perspective.

3) Multimedia publicity materials

Xishuangbanna PMO has publicized the project through media such as China Environmental Daily, Science Times, Yunnan Daily, Xishuangbanna News, website of Xinhuanet, and websites of various governmental institutions. Particularly, a column on the website of Xishuangbanna EPB was specially made for the project, in which 35 issues of newsletters, six articles and numerous pictures have been uploaded. The visitor volume was large and the coverage was extensive.

Education and awareness raising materials



Dissemination materials produced by PPCU

To enhance the public's understanding of the project, the project team has produced 3,200 copies of calendars, 300 umbrellas, 2,000 copies of leaflet with project slogan, pictures and information included. These dissemination materials were distributed to the communities and prefectural/county/municipal Party Committees, People's Congress and People's Political Consultative Conference at special occasions (such as the Water-Sprinkling Festival and World Environment Day, etc.).

At provincial level, project brochures and dissemination material of project Phase I were developed and released as well.

Environmental education in schools

4) Environmental education and publicity activities among primary and secondary schools

At the beginning of 2008, a theme drawing and writing contest was organised by the XSBN-PMO, in which approximately 10,000 students from 17 primary and secondary schools within the project area participated. Around 1,000 pieces of works about nature conservation were collected. Among which authors of 46 works were awarded on the World Environment Day of the year by the seniors of the prefectural government and Xishuangbanna EPB. On the official set-up day of BL-NR, an advocacy event was organised in the primary school, where students were presented with relevant information and materials.

5) Publicity, discussion and communication

Using his special function in the organisation, Hu Shaoyun, the director of Xishuangbanna EPB and the director of XSBN-PMO, has taken the advantage of his presence to various training, learning and meeting opportunities targeting on senior party members and leaderships of the prefecture to disseminate BCI project. Speeches/lectures he delivered have gone throughout Meihai country, Mengla county and Jinghong city.

From March to May, 2008, Xishuangbanna PMO or the sub-project implementing agencies have held three project briefings in the counties and townships involved, in which no less than 80 people have participated.

Moreover, Xishuangbanna EPB also invited speakers to introduce Xishuangbanna BCI pilot project and general environmental protection to party and government cadres at all levels by using the local party schools' resources. In total, 475 middle-level officials working at county level authorities, 800 section-level officials based in the prefectural bureaus and 431 officers at township level were participated in such mass education events.

4.3 Support effort in strengthening the capacity of villagers to manage and protect forest and natural resources in the corridors and move towards effective community based natural resource management (with co-management of some parts of protected areas and protected forests)

In order to enhance the whole capacities of the communities within the corridors, especially to enhance their self-development and self-management capacities, various technical trainings have been provided for some villages therein with the combination of the ecological restoration in the corridors and VDF pilot activities. Among these trainings, forest patrol training had played a fundamental role in the natural recovery at key corridor sections; while agro-technical trainings were organized in concert with the household livelihoods development activities in pilot villages.

In addition, more than 500 villagers were trained. In order to guarantee the smooth operation of VDF in pilot villages, project team have trained the president, accountant, and cashier of the VDF management committee of each village, and helped them to know how to keep accounts, how to manage and use the revolving capital. In villages where artificial ecological restoration was carried out, project field working teams helped the villagers to learn practical techniques such as seedling, seed collecting, seedling culturing, transplanting, etc.

1) Patrol practices training

At the end of 2007, three-day village-level patrol training for 29 selected villagers from the corresponding villages in the corridor area was organized by the project. Invited lecturers from XSBN-PMO, XTBG, XSBN-NR and NBH-NR delivered lectures on BCI pilot project, forest fire prevention, wild plants and animal identification, relevant laws and legislations, patrol skills, as well monitoring and reporting skills. After the training, the villagers were employed as project forest patrol guards to

Trainees of the village-level patrol guard are visiting the Nature Museum of Xishuangbanna

perform forest patrolling, monitoring and managing the non-commercial forest of certain area and range of the corridors within 2007-2008.

2) Trainings on practical agricultural skills

To respond to villages' requests raised in the needs assessment and to support VDF piloting which aimed at increase income generation opportunities of the communities in the corridors, trainings on practical agricultural skills have been carried out in eight villages in the east Nabanhe-Mangao corridor. The trainings with respect to planting included farmland reclamation, interplanting, variety selection, farm management, etc., while the trainings with respect to cultivation included disease prevention, variety selection, feedstuff supply, etc. After the trainings, the project team distributed large quantity of reading materials to the villagers.

B-2 Project at provincial (including Deqin) level

1) Establish Provincial Level Coordination Unit YEPD and make operational (office equipment and support staff)

The Provincial Project Coordination Unit (PPCU), i.e. Provincial Project Management Office (PPMO) was established at YEPD at the beginning of 2007, with office space, equipment and support staff in place for full operation. The staff composition of PPCU is provided in section C of the report. The PPCU plays an overall supervision and quality control role of the whole project in Yunnan. PPCU shall report to MEP and EOC and inform the Provincial Steering Committee (PSC) the project progress. It also receives and approves budget proposals as well as technical and financial reports from the Local Project Management Offices (LPMOs).

2) Convene Provincial Steering Committee and other advisory group meetings (on a half yearly basis) and report on progress

At the project sites, Steering Committees (SCs) were set up to coordinate governmental sectoral support and input of the relevant line agencies, and jointly make decisions over some issues where higher governmental decision or commitment is required.

In Xishuangbanna, the Prefectural Steering Committee (PSC) established in March 2007 was teamed up by 16 members composed of the director general and/or the deputy of EPB, XTBG, Development and Reform Commission, Forestry Bureau, Land and Resources Bureau, Agriculture Bureau, Water Resource Bureau, Women's Federation, Poverty Alleviation Office, Science and Technology Bureau, Crops Research Institute for the Tropical Crops, NBH-NR of Xishuangbanna, under the lead of vice mayor Mr Qian Huahu (latter Mr Yang Sha).

In Deqin, the County Steering Committee (CSC) composed of 11 members in total was established in May 2006. The CSC was led by the county governor Mr Zhaxi Dunzhu, the rest members were the director and/or deputy director of TNC Deqin Office, EPB, Development and Reform Commission, Land and Resources Bureau, Tourism Bureau, Poverty Alleviation Office, Scenic Spots Management Office.

SC meetings at two field sites (Jinghong and Deqin) were organized on half-year basis, where project progress updates were provided to the member organizations and important inter-departmental coordination and discussions had taken place.

3) Recruit consultant for M&E and Cross Sectoral Work

M&E expert Mr Zhu Xiang and Ms Yang Liqiong were recruited in November 2007 for the project M&E.

With EOC's support, a project M&E sheet template was designed for BCI pilot project in Xishuangbanna. Assisted by this template, pilot progress was regularly monitored on a monthly basis. Separate M&E mission on site were conducted with or without EOC consultants from time to time.

Cross sectoral consultation were mainly achieved through coordination of SCs, LPMOs and/or workshops/meetings. When field activities need support from other sectoral department, technical staff would be invited as consultants for that particular task.

