

## Impact Assessment of BCI Phase 1 in Eastern Plains (Mondulkiri) and Cardamom Mountains, Cambodia

### A. Introduction

1. The Biodiversity Conservation Corridors Initiative (BCI) executed by the Asian Bank (ADB) as a regional technical assistance (RETA) 6289 between 2006–2009 had the following components: (i) poverty alleviation through sustainable use of natural resources and development of livelihood options; (ii) clear definition of optimal land uses and harmonized land management regimes; (iii) restoration and maintenance of ecosystem connectivity; (iv) capacity building in government staff and local communities; and (v) sustainable financing mechanism and structures integrated with government planning and budgeting procedures.

2. In Cambodia, BCI Phase 1 activities were spread out over 13 villages in 7 communes of Mondulkiri province, also known as the Eastern Plains landscape, while 20 villages in 8 communes of Koh Kong province with another 10 villages in Kompong Speu and Pursat Provinces were in the Cardamom Mountains landscape. The substantive interventions and achievements under Phase 1 were the following (see table 1):

**Table 1. BCI Phase 1 Achievements in Eastern Plains and Cardamom Mountains, Cambodia**

Indicators	Eastern Plains (Mondulkiri)	Cardamom Mountains
Total number of village/commune level committees <sup>1</sup> established.	12	23
Total number of Conservation Agreements (e.g. CBNRM)	8	5+
Total amount disbursed to village /commune (US\$)	42,249	62,750
Total number of saving groups with savings & loans scheme	4	1
Total number of small infrastructures (e.g. wells, community hall)	9	13
Total number of direct participants/beneficiaries (households)	6,575	6,406
Biodiversity corridor planning / design (ha)	108,599	936,522
Participatory Land Use Planning (no. of villages/communities)	7	5
No. of CPAs and CPFs approved	5	21
Conservation Stewardship Project (CSP) (ha)		31,009
Total Area under protection/ sustainable management regime (ha)	997,345	1,000,000
Total area reforested/enriched (ha)		1,320
Number of capacity building events	29	153
Number of participants in capacity building events	648	2552

Note: CPA = Community Protected Areas, CPF = Community Protected Forest, CBNRM = Community Based Natural Resource Management. Several activities under BCI Phase I in Cambodia were co-financed.

3. Under the R-PPTA 7459, field surveys were conducted between July - Aug 2010 covering: i) 381 household questionnaire surveys in Mondulkiri province including 6 BCI villages and 2 non-BCI villages (for comparison purpose); ii) 6 focus group discussions with BCI beneficiaries of 6 villages in 4 communes of Mondulkiri; iii) 9 structured interviews with key provincial institutional stakeholders / implementors (Department of Environment, Forest Administration, Department of Tourism, Cambodia Rural Development Team, Pech Chreada District Governer), and village committees (4 villages) in Mondulkiri province.

### B. Analysis of main project interventions under BCI phase 1 in Cambodia

<sup>1</sup> E.g. Natural Resource Management Committee (NRMC), Community Based Eco-Tourism (CBET), Commune Natural Resources Management Committee (CNRMC), Indigenous Community Group, Forest Management Committee, etc.

4. **NRM Committee establishment:** In Mondulkiri, there are in total 12 BCI project-supported or co-financed NRM sub-committees in seven communes, which are active and functioning in resource allocation decisions at the commune level. These are recognized by the local authorities. All committees have their by-laws and regulations formulated and ratified by the members, and are thereby accountable to their village constituency (except some are still going through this process). In addition, CPA committees in Srae Khtum and in Kheang were formally recognized by the Ministry of Environment on 12 March 2009. Conservation agreements between the two CPAs and MoE covering almost 4,734 ha were signed on the same date. Three additional requests from CF/CPF covering almost 14,865 ha – are being processed for approval by the Forestry Cantonment.