4) Conduct Domestic Waste Management Study & Mgmt Plan in selected areas of Deqin

Field survey for the waste management planning was carried out in October 2007 in 10 villages of 4 townships, along the Mekong river basin by Yunnan Provincial Centre for Breeding Rare and Endangered Species of Flora and Fauna (CBRES). Afterwards a waste management plan for Deqin was developed by CBRES. The review and evaluation workshop of the plan was held in Deqin in January 2008. The report was accepted by Deqin PMO and PPCU after further improvement based on experts' comments received in the workshop.

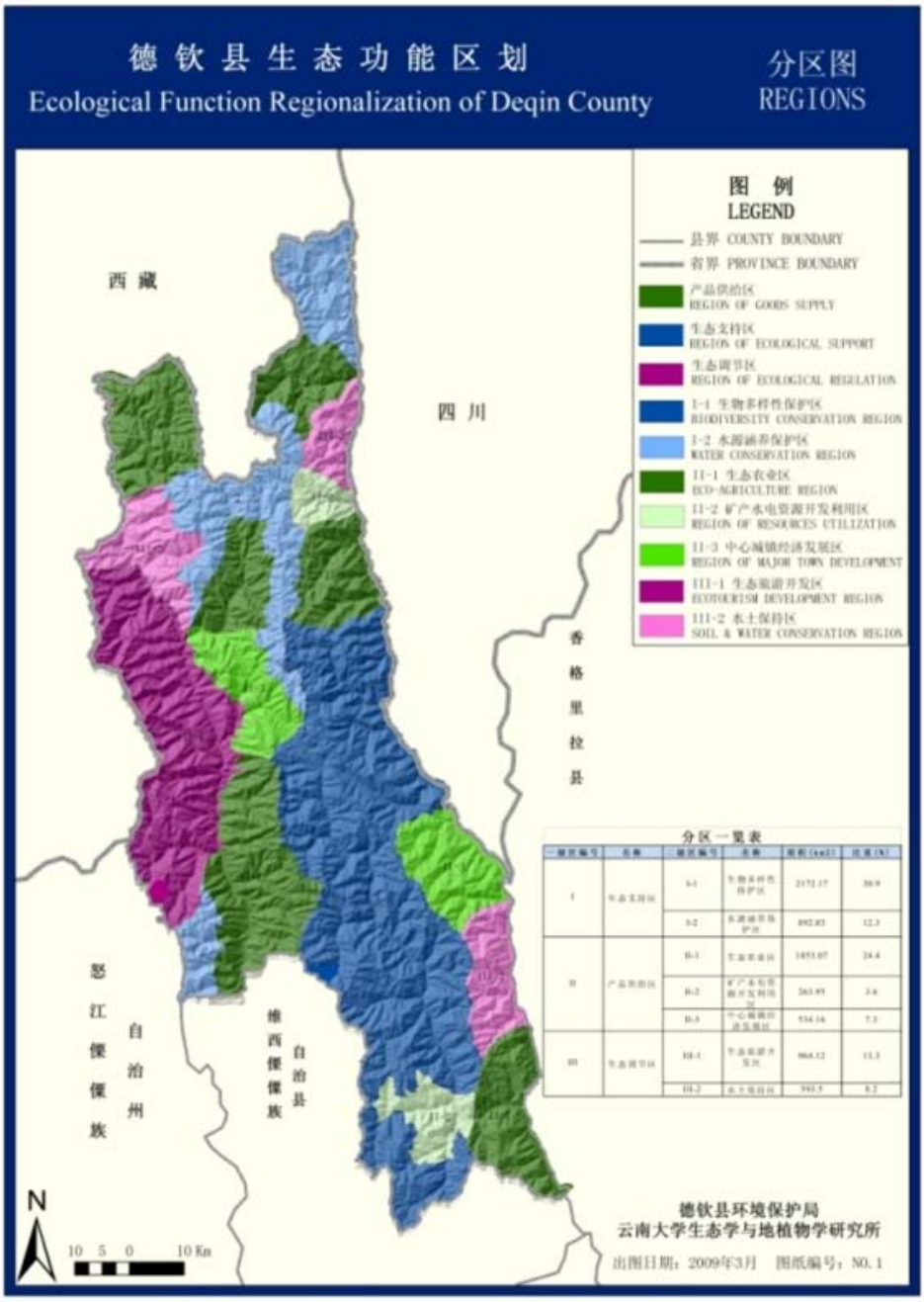
According to the survey, solid waste in this area was mainly domestic waste from local residents and tourists, animal waste and agricultural waste. In all the townships, there was no proper solid waste collection and disposal facilities, as well public toilets. No responsible staffs for cleaning and solid waste management were allocated. Especially in the villages, simple trash collection pit and pit latrine were hardly found. The task group suggested to construct a waste disposal facility and two public toilets in each township headquarter, and two or three waste collection points and one public toilet for each village committee. Vehicles for transportation need to be equipped.

5) Conduct Ecological Function Zonation Planning-Deqin County

Ecological function zonation planning for Deqin County was sub-contracted to Yunnan University (YU). According to the zonation plan, Deqin could be divided into three grade-I zones: ecological support zone, goods supply zone, and ecological regulation zone, and seven grade-II zones: biodiversity conservation zone, water conservation zone, eco-agriculture zone, resource utilization zone, major town development zone, eco-tourism development zone, and soil and water conservation zone.

Grade-I	Grade-II	Area (km^2)	Weight (%)	Key ecological issues	Control measures
ecological support zone	biodiversity conservation zone	2172.17	30.9	Core area for biodiversity conservation; Highly sensitive habitats which are slightly fragmented and human interventions are existing	Strengthen management and conservation following relevant conservation plans: 1) cold temperate coniferous forest dominated by Abies georgei, Yunnan snub-nosed monkey and alpine vegetation and landscape; 2) 28 species of alpine rhododendron; 3) rare, endangered plant and animal species and medicinal resources; 4) landscapes such as snow mountain, glacier and morainal lakes
	water conservation zone	892.03	12.3	Low forest coverage, highly sensitive soil erosion, head water source was slightly affected; irrational farming and grazing led to slight water pollution.	Forest enclosure for restoration; increase forest coverage and quality; improve water conservation ability; standardize nature reserve management; prohibit productive and tourism activities harmful to conservation; reduce disturbance to snow mountain and glacier; restrict pesticide and chemical fertilizer application; promote cleaner production; protect water quality of Sancha, Gujiunong and Shuimofang rivers
goods supply zone	eco-agriculture zone	1853.07	24.4	the valley has low forest coverage and is prone to soil erosion; mono-agricultural with low outputs and low water conservation ability	Implement returning farmland to forest; control soil erosion; strengthen forest management; prohibit production or operation unsuitable for eco-agriculture development; develop agro-forest; adjust agricultural structure; develop tertiary industry; and promote circular economy
	Resource utilization zone	263.95	3.6	Land slide and similar geological disasters exist; frequent geological disasters take place along trunk rivers	Improve water detain capacity of the region; standardize management; prohibit production and human activities unsuitable for conservation; well implementation of ecological rehabilitation of construction sites

	Major towns development zone	534.16	7.3	Serious soil erosion, irrational land use, urban expansion worsen the water and land scarcity, and encroached some farm land; low forest coverage, mono-specie forest	Strictly control urban development scale according to the master plan of eco-county criteria; adjust land use structure; adjust industrial structure; develop circular economy
ecological regulation zone	Eco-tourism development zone	964.12	13.3	Highly sensitive soil erosion, ecological disturbance and environment pollution brought by tourism development; glacier retreat and scenic landscape fragmentation caused by resource exploration	Strengthen management; prohibit production and tourism activities harmful to conservation; conservation priorities give to: 1) Meili snow mountain; 2) vegetations which are fragile or with high biodiversity value; 3) rare and endangered species or species of high economic/ecological value
	Water conservation zone	593.5	8.2	Low forest cover, mono-species forest, low water conservation capacity, highly sensitive soil erosion, serious land slide and mud slide; ecological destruction at some locations caused by resource utilization	Improve forest structure; increase forest coverage and quality; develop ecological forest; improve water conservation and retention capacity; protect farming ecology; reduce land use intensity; diversify business; adjust agricultural structure; develop cleaner production; slightly limit mining and micro-hydro power development



Ecological Zonation Planning of Deqin

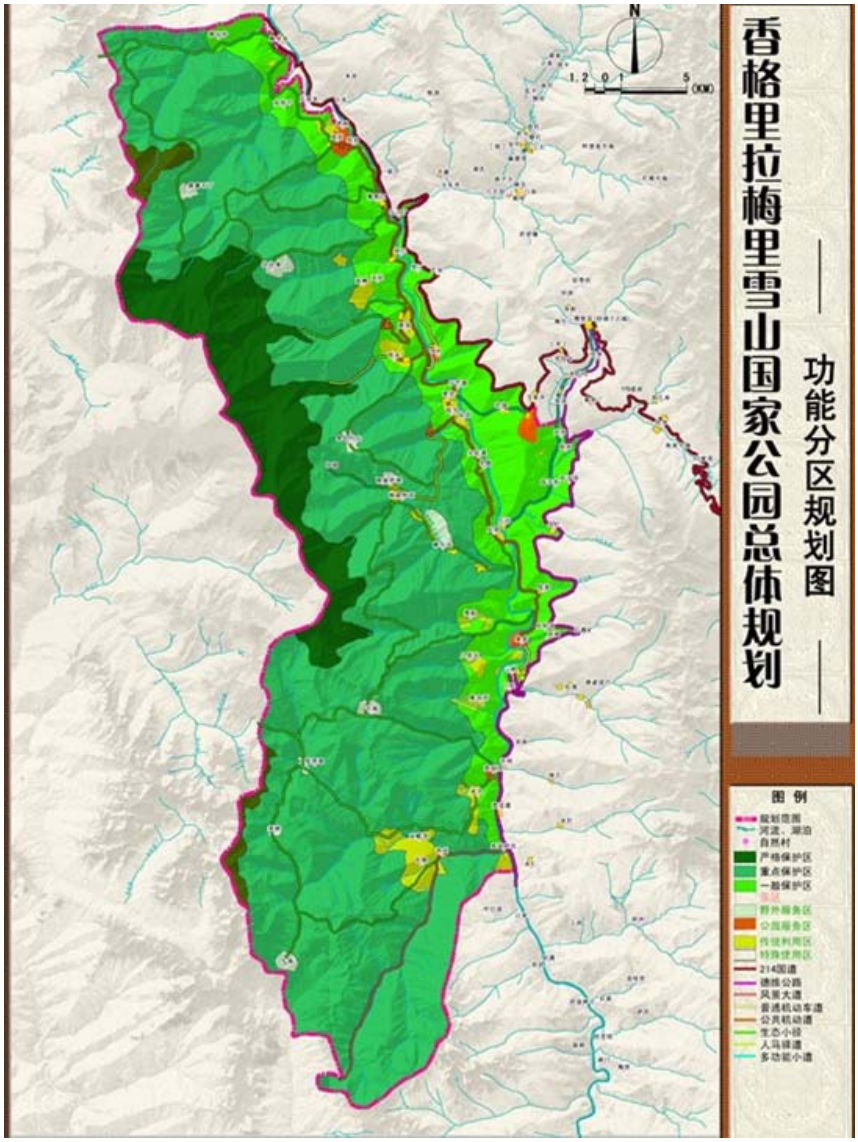
6) Support to initiate detailed Zonation Planning of Meili Biodiversity Core Area

A co-financing plan for carrying out detailed zonation planning of Meili biodiversity core area was agreed by Deqin PMO and TNC, for the purpose of establishing Meili National Park. The sub-contract between TNC and PMO was signed in May 2008 and TNC was the leading institution for the technical issues while the Preparation Office for Establishment of Meili National Park set up by the county government was responsible for the administrative matters.

The output of the joint study “Meili National Park Master Plan” introduced the internationally mature “national park” modality and localized it. The planed period starts in 2009 and end in 2020, dividing into three phases. Total area planned for the national park was 961.28km2, taking up 12.5% of the land area of Deqin County. It includes 16 villages located in three town/townships. 13,000 populations of 2,600 households would be involved. Total investment for the national park is expected to be one

billion yuan (0.15 million US dollars) within five years.

According to the zonation, the national park would be divided into three basic zones which are under strict conservation, priority conservation, and general conservation, one subregion that composed of four special areas for limited/controlled development, and one peripheral control zone. Natural conservation component of Meili National Park Master Plan was then developed based on the above mentioned zoning, as show in the below map.



Zonation of Meili National Park

The mast plan also outlined the cultural conservation, community development, eco-tourism development, physical construction and management plans. According to the master plan, tourism development and other development activities would be given priority to nature conservation, at the same time, local communities' benefits would be respected and basic needs such as health care and education would be improved. Through improved basic infrastructure and adjustment to traditional industrial structure, dependence of communities on natural resources would be reduced.

7) Conduct study to identify Poverty Alleviation Interventions and conduct Socio-Economic Assessments, Deqin

Supported by the partner Centre for Biodiversity and Indigenous Knowledge (CBIK), socio-economic survey and poverty alleviation planning for Deqin County (Yangmen, Yunling, and Foshan Townships and Shengpin Town) were finished in January 2008.

The survey concluded that the key constraints for the local community development and poverty reduction were: 1) harsh physical conditions; 2) lack of income generation resources; 3) decrease of forest; 4) short of irritable land; 5) poor education; and 6) weak community organization.

According to the survey, in 2006 there were 2,475 households of 4,235 households living in the four administrative regions were considered as poor households. The total population under poverty was 11,764, accounting for 55.9% of the total population living in the surveyed area, and 19.29% of the total population of the county. The poverty incidence in the upper Mekong areas was 49.5% higher than that of the province. Low income has accelerated deforestation for more land or timber, and wild animal hunting.

Integrated micro-watershed management, eco-agriculture, community health care, housing improvement, rural energy, education and awareness raising, and community capacity building were covered by the poverty alleviation plan.