5. **Wild honey collection:** After an encouraging result from the test market phase of around 400 liters, the Mondulkiri Wild Honey brand of the Bunong Honey group was officially launched and endorsed by the provincial Governor in April 2009. Based on the test market phase, the production and quality management have been improved. A new label was designed specifically for local markets in Cambodia. The Honey Group now benefits directly 46 families (260 people). The honey groups in these communes earned a gross income of \$5,000 in 2008 and \$14,000 in 2009 until end of BCI Phase 1. A honey festival event was organized in Sen Monorom, with co-funding from other development partners, to launch the honey product line; there were also supporting launch events in Phnom Penh and Siem Reap in the first half of 2009.

6. **Agricultural products support:** Agricultural support was provided for rice farming, home gardening/vegetable production, poultry, frog and fish rearing for local markets, and a savings & loans scheme was implemented with support from a local NGO partner, Cambodia Rural Development Team (CRDT). In O Rona village and Andoung Kraloeng village, more than 120 and 100 families stand to benefit directly (600+ and 500+ persons respectively). In the Cardamom Mountains, paddy restoration, System of Rice Intensification (SRI), Ecological Chicken Raising and Soil Fertility Management (compost) have been supported in local communities.

7. **Other alternative livelihood activities support:** Around Mondulkiri Protection Forest, two forest-harvested resin marketing groups have been established that now directly benefit 41 families, while home gardening (incl. mushroom cultivation) is directly benefiting 10 families, 54 people. A new activity, introducing simple but improved rice production technology, benefits 22 households, 112 farmers. The two associations have the full support of the provincial – and national - Department of Agriculture and Department of Commerce.

8. **Eco-tourism:** In the Southern Cardamoms, Community Based Eco-Tourism (CBET) has been established in Chi Phat and Trapeang Rung Communes to provide alternative income generating opportunities. In Pu Chrey commune, Mondulkiri, an eco-tourism feasibility study was completed and a draft business model was developed in 2007, leading to the establishment of a community committee. The construction of the home-stay has been completed and officially inaugurated in October 2009. The community members have been trained in tour guiding and hospitality management. In Sre Lvi and O Rona villages, an ecotourism project caters to niche tourism (bird watching) through another local NGO, the Sam Veasna Centre for Nature Conservation. The approach builds on an internationally recognized and award winning model developed by WCS and partners in the Northern Plains of Cambodia. Following the successful trial early 2009, five groups totaling 23 international visitors came and each spent 2-3 days at the site, and expressed satisfaction at observing many rare bird and mammal species, including Orange-necked Partridge, which occurs at only one other accessible site in the world (in Viet Nam). \$270 was paid in direct fees to newly trained village guides and \$660 was collected in levies for the community conservation fund (to be spent on development projects chosen by the village committees).

9. **Small-scale infrastructure support:** Most infrastructure investments were linked to the livelihood projects, to maximize impact. In the Seima Biodiversity Conservation Area, the BCI project supported construction of a meeting hall in Andoung Kraloeng, which is used by the Indigenous Community Commission and other community organisations. Furthermore the project constructed ground water wells in O Rona, serving the vegetable producers supported through the agricultural project. Basic tourism facilities were developed around the villages of Sre Lvi and O Rona as part of the tourism project, including jungle trails and bird watching sites (special bird species). Another 4 infrastructure projects have been completed: i) Dei Eiy – Home Stay; ii) Pu Chrey – Community Information Center; iii) Krangties – Community Information Center; and iv) Krangties – Spring Cover (clean water 132 benefiting families).

10. The Proposed **Eastern Plains Biodiversity Corridor Strategy** was completed in August 2009. The Strategy is based on the conceptual framework in ADB's 2005 "Strategic Framework and Technical Assessment 2005-2014". Legal analysis has led to a matrix of land use designations under FA, MoE and general national law, each compared to the four zoning elements suggested by ADB's 2005 framework. The proposed strategy includes a corridor map and implementation framework. Consultations on the proposed Biodiversity Corridor zoning in Mondulkiri have yet to be held formally with the technical line agencies (MoE and FA) and provincial stakeholders, so that it can receive formal endorsement.