8) Provides support to and monitoring BCI implementation in Xishuangbanna

Assisted by the M&E consultants and EOC experts, the PPCU monitored the BCI implementation in Xishuangbanna and Deqin on both regular and irregular basis. The quality of project deliverables and timely submission of reports were controlled by the PPCU. Project management staff and technical consultants at PPCU would provide comments or advice to the LPMOs based on the monitoring results, or clarifications and answers to questions raised by LPMOs, or guidance to the general planning.

When it came to financial/accounting issues, it was the cashier or accountant sitting in PPCU to take the monitoring responsibility and provide support to the LPMOs whenever it was required.

9) Undertake site visit

From time to time, project management staff and consultants at PPCU paid site visit to monitor the progress and inspect physical achievements made by the project at the local level. During the project period, EOC and MEP staff also made their trips to the pilot site to understand the context and check project updates. When there were important workshops held at project sites, PPCU staff/consultants as well as EOC experts and MEP staff would present, if it was possible.

10) Provide technical and financial reports and submit invoices for liquidation of accounts to EOC; submit request for replenishment of funds; facilitate audits

Financial and technical reports were delivered by the PPCU to EOC and/or MEP according to the LoA and specific requirements from EOC. Occasionally due to different reasons the deadline of submission was not been fully followed, but in general the reports submitted by Yunnan was to MEP and EOC's satisfactory.

C. Project staffing

In Phase I, to facilitate fast and easy coordination and information follow, members of the PPCU didn't only include those based in Kunming at provincial level, but also the heads of EPBs of Deqin and Xishuangbanna, and XTBG. All the PPCU members and consultants were working for the project on part-time basis.

The Key members of the PPCU for Phase I were:
Mr. Zhou Bo, Project coordinator, Director of International Cooperation Department, YEPD
Mr. Chen Jin, Director General of XTBG
Mr. Hu Shaoyun, Director General of Xishuangbanna EPB
Mr. Xu Liqing, Director General of Deqin EPB
Ms. Xu Yunhua, Project Liaise Official; International Cooperation Department, YEPD
Ms. Yu Yuanhong, Project Assistant

Ms. Liu Xiaomei, Project Accountant
Mr. Huang Yueguang, Driver

M&E consultants to the PPCU:
Mr. Zhu Xiang, YIES
Ms. Yang Liqiong, YIES

Two LPMOs at Xishuangbanna and Deqin respectively, were established to be responsible for the day-to-day management of the project implementation. The key responsibilities of the LPMOs were:

1) Coordinate with stakeholders including relevant government departments, research institute, NGOs and local consultants to implement project activities against the approved work plans;
2) Prepare annual work plans and budgets and submit to provincial and national steering committee for approval
3) Maintain accounts and prepare financial statements, facilitate audits
4) Request for consultant support from central and provincial units as and when required
5) Liaise with other relevant departments at different levels
6) Inform Prefecture PLG about project progress
7) Provide financial reports with invoices for request the replenishment of the funds
8) Write progress reports and submit on a half yearly basis to the PCU at the provincial level

In Xishuangbana, the LPMO was placed in EPB, jointly managed by EPB and XTBG. EPB's responsibility was overall project management and coordination, while XTBG was to provide technical support for the implementation of the project. The members of the LPMO consisted of:

Director	Mr. Hu Shaoyun, EPB
Deputy Director	Prof. Hu Huabin, XTBG
	Mr. Jia Hong, EPB
Project Manager	Prof. Hu Huabin, XTBG
Technical Assistant	Mr. Fu Yongneng, XTBG
Administrative assistant	Mr. Zhu Peiren, Research Institute of EPB
Accountant	Ms. Li Haimei, XTBG (latter Yang Xing and Yang Zhenbin)
Cashier	Ms. Zhang Yan
Driver	Mr. Zhang Hu

In Deqin, the LPMO was established in EPB, jointly managed by EPB and TNC. TNC provided technical support for the implementation of the project activities. The members of LPMO were:

Director	Mr. Xu Liqing, EPB
Project Manager	Mr. Ge Du, EPB
Technical Assistant	Mr. Zhang Ke, TNC
Administrative assistant	Mr. Zha Xi, Research Institute of EPB
Accountant	Ms. Li Ying
Cashier	Mr. Zha Xi
Technical Staff	Mr. Lu Jianwei, TNC

D. Project Costs

The total Yunnan budget for BCI pilot implementation in phase I is $1,001,400, of which $301,400 was allocated for provincial and Deqin level implementation, and $700,000 was for BCI pilot implementation in Xishuangbanna. The actual expenses in comparison to the original budget can be found in table 2 and table 3.

For provincial (including Deqin) budget, all the expenses were spent in line with the original budget, except for YEPD operation cost. Upon approval of EOC, the project contingency budget was allocated to organisation of national workshop and PPCU operation cost. See the two figures highlighted in Table 2.

During the project implementation, PPCU and XSBN-PMO had two times requested adjustments to the budget for Xishuangbanna BCI pilot implementation and the requests were approved by EOC. Therefore from the table 3 one can see some deviations between actual expenses and approved budget in LoA. But the actual expenses were in line with the revised budget.

Table 2 Actual expenses against budget - YEPD&DQ-PMO

(Amounts in US$)

Cat. Code	TA Category	Approved Budget	Actual Expenses
11	Specialists Services	181,811	181,302.13
	National Consultant for BCI Monitoring		-
	National Consultant for Cross Sectora/EIA		-
	National Consultant (ME&Cross Sectoral)	73,834	73,553.49
	Domestic Waste Management Study	16,226	16,214.31
	Ecological Function Zonation	40,566	40,565.58
	Detailed Zonation of Meili Biodiversity Core Area	12,170	12,170.00
	Economics Assessment	17,038	17,038.30
	Per diem - Mekong Headwater Study		-
	Per diem - SEPA		-
	Per diem - YEPD	1,173	1,173.36
	Per diem - DEQIN	10,000	9,999.59
	Travel Costs - SEPA		-
	Travel Costs - YEPD	2,804	2,585.90
	Travel Costs - DEQIN	8,000	8,001.60
12	Equipment and Supplies	25,000	25,000.54
	Office Equipment - NLC Unit	-	-
	Office Equipment - PLC Unit YEPD	5,000	5,719.32
	Office Equipment - PLC Unit Deqin	20,000	19,281.22
13	Training, workshops, seminars, public campaigns	45,000	46,211.56
	SEPA Steering Committee Meeting	-	-
	YEPD Steering Committee Meeting	2,000	1,935.17
	National Coordination Meeting/Annual Workshop		-
	National Level Orientation Workshop		1,290.18
	Exchange Visit/Study Tours		-
	Capacity Building Deqin County, Yunnan	43,000	42,986.21
14	Publications and Reports	5,500	5,545.44
	Publications and Reports	5,500	5,545.44
15	Project Management	39,189	43,398.24
	Accountant/Support Staff	22,000	21,695.99
	SEPA Site Monitoring Visits -T&PD		-
	YEPD Site Monitoring Visits -T&PD	3,189	3,036.60
	Deqin Site Monitoring Visits -T&PD	4,000	4,000.00
	SEPA Operating Costs (PMO Support)		-
	YEPD Operating Costs (PMO Support)	6,000	10,941.95
	Deqin Operating Costs (PMO Support)	4,000	3,723.70
16	Other Inputs	-	-
17	Contingency	4,900	-
	Contingency - SEPA	-	-
	Contingency - YEPD	4,500	-
	Contingency - DEQIN	400	-
	Total	301,400	301,457.91