11. In Koh Kong, as a critical part of harmonizing land management within the Cardamom Biodiversity Corridor, Wildlife Alliance began to provide technical assistance to the Provincial Governor's office in developing the **Cardamom Biodiversity Corridor Zoning and Regulations**. The draft zoning and regulations were signed and released by the Governor's Office in May 2009. Furthermore, MAFF/FA has approved the **Management Plan of Central Cardamom Protected Forest for Watershed Protection and Biodiversity Conservation 2010-2014**, which is connected to the Southern Cardamoms Protected Forest by means of the biodiversity corridor.

12. **Enhancing stewardship and resource use rights:** NRM Committees organized in each village/commune are also serving as advocacy groups for the villagers in support of their stewardship and resource use rights. The core activity of these groups is to negotiate land-use zones, improve land tenure, and access to other natural resources, and then to enforce the zones and access regulations (e.g. by organizing protection against external threats). However, while they were successful in addressing issues committed by local community members, the NRM committees have yet to gain success in dealing with the large rubber companies that have strayed partly into the Mondulkiri Protected Forests with their land clearing. 28 CPAs covering a total of 18,964 ha have been delineated in the 2 Wildlife Sanctuaries (Phnom Samkos and Phnom Aural) in the Cardamom Mountains. 15 CPAs in the Cardamom Mountains have been officially endorsed by the Provincial Governor and Senior Minister of Environment.

13. In Mondulkiri, a Provincial **Biodiversity Review** was completed and 150 copies distributed in Khmer language to all 11 provincial government departments, the provincial Governor and all the 5 Deputy Governors' offices, the 5 District Governors' offices (multiple copies), and all 4 units of ExCom/PRDC, PSDD/UNDP, NGOS). The Review identifies high biodiversity value areas in the BCI Pilot Site, based on past and recent scientific field research. The maps clearly identify development-sensitive and fragile areas mostly inside protected areas, but also outside protected areas, linking the areas to environmental services and livelihood source areas. With copies on the desk of all key decision makers and society leaders, it is expected that economic developments stand a better chance of now being harmonized with biodiversity conservation and sound natural resource management.

14. **Restoration and Nursery:** a pilot reforestation tree nursery on the outskirts of Chi Phat commune was established with local community members collecting seeds of 55 native species within the region creating a stock-pile of approximately 677,295 seeds. Currently, 65,000 seedlings of 18 different native species have been germinated at the nursery and already

37,500 trees have already been planted at reforestation area zone D2 (northeast of Chi Phat village) and 7,340 seedlings have been planted along road 48. In total, Wildlife alliance and the community of Chi Phat plan to plant 2,000,000 trees over a 5 year period.

15. **Patrolling and Biodiversity Conservation:** In Mondulkiri, most committees undertake patrols and monitoring of NR threats, and are meeting formally on a monthly basis and providing monthly reports on their activities. A 'mobile patrol team' has been set up between FA, MoE and with WWF-funded community rangers to respond rapidly to incidents in the corridors between MPF and PPWS. In 2008, patrols in MPF/PPWS doubled to 930, with 1503 patrol days. In the Cardamoms, results of both MIST and MOMS data show a persistent decrease in illegal activities in the landscape. And there is increasing evidence of wildlife sightings in the three core areas. The table 2 below shows some good results achieved through patrolling in Southwestern Cardamoms Elephant Corridor.

**Table 2.Total Southwestern Cardamoms Elephant Corridor Results**

<b>Indicators</b>	<b>April- September 2008</b>
Number of patrols	1096
Land Encroachment documented	149
Court cases submitted	37
Fines payment cases	28
Removed illegal camps/houses	71
Offenders taken to court	42
Timber seized/destroyed in m3	90.94
Logs/round wood seized/found/destroyed	2712
Chainsaws confiscated	31
Charcoal kilns	65
Charcoal bags	58
Illegal fence/signs (wooden and cement removed)	17,639
Snares removed	1892