Table 3 Actual expenses against budget – Xishuangbanna pilot site

(Amounts in US$)

Cat. Code	TA Category	Approved Budget	Actual Expenses
11	Specialists Service	159,815	170,221.20
	Specialists Service	-	-
	Senior Staff/Consultants	49,105	48,386.00
	Biologists	20,066	12,999.01
	Zoologists	11,842	8,752.96
	Village/Community Workers	13,618	16,644.51
	Others	6,842	3,522.63
	Per diem - Specialists Service	-	-
	Per diem - Senior Staff/Consultants	3,803	4,441.85
	Per diem - Biologists	8,289	15,028.01
	Per diem - Zoologists	4,737	665.61
	Per diem - Village/Community Workers	41,513	28,528.19

	Per diem - Others		31,252.43
12	Equipment and Supplies	130,921	128,774.18
	Computers & Printers	36,579	41,294.33
	Computer Software	23,750	24,957.09
	Office Equipment	3,947	3,236.92
	Field Equipment	40,329	34,292.88
	Vehicle (instead of Satellite Images)	26,316	24,992.96
13	Training, workshops, seminars, public campaigns	85,987	70,406.84
	School Awareness and Education	3,947	9,096.91
	Meetings	43,750	32,745.37
	Seminars & Workshops	17,237	12,946.43
	Excursion (Local)	7,895	3,908.77
	Study tours of GMS	13,158	11,709.36
14	Publications and Reports	11,579	9,413.54
	Publications and Reports	11,579	9,413.54
16	Project Management	98,225	128,093.35
	Project Management Office O&M (Jinghong)	7,895	67,204.89
	Expendables	8,553	9,242.08
	Communications	5,263	2,071.10
	Per Diem	21,053	12,338.43
	Travel	55,461	37,236.85
17	Other Inputs	192,368	185,721.63
	Revolving Fund for Villages	92,105	101,952.85
	Seedlings for Restoration	78,947	58,630.19
	Labor (Village Level)	11,842	21,378.78
	Local Guards (Villagers)	9,474	3,759.81
19	Contingency	21,105	7,392.78
	Contingency	21,105	7,392.78
	Total	700,000	700,023.52
	Cumulative Expenditures		100.00%

The project budget by components and by responsible institutions are given in table 4 and table 5.

Table 4 Budget by components

Category	RMB(CNY10,000)	Percentage
Capacity building	180.77	34.63%
Ecosystem restoration	148.00	28.35%
Poverty reduction	110.19	21.11%
Land management	83.00	15.90%
Total	521.96	100.00%

Table 5 Budget by components

Beneficiaries	RMB(CNY10,000)	Percentage
EPB (including LPMO)	180.52	34.59%
XSBN-NR	33.50	6.42%
NBH-NR	31.15	5.97%
XTBG	87.20	16.71%
Tian Zi	13.00	2.49%
Consultants	1.39	0.27%
Community/Villagers	162.20	31.08%
KIZ	13.00	2.49%
Total	521.96	100%

E. Disbursements

The fund liquidation and disbursement status of Phase I activities are given in table 6. For provincial and Deqin level implementation, the contract values is $301,400, of which $280,000 has been transferred to YEPD account; for XSBN pilot implementation, the contract value is $700,000, of which $639,815 has been transferred to YEPD account. By end of February 2012, all the project expenses of $1,001,481.43 has been liquidated at EOC, but the balance of project fund has not reached by YEPD account, because EOC has not fully approved the claims for the rest fund as some additional supporting documents or clarifications from the implementing agencies are needed by EOC. By submission of the report, last batch of the requested financial supporting documents and clarifications have been sent to EOC for final approval.

The project funds to be managed and used by YEPD, XSBN EPB and Deqin EPB are $104,000, $700,000, $197,400 respectively. As YEPD have not received the full amount of expenses liquidated at EOC, currently only Deqin EPB have been refunded the full expenditures of the project by YEPD.

Table 6 Fund liquidation and disbursement status

Project	Contact value (USD)	Advance received from EOC (USD)	Date of advancing
Provincial + Deqin	301,400.00	105,000.00	(April 12,2007)
		85,000.00	(July 28,2009)
		90,000.00	(April 22,2010)
Sub-total	301,400.00	280,000.00	
XSBN pilot site	700,000 .00	250,000.00	(December 25,2006)
		100,000.00	(June 6,2008)
		39,980.00	(March 12,2009)
		49,985.00	(June 12,2009)
		199,850.00	(February 26,2010)
Sub-total	700,000 .00	639,815.00	
Total	*1,001,400.00*	*919,815.00*	
Outstanding fund to be transferred by EOC		81,585	
Responsible EPBs	Sub-contract value (USD)	Fund transferred to the responsible EPBs (USD)	Fund liquidated (USD)
YEPD	104,000.00	82,600.00	104,057.91
XSBN EPB	700,000.00	640,000.00	700,023.52
Deqin EPB	197,400.00	197,400.00	197,400.00
Total	*1,001,400.00*	*920,000.00*	*1,001,481.43*
Outstanding fund to be transferred to IAs by PPCU		81,400	

F. Project schedule

ADB had signed a Letter of Agreement (LoA) with State Environmental Protection Agency of China (SEPA, former MEP) on 12th Dec. 2006. Subsequently, YEPD signed LoAs with SEPA, XTBG/Local PMO, Deqin EPB respectively in March 2007 for the implementation of BCI pilots of Yunnan.

The BCI Pilot Projects of Yunnan supposed to be implemented over a period of 24 months commencing on December 12, 2006 and ending on 31 December 2008. Later, considered a general delayed completion in all the GMS countries, project Phase I was extended to 31 December 2009, allowing liquidations to be cleared before end of June 2012.

Though the LoA was signed by the country in December 2006, it took a couple of months for SEPA, YEPD and two LPMOs to discuss the implementing structure, financial channels, separation of responsibilities, etc. Only until March 2007 did LoA between SEPA and YEPD, and LoA between YEPD and DQ-PMO/XSBN-PMO were officially signed. Therefore there was already a delay of four months for the project activity implementation from the start.