Source: BCI Phase1 Progress Report, 2009

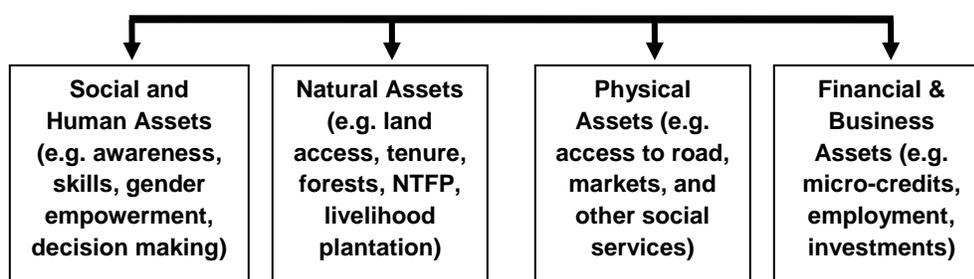
16. **Capacity building / skills transfer:** provincial and district level government officials, commune councilors and commune NRM committee members received training in financial management, participative resource- and land-use mapping and 3D-mapping (incl. use of GPS, maps, etc), resource-use decision and planning, community rights, land rights, conservation-related regulations, etc. Therefore the committees are knowledgeable and informed of their purpose and rights. Awareness raising, environmental education and information extension were an ongoing and fundamental element of the BCI project in the corridor area.

17. **Sustainable financing / benefit sharing:** i) In Mondulkiri, a review of options for sustainable financing mechanisms was drafted during 2008 and widely consulted upon before being completed in 2009. The paper reviewed eleven potential sources of funding, for example: community eco-tourism and NTFP marketing projects. In parallel with the scoping paper, a sustainable financing strategy was developed and discussed amongst project partners; ii) In the Cardamoms, Conservation International has finalized and approved the joint 5-year management plan with the FA for the Central Cardamom Protected Forest for 2009-2014 to elicit further funding from AFD; and iii) A CBET framework to contribute to the *Cardamom Trust Fund*. Businesses that have received investment assistance from the project retain 80% of their revenues and contribute 20% into the CBET Community Fund. This Community Fund is in the first phase of development, which is building its capital. As the number of tourists increase, the Fund will graduate into its second phase and will start contributing 5% to the *Cardamom Conservation Fund*.

### C. Impacts of BCI Phase 1 (as perceived by beneficiaries and stakeholders)

18. It is too early to carry out an “impact” assessment as substantive results after three years of implementation cannot be evident in terms of projected benefit streams. However, the assessment has examined four “asset” categories (see figure 1): (i) **social and human assets** – awareness raised, ownership of process and conservation objectives, capacity built, skills transferred, gender balance and empowerment promoted, level of social participation in conservation activities and other BCI related interventions; (ii) **natural assets** – improved access to land, tenure security, natural forest restoration and protection, livelihood plantation and non-timber forest products, agriculture etc.; (iii) **physical assets** – housing condition and facilities, access to improved rural infrastructure facilities such as water wells and sanitation, health care facilities, community halls, improved all weather access to production, markets and services etc.; (iv) **financial and business assets** – access to financial credit and resources at local level, affordability, access to market information, financial empowerment, micro-investments, generation of employment and business prospects in informal sector etc.

Figure 1. Asset Categories of BCI Impact Assessment



19. **Social and human assets:** BCI beneficiaries found capacity building activities useful and their skills and awareness have been improved (see table 3). 84% state that awareness of forest protection significantly improved (including responses for “Medium” and “A lot”), while 68% have improved skills in forest protection and management, i.e. patrolling, snare removal etc. Nearly 40% state skills for income generation activities have improved, 43% on awareness for securing land tenure, and only 19% for awareness/skills on business development and financial management skills. The participation of beneficiaries have been significant in the project activities, particularly, women’s participation and decision making have been enhanced. During the focus group discussions, BCI beneficiaries requested enhanced technical assistance on livelihood activities, such as livestock, disease prevention techniques, fish pond maintenance, harvesting skills and market information and linkages.

Table 3. BCI Impacts on Social/Human Assets (% of beneficiaries)

No	BCI Impacts on Social/Human Assets (skills and awareness)	No	A little	Medium	A lot	NA & DKR
1	income generation activities	5.63	51.52	34.20	3.90	4.76
2	Awareness for forest protection	1.30	9.52	25.97	58.01	5.19
3	Forest protection and management	0.43	25.11	43.72	24.24	6.49
4	Secure land tenure/ land title	16.45	26.84	23.38	19.48	13.85
5	Business development & financial skills	16.02	49.78	16.02	3.03	15.15
6	Participation in decision-making	0.87	35.06	49.78	8.23	6.06
7	Women's participation	0.87	14.29	60.61	18.61	5.63
8	Women's in decision making	0.43	11.69	71.00	12.12	4.76

NOTES: No= No improvement; A little=25% improvement; Medium= 50% improvement; A lot= over 90% improvement; NA= Not applicable; DK= Don't Know

Source: R-PPTA Household Survey Results, July 2010

20. **Natural assets:** Majority of respondents (90%) own land for cultivation on average of 1.4ha of per household, however, only 5% of them have individual land certificates, while 35% of respondents state that their village/community owns collective land title/certificate. Respondents also have very high awareness (over 85%) to secure land tenure but less willingness (36%) to pay fees and tax for land certificate. Nearly 60% of respondents state that BCI has helped in securing land access and tenure, especially on community collective forest land to protect community natural forest and wildlife. Around 60% of BCI beneficiaries have participated in forest restoration and conservation activities and some received direct cash benefits. Non-timber forest products (NTFP) have been widely collected (55% of respondents) in the corridor area and play an essential role in local livelihoods, BCI phase 1 supported processing and marketing of various NTFP products, such as honey, rattan, resin (details see table 4 below).

**Table 4. BCI Support on NTFP Processing and Marketing**

NTFP Products	Maximum (kg/yr/hh)	Mean (kg/yr/hh)	Std. Deviation (kg/yr/hh)	Price (KHR/kg)	Price (US\$/kg)
Mushroom	30	2.85	6.26	-	-
Rattan	200	6.23	22.04	2,300.00	0.58
Medicinal plants	50	0.87	4.91	5,500.00	1.38
Honey	650	8.05	50.09	30,000.00	7.50
Resin (liquid)	1,200	33.95	124.21	3,450.00	0.86
Resin (solid)	1,000	7.34	68.43	4,000.00	1.00

Source: R-PPTA Household Survey Results, July 2010

21. **Physical assets:** in total, 22 small scale infrastructure were undertaken at request of communities, including i) Water wells; ii) Community meeting hall; iii) Eco-tourism facilities (i.e. home stay); and iv) Community Information Center. Over 70% of respondents indicate their commune/village has received infrastructure support through BCI project and other rural development projects in recent years. Comparing between BCI beneficiaries and non-BCI households on physical assets and benefits of infrastructure support, BCI households seem to be better off in housing, access to road, market and services, and improvement in education and health care condition and facilities (see table 5). BCI beneficiaries also requested further support to build up physical assets, especially on clean water/wells, sanitation/toilet, access to road, market and services etc.

**Table 5. Comparison of Physical Assets between BCI and Non-BCI Households**

No.	Indicators of Physical Assets	BCI	Non-BCI
1	Sufficient housing to accommodate all the family members (%)	74.43	46.58
2	Size of the house (m <sup>2</sup> )	30.34	22.55
3	Access to clean water (%)	85.45	86.34
4	Access to sanitation (%)	4.55	0
5	Access to road, market, and other services (%)	66.36	44.72
6	Benefiting from infrastructure support (%)	93.64	55.90
7	Transportation Improvement (%)	92.73	55.90
8	Time saving in travelling to get access to services/ market (%)	93.18	51.55
9	Motivation to undertake cash / income generating activities (%)	88.64	56.52
10	Improved access to clean water (%)	91.82	54.66
11	Education condition and facilities improvement (%)	90.91	49.07

Source: R-PPTA Household Survey Results, July 2010

22. **Financial assets:** In the corridor area, over 90% of the households have insufficient cash income to meet basic needs estimated at an average shortfall of KHR 1.5 million (US\$ 375) annually per household, while only 6.82% of the households have savings and invest in livelihood activities, and 26.36% have access to credit schemes in the BCI villages while only 1.86% for non-BCI villages (see details in Table 6). The result from household survey shows that 16% of the beneficiaries have participated in saving groups activities under BCI, 48% of them stating that they have got or are expecting benefits from this cash support.