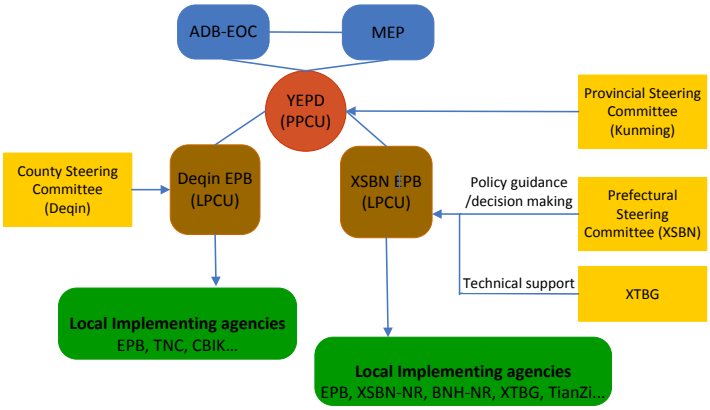
During the implementation, there were further delays caused by different reasons, for instance, postponed field survey due to non-availability of the farmers at harvest season, rescheduled seedling because of stormy weather, etc. Another important reason for delayed completion is connected to the project fund availability. In Phase I, the financial liquidation process in Yunnan, particularly for XSBN pilot project implementation was very complicated. It normally took quite some time for the task teams to receive the fund they have spent on the project reimbursed, as the whole liquidation process had to go through three or four tiers of organizations before the claims reached EOC, then again the reimbursed fund need to be channeled through the same organizations' accounts until it reached the task team. If additional supporting documents are requested, then the process would be prolonged. So some time the teams had to make a break, until fund for further implementation was available.

Despite the delays, the project activities in Yunnan could be finished by 31 December 2009, except for financial liquidations. The PPCU have liquidated all the expenditures by February 2012, and several rounds of provision of additionally requested supporting documents and clarifications have been made afterwards, before this report is submitted. It is expected that all the liquidations would be accepted by the time of closing the Phase I account at ADB and EOC.

G. Implementation arrangements and collaboration with National Focal Points in GMS countries

The implementing structure for Phase I is indicated by the below diagram.

As specified in the LoA, the Yunnan project is coordinated and supervised by the PPCU at YEPD under the supervision, monitoring and national level coordination of MEP, as well support and regional coordination of EOC. YEPD is accountable to MEP and ADB-EOC both for financial and technical matters of the project.



Organizational chart for BCI pilot project implementation in Yunnan

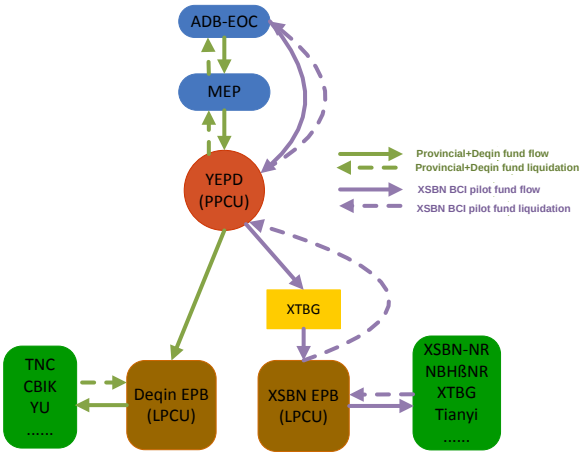
Country level and regional level coordination were delivered by MEP and EOC separately. These two institutions were responsible for reviewing technical progress/completion reports, providing advisory support to those reports, and undertaking quality control. Yunnan presence to BCI exchange and dissemination events within China or in GMS and beyond were facilitated by MEP and/or EOC.

In Yunnan, PPCU based in YEPD and Local Project Coordination Units (LPCUs) at Deqin EPB and Xishuangbanna EPB were established for managing the Phase I activities at different level, i.e., Deqion LPCU responsible for activities implemented in Deqin and Xishuangbanna LPCU for Xishuangbanna BCI pilot implementation. Often PCUs were also called as Project Management Offices (PMOs). The PPCU at YEPD played an overall coordination and supervision role of the BCI activities implementation in Yunnan. Whenever necessary, it would provide technical, administrative and financial support and guidance to the local PMOs.

Identically, SC composed of leaderships of related key governmental agencies at provincial and local levels were set up, for the purpose to update project progress, coordinate and mobilize support of line agencies and to make important decisions during the BCI implementation. SC meetings were

convened normally on half-year basis at local level, or when special issues need to be discussed. In this case, the corresponding PCUs would act as the secretariat of the SCs.

The field activities at both Deqin and Xishuangbanna sites were implemented under support of NGOs, local governmental and/or research institutions. For Xishuangbanna BCI pilot, the local PMO sit in Xishuangbanna EPB was composed of EPB staff and XTBG staff, and Xishuangbanna EPB played a coordination and overall management role while XTBG's main responsible was to provide technical support to the project.



Financial management flows for BCI pilot project implementation in Yunnan

Excellent partnership with local organizations was fostered in Phase I. In Xishuangbanna, as field partners, XTBG, XSBN-NR, NBH-NR, Tainzi implemented some of the field survey or researches. Similarly, Deqin activities also gained assistance from TNC, CBIK, Yunnan University, etc. Through SCs, cooperation of governmental line agencies were ensured and these agencies played an important role in providing data/information, advice about project design/planning and implementation. Well-established partnership with these organizations that were active in the project areas and had rich experience on the topics under discussion had enabled those available resources in the area could be mostly utilized.

H. Project staff recruitment and procurement

The consultants were selected in line with ADB/EOC recruitment policy. Three quotations with CVs were provided. Candidates' professional skills and knowledge and English language proficiency are the key factors considered, and previous experience with biodiversity conservation in Xishuangbanna and the BCI project were additional value to the candidates. In order to keep the project team relatively stable, candidates' time availability for intermittent inputs within at least one year is also an important precondition for selecting the consultant.

In Principle, consultants used by local PMOs were selected by contracted by the local PMOs. However, most of the consultants were recruited as part of the task force for a specific assignment through a work contract package. Therefore, in this case, consultants used have not gone through quotation process, but were nominated by the contracted field implementing institution.

I. Performance of project staff, consultants, suppliers

In general, the numbers of consultants, professional coverage, as well as input time intensity were appropriate for the supplemental implementation. They mainly supported the project manager and project office in drafting reports, preparing workshops, reviewing work plans and reports of the implementing agencies and local PMOs, monitoring progress, liquidating project costs, and so on.

The project team deployed at the PPCU composed of governmental officials for international cooperation and specialists with ecological conservation, monitoring and evaluation, project management and financial management background, which was able to manage the project in a whole and deliver necessary technical support to the implementing agencies and local PMOs. The team has not only involved in BCI specific activities, but also other components of the GMS Core Environmental Program (CEP). For instance, Ms. Yu Yanhong was the Chinese national environmental consultant for SEA of North-south Economic Corridor and Mr. Zhu Xiang was the team leader of the Environmental Performance Assessment exercise in Yunnan. As a benefit, these consultants were familiar with the CEP program and had a better understanding of the BCI design

and its linkages with other CEP components.

In Xishuangbanna, both senior officers and scientists had a strong representation at LPMO. One director was the director general of Xishuangbanna EPB and the other director was the deputy director and senior scientist of XTBG, the project manager was professor and one of the division chiefs of XTBG. So the project decisions could be made in shortest time and necessary administrative and technical resources could be mobilized in a fast way.

Both individual and institutional capacity of the local teams is still limited, particularly weak in reporting and summarizing project experience, and accounting up to international project management standard. Otherwise, the general performance of local partner agencies (including the consultants under which) as the main technical suppliers to the project was acceptable and have met the original expectation. Through them, good relationships with local communities have been established and BCI project have been welcomed and supported by the communities and the general public. Research reports, field survey results and proposals delivered by the local implementing partners have been accepted by PCUs and relevant governmental agencies. Some of them even have been taken up by the prefectural government or YEPD.