**Table 6. Comparison of Financial Assets between BCI and Non-BCI Households**

No.	Indicators of Financial Assets	BCI	Non-BCI
1	Insufficient cash income to meet basic needs (%)	93.64	92.55
2	Short in cash annually (KHR/yr)	1,706,818.18	1,266,024.84
3	Coped by subsidy from the government (KHR/yr)	75,250.00	68,509.32
4	Coped by borrow money from others (KHR/yr)	584,113.64	337,453.42
5	Coped by sell labors (KHR/yr)	441,363.64	227,857.14
6	Coped by others (KHR/yr)	124,534.16	909.09
7	Family has some savings (%)	6.82	0
8	Family has some savings (KHR/yr)	55,454.55	0.00
9	Invest in livelihood activities (%)	45.00	10.56
10	Access to credit schemes (%)	26.36	1.86
11	Have difficulties in repaying (%)	11.82	0.62

Source: R-PPTA Household Survey Results, July 2010

23. In total, 15 Saving Groups have been established in the BCI target villages: 6 groups (65 members) in Peam Krasop Commune in Koh Kong province and 9 groups in Mondulkiri province with approx. 127 members. In Peam Krasop, a total of US\$ 6,000 have been transferred to 6 saving groups as seed capital in 2007, the fund have been actively used for livelihood activities esp. for women's groups, at end of June 2010, the total balance amounts 11,183,850 KHR (US\$ 2,796). In Mondulkiri province (see table 7), initially, an amount of 423,600 KHR (approx. US\$ 106) was disbursed to 9 saving groups as seed capital. By end of 2009, the total amount of saving increased to 7.45 million KHR (approx. US\$ 1,862) which is 16 times higher than the initial capital. All the group members meet monthly, to save money (10,000 KHR/month per member), to decide on loan distribution and follow up the amount of cash saving in group. This has been a very popular and successful activity, it has enabled beneficiaries to save their money, given them a place to borrow the money for improving their livelihood and in emergencies whilst paying a relatively low interest. Average loan size ranges from 30,000 – 60,000 KHR (US\$ 7.5 – US\$ 15) with a 3 months duration, the micro-credits are normally used for: i) sick/illness without interest (0% interest rate); ii) hire labor for harvesting (3% interest rate per month); and iii) buying rice/food.

**Table 7. Status of Saving Groups in Mondulkiri Provinces (end of 2009)**

Village/ Commune name	No. of Groups	No. of members	Total amount saved (KHR)	Total support money (KHR)	Total interest cash (KHR)
Andoung Kralong Village	3	50	2,246,100	68,400	283,500
O Rona Village	3	40	4,054,100	230,900	1,171,600
Gati Village	1	13	258,200	34,100	4,500
Sre Lvi Village	2	24	891,000	90,200	0
Total	9	127	7,449,400	423,600	1,459,600

Source: CRDT annual report, 2009

24. Some survey results from particular activities conducted by implementing partners have also been presented below, which further evidence that the interventions have improved local livelihoods while reducing natural resource dependency. **Conservation Agreements (CA)**;, also known as the Conservation Stewards Program (CSP) in Cambodia has been successful for the last three years when the program started. The results from Chumnoab and Thma Doun Pao communes show positive impacts of Conservation Agreements implementation in Cardamom Mountains (see table 8). Local people have continued to be strong participants in conservation work so that land clearing, wildlife hunting and trading has been stopped or reduced. It is helpful not only for conservation purposes but also livelihood improvement.