III. PROJECT PERFORMANCE ASSESSMENT

A. Relevance

The project activities carried out continued two major focuses: livelihoods improvement and biodiversity landscape improvement, which was set out as the overall objectives of the project.

Phase I experiences in alternative livelihoods development aided by participatory village development planning and village development fund operation has been further tested in Deqin and the extended area of Nabanhe-Manggao corridor, coupled with community capacity building such as technical trainings.

A third corridor, Mengla-Mengyang corridor was designed by deploying the same methodology applied in the Phase I. The design scheme is to be submitted to the prefectural government for approval. By far, design of three corridors out of five potential corridors in Xishuangbanna has been completed. Ecological restoration planning for Mengla-Mengyang corridor and extended area of Nabanhe-Manggao corridor were also made. Although official approval of Mengla-Mengyang corridor has not been secured and restoration has not been implemented, the project has facilitated the process of moving towards a prefecture with improved biodiversity conservation landscape. Climate change study attempted making a rough analysis of the vulnerability of biodiversity and community within the corridors to the climate change. The analysis results were suppose to provide some useful evidence for the decision makers in making biodiversity conservation related decisions. This again, will contribute to setting up a sound management regime for restoring ecological connectivity and integrity in Xishuangbanna.

B. Effectiveness in achievement of purpose

All the KPIs of supplemental activities were achieved in Yunnan within the project period, despite some activities delayed in terms of finishing date or submitting the report. The deliverables have met the expectation after improvement was made based on consultation feedbacks and PPCU's review comments.

The general implementation also has received applause from the YEPD senor officials and prefectural government of Xishuangbanna. BCI project has been disseminated as a good example for biodiversity conservation in the province. A province-wide biodiversity conservation training workshop with more than 270 participants from different EPBs of the province was organized in Jinghong by YEPD, and the Provincial Biodiversity Conservation Meeting of Yunnan Province was held by the provincial government in Jinghong on 24th April, 2012, which proved the high-level recognition for the BCI project and biodiversity conservation achievements of Xishuangbanna prefecture.

C. Efficiency in achievement of outputs and purpose

Tough the efficiency of project is hard to evaluate, especially when it comes answer the questions "what is the right funding level for a specific project activity?" and "whether the project design has been made in a way that least money has been spent to generate the maximum benefits?" we can simply look at this issue from another angle: "if there is any waste of project money?" If this simplification is acceptable, then we would say that in general, the efficiency of fund use in Yunnan is satisfactory.

Despite small fund size for each pilot village, the project VDF fund has played a very positive role in assisting local communities to generate more income sources. From the very beginning till the reporting time, VDF in all pilot villages have been managed smoothly by the local communities. Thanks to the clear and well defined VDF management guidelines at the start of project, the communities have not only learnt how to manage and use the fund in a fair and transparent way, but also saw new opportunities to increase family income or finance basic education or health care. So far, reinforced by incentives and supervision mechanisms imbedded in the VDF guidelines, the pay-back rates of VDF are all higher than 90% in the pilot villages.

Out of project budget for land use planning in Xishuangbanna, two corridors have been demarcated and approved by the prefectural government. Boundaries were marked by disseminations boards and posts. Establishment of management and legislative structure would be the next step to go. In addition, Bulong nature reserve was established by the government under the project push. As for ecological rehabilitation, both natural restoration sites and human-assisted sites have seen visible improvement. Same results were signaled by capacity building activities carried out at community and government levels by the project were very helpful, and shall be strengthened in Phase II.

In fact, to achieve the above mentioned results, YEPD, Deqin and Xishuangbanna EPBs have mobilized additional financial sources to support the project implementation. In Phase I more than one million yuan ($150,000) local funds were spent on the project.

D. Preliminary assessment of sustainability

Sustainability of the Phase I activities: 1) The VDF in the pilot villages is running well and will continue to be managed by the villages themselves under the supervision of responsible nature reserves even without continued project support. As long as the project doesn't retrieve the seed money back, VDF will continue to operate. With support of VDF and community capacity building activities through which the villagers learnt knowledge and skills for farming, animal husbandry and other cash income generation activities, villagers would be able to continuously improve their income generation and reduce dependence on forest. 2) Corridor management approach, including land use planning and ecological restoration, has been untaken by the prefecture government and establishment of corridor management mechanism has been discussed and to be further explored in Phase II. 3) Ecological zoning, poverty reduction planning and solid waste management planning in Deqin have laid out a good framework for the ecological improvement of the Mekong upper steam region. Based on these plans, investment and further actions have been taken by the local government. For example, conservation and development of Meili Snow Mountain has now been managed under the concept of national park according to the master plan of Meili National Park developed by TNC with BCI project contribution. 4) Capacity at provincial, prefectural/country and community level will have a carry-on effect to the organization and individual involved in the project, continuously supporting biodiversity and ecological conservation of the province.

Sustainability of the project in general: as stated earlier, the BCI project has been seen as a model for biodiversity conservation. The project experience has been learnt by other prefectures of the province and will be further built on. In Xishuangbanna, the provincial government has developed an "Eco-prefecture" development strategy which prioritized ecological conservation as one of the top development priorities and the foundation for vigorously developing its mainstay industries (tourism, cash crop plantation, etc.). Governmental strong support to biodiversity will keep on with or without the BCI project. However, there is no doubt that with BCI project as an enzyme, the process had moved faster.

E. Environmental, socio-cultural, and other impacts

Poverty reduction support implemented in the 18 pilot villages did have a positive impact on the environment. Diversified means of income generation and lessened dependence on the nearby forest would have contributed to the corridor ecological environment improvement, although the impact is not so visible and cannot be quantified at this time. Besides the environmental impacts, those activities also had social, cultural and economic implications to the local communities. As most of the villagers living in the BCI corridors are ethnic people and still living in poverty. By bringing in new farming technologies and skills, the project created chance for the local ethnic people to reduce the gap between them and other bettered developed communities.

Restoration or demarcation of corridor had a direct positive impact on the nature environment through increased ecological connectivity of the corridor biodiversity landscape, and as a result, animal migration and general vegetation coverage will be largely improved. At the same time, the livelihoods of communities living within the corridors might be potentially affected. They may need to change some productive and living traditions, and switch to more biodiversity-friendly activities, such as intercropping instead of mono-cropping.

But the environmental/ecological impact brought by the project would not just stay within the corridor area. Enlarged conservation landscape and improved ecological status of Xishuangbanna implys better water quality and availability, better air and better resilience to natural disasters. It would further accelerate its economic development through tourism, ecological cash crop farming, and other sector businesses based on local ecological resources. The general living environment and social profile of the prefecture would be therefore upgraded.

As a pilot in Yunnan, the project has radiation effects over other provinces or at the national level as well. Considering its geographical location of the project, the upper stream of Mekong, the BCI pilot project surely will have implications on the GMS biodiversity conservation landscape and social-economic development too.