**Table 8. Impacts of Conservation Agreements Implementation in Two Selected Communes**

Indicators	Chumnoab		Thma Doun Pao	
	2006	2007	2006	2007
% households that raise pigs	NA	50%	37%	48%
% households that grew rice last year	NA	100%	NA	96%
% households that plants other crops for selling	NA	28%	NA	26%
% households that grew rice on the upland field last year	NA	100%	NA	96%
% households that grew rice on the lowland field last year	24%	44%	3%	7%
% household that received direct benefit from CAs	82%	100%	78%	85%
% household that received benefit as cash income from patrolling	84%	94%	71%	85%
% households that used buffaloes provided by CAs	16%	28%	NA	0%
% household that have school age children attend school full time	NA	56%	NA	37%
% households that say wildlife are decreasing	43%	0%	33%	22%
% households that say forest are decreasing	43%	6%	33%	26%
% households that say it is important to protect forest and wildlife	96%	100%	84%	89%

Source: GMS CEP-BCI Pilot Site Cardamom Mountains, CAMBODIA (24 month progress report)

25. **Vegetable growing:** 4 vegetable home garden groups established in Andoung Kraleoung, O Rona, Sre Lvi and Gati villages in Sre Khtum Commune, Mondulkiri. As a result, all beneficiaries harvested vegetables for eating of the total amount 80Kg in Sre Lvi village. Almost all beneficiaries of the previously-established vegetable groups generated income from vegetable selling. From January to June 2009, 495 kg were sold and 920,000 riel was made in Andoung Kraleoung village, and 1612 kg of vegetables were harvested for home consumption. In O Rona village, 466 kg were harvested for home consumption and 1,950,000 riel was made by selling the vegetable production. On average, beneficiaries are generating around \$15 a year from selling their vegetable products. As all the beneficiaries interviewed now do not spend any money to buy vegetables any more, they are also saving an average of \$3.42 a month (see table 9). Many beneficiaries responded that before the project started, they did not spend any money buying vegetables, which shows that it has increased the vegetable consumption and thereby, the variety and diversity of foods consumed by the beneficiaries, thus improving nutrition and food security.

**Table 9. Vegetable production in Sre Khtum Commune, Mondulkri**

Income/Year from Selling Vegetables		\$USD/Month to Buy Vegetables BEFORE Project		\$USD/Month to Buy Vegetables AFTER Project		Disposable Income Generated/Year from Savings in Buying Vegetables	
Average	\$51.05	Average	\$3.42	Average	\$0.29	Average	\$37.39
Median	\$15.00	Median	\$0.00	Median	\$0.00	Median	\$0.00
SD	\$69.84	SD	\$9.78	SD	\$0.74	SD	\$116.58
Min	\$0.00	Min	\$0.00	Min	\$0.00	Min	\$0.00
Max	\$300.00	Max	\$50.00	Max	\$2.50	Max	\$600.00

Source: CRDT annual report, 2009; Note: SD=Standard Deviation

26. **Chicken product:** Two groups were established in 3 villages, one in Andoung Kraleoung, one in Sre Lvi and one more in Gati village. All groups have started to prepare materials for chicken pens. The median amount that beneficiaries are saving from not buying meat is \$30 annually. They are also making an average income from selling their chickens of \$13.42 annually. The disposable income generated from not buying meat is \$30 annually based on the median and \$53.23 based on the average, which represents an increase in disposable income of nearly 6.3% based on the median and nearly 11.2% based on the average data (see table 10).

**Table 10. Chicken Raising in Sre Khtum Commune, Mondulkri**

Disposable Income Generated/Year from Savings in Buying Meat		Income/Year from Selling Chicken		Yearly Household Disposable Income Generated from Activity	
Average	\$39.81	Average	\$13.42	Based on Average	\$53.23
Median	\$30.00	Median	\$0.00	Based on Median	\$30.00
SD	\$39.29	SD	\$20.89	<b>% Increase in Yearly Disposable Income from Activity</b>	
Min	\$0.00	Min	\$0.00	Based on Average	11.2%
Max	\$126.00	Max	\$66.50	Based on Median	6.3%