IV. OVERALL ASSESSMENT AND RECOMMENDATIONS

A. Overall Assessment

The performance of supplemental activities have contributed to the overall objectives of the project as stated in the BCI Strategic Framework and the deliverables and KPIs specified in the LoA have been achieved within the project time span.

The most important achievement the project had made is to make the biodiversity conservation a mainstreaming, which is indicated in the following aspects:

1) Introduced in biodiversity conservation concept - corridor approach
The pilot project brings in the internationally advanced biodiversity conservation concept and successful experiences, and, through its implementation, corridor establishment process has been explored. The project experiences benefit not only Xishuangbana, Yunnan Province, or China, but also the GMS.

2) Enhanced the biodiversity conservation awareness and capacity of related government departments and the public

The project has highlighted the role of biodiversity conservation in the social & economic development. The awareness of biodiversity conservation of related government departments, scientific & research institutes, and the public, etc, has been strengthened and their interest for biodiversity conservation has been aroused. Some related government departments have incorporated biodiversity conservation corridor into their working schedule and planning process. For example, the biodiversity conservation corridor has been considered in the ecological development planning, public ecological forest planning, medium and small hydropower planning in Xishuangbanna Prefecture.

The project has improved the capacity of related government departments to jointly perform ecological conservation. As requested by pilot project, the local government has closed the illegal quarry located in Xialongyinhuiqilajing, Mengla Town. It was the first time that ecological conservation was jointly enforced by several related departments (including the county EPB, Land and Resources Bureau, Forestry Bureau, Safety Supervision Bureau and the County Office of Legislative Affairs).

The project has enhanced the awareness of villagers for biodiversity conservation. The attitude of community within the corridor area towards the project has been changed from the original objection to support. And villagers' awareness of biodiversity conservation has been enhanced through a series of publicity and promotion activities held in the community by the project teams.

The project has strengthened the ability of villagers in maintaining the sustainable livelihoods. The VDF has improved and supported the alternative livelihood development of the villagers, and greatly motivated the villagers to participate in the corridor development. In addition, villagers have benefited from agricultural practical trainings organized by the project, contributing to the sustainable development of these communities.

3) Promoted biodiversity conservation and implementation of Eco-prefecture/province strategy in Xishuangbanna and Yunnan

Benchmarking survey, corridor design, and restoration and VDF piloting carried out by the project have accumulated technical experience for corridor development in the future for Xishuangbanna and Yunnan Province. The project also explored community co-management modality within the corridors, which enables the local villagers participating in the corridor management and decision-making processes and thus benefit both nature reserve management and the connecting corridors. Experience of this modality could be further applied and improved in Xishuangbanna and introduced to other prefectures in the province. Meanwhile, improved institutional and individual capacity in biodiversity conservation also had a positive effect on implementing the eco-prefecture strategy of Xishuangbanna and eco-province vision of Yunnan Province.

4) Promoted by the pilot project, the following important biodiversity conservation events had been able to take place in Xishuangbanna:

- Bulong Nature Reserve. The establishment of BL-NR allows the areas with rich biodiversity in Xishuangbanna to be effectively conserved. It also improves the connectivity between the conserved landscapes around, and further improves the nature reserve network construction of XSBN-NR.

- Educational Base for Xishuangbanna Biodiversity Conservation. On October 16, 2010, the Educational Base for Xishuangbanna Biodiversity Conservation was established in the Nature Museum of Xishuangbanna, and is opened to the public for free. It provides not only an important platform for the mass cadres and people to receive the education for biodiversity conservation, but also a vital carrier for the extensive and deep publicity of biodiversity conservation.

- Xishuangbanna Tropical Rain Forest Conservation Foundation. On October 18, 2010, Xishuangbanna Tropical Rain Forest Conservation Foundation was officially set up. All the raised fund and donations would be used for the non-profit activities related to tropical rainforest conservation.

- Public Liability Insurance for Wild Asian Elephants in Xishuangbanna. On November 11, 2009, the first public liability insurance for wild Asian elephants in the world was signed in Xishuangbanna Prefecture. This is the first commercial insurance system established in China for reducing risks caused by Asian elephants, and also an exploration of introducing commercial insurance to replace government to compensate the damage caused by wild life. This insurance officially took into force from January 1, 2010 onwards.

5) Enhanced environmental cooperation and communication between China and GMS countries

Exchange events such as regional workshops, study tours and site visits organized by the project in the region have facilitated information sharing and experience learning process among the GMS

countries, particularly on biodiversity conservation issues. Promoted by such exchanges, cooperation between GMS countries on biodiversity conservation has gone beyond the BCI project itself.

China and Laos officially signed an agreement to jointly establish the “Shangyong-Nam Ha Joint Conservation Area” on December 9, 2009, which makes the Asian Elephants that travel frequently between the Shangyong sub-nature reserve of XSBN-NR and the Nam Ha nature reserve of Luang Namtha, Laos be protected under a more coordinated mechanism. It turned cross-border cooperated conservation to a new stage.

On October 27, 2011, the second joint conservation area about 55,000 hm2 on the border of Xishuangbanna, China and Phongasly, Lao PDR was announced by XSBN-NR and the Agriculture and Forestry Bureau of Phongasly Province.

B. Lessons Learned

Lessons learned during the BCI project implementation in Yunnan can be summarized as following:

Signing ceremony of building cooperated conservation area on border of China and Lao PDR

- Strong commitment of different governments is essential to the sustainability of the project, and a good organization mechanism that allows research institutions and multiple governmental agencies to participate and provide advices is a precondition for smooth management and implementation of the project.
- Maximized used of synergies between BCI activities and local projects and integration of financial and human resources of different parties active in the same field has maximized the benefits and impacts of the project. At the same time, stakeholder cooperation also strengthened the capacity of different partners and promoted the inter-departmental cooperation on conservation.
- Diversified awareness raising and dissemination approaches designed for various target groups are necessary for improving the general interest in and concern on biodiversity of the public, governmental agencies and communities in the BCI corridors.
- Strong technical supports from partner research and field-based institutions provided solid scientific bases for corridor planning and demarcation, establishment of Bulong Nature Reserve, and evaluation of ecological importance of key areas and restoration of those key areas, and so on.
- Seminars and study tours organized have accelerated the exchange and information sharing between provinces (i.e. Guangxi and Yunnan) and GMS countries to a great extent, and Seminars and study tours broadened environmental cooperation among GMS countries to BCI beyond.

C. Recommendations

- To reduce the complication of fund liquidation, the tier of sub-contracting should be reduced to a minimal level. Also considered limited accounting capacity of local PMOs in dealing claims and reimbursements, some time even in English language, the fund management structure for Phase II implementation in Yunnan shall be carefully considered.
- When design the Phase II country activities and budget, learnt from Phase I experience, fluctuation of exchange between US currency and local currency might need to be taken into

account, to avoid insufficient fund for full implementation of the planned project activities.

- While considering the common priorities of GMS countries, Phase II country activities should also closely linked to local conservation priority, so that the project could receive governmental support and have a bigger influence to the local conservation agenda.