Source: CRDT annual report, 2009

27. **Fish product:** In 2009, 24 families have been selected as beneficiaries (including the original 7) in fish pond production; in O Rona 13 families, in Andong Kraleng 8 families and in Gati 6 families. Some beneficiaries harvest for family consumption and selling (in O Rona village sell 10 Kg, get money 80,000 KHR). The average weight of fish is 150 g to 200g per head. The income generated from selling fish is reasonably small, \$2.35 on average. Most beneficiaries also need to pay to keep their pond topped up with water, as it gradually leaks out, so this expense needs to be taken into consideration. Overall, this represents an increase in disposable income of a staggering \$67.07 on average, which represents an increase of 13% from what it was before the project started (see table 11).

**Table 11. Fish production in Srae Khtum Commune, Mondulkri**

Income/Year from Selling Fish		Water Pumping Costs/Year		Yearly Household Disposable Income Generated from Activity	
Average	\$2.35	Average	\$0.75	Based on Average	\$67.07
Median	\$0.00	Median	\$0.00	Based on Median	\$60.00
SD	\$5.34	SD	\$1.77	<b>% Increase in Yearly Disposable Income from Activity</b>	
Min	\$0.00	Min	\$0.00	Based on Average	13.0%
Max	\$16.00	Max	\$6.00	Based on Median	11.6%

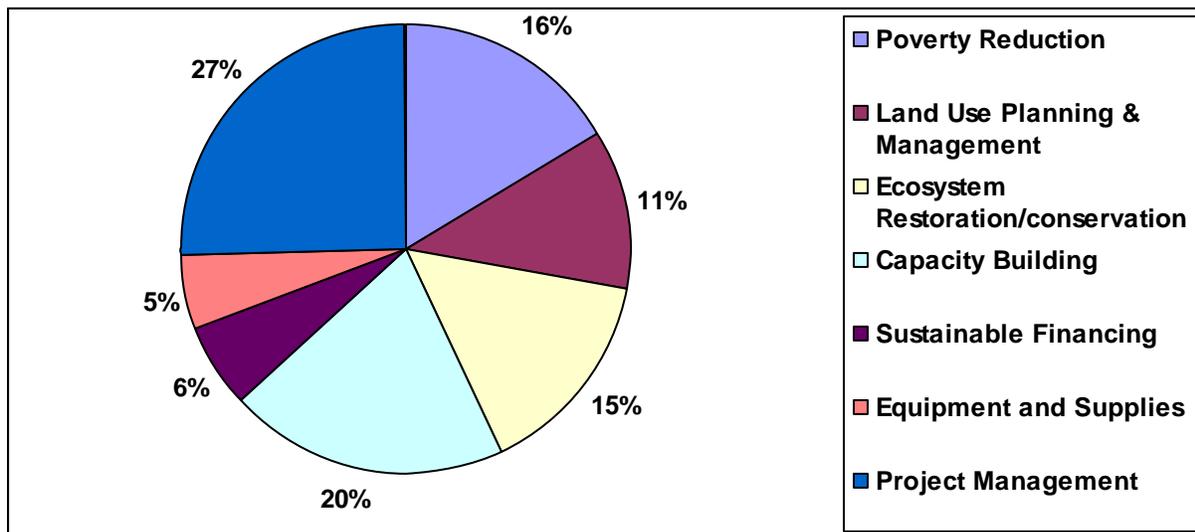
Source: CRDT annual report, 2009

28. According to the CRDT surveys, all beneficiaries that were interviewed (N=88) about their livelihood activities were also interviewed about the impact that engaging in this project has had on their exploitation and dependency on the natural resources in the target area. On average the beneficiaries spend less days (3.8days/month) going to the forests than before the project started (8.7 days a month), which is nearly one third reduction (4.8 days/month). Majority (80%) of household have changed their livelihood strategies with alternatives (livestock raising, vegetable gardens, fish ponds, etc.) rather than going to the forests. Moreover, 97.7% beneficiaries interviewed (N=88) feel that their health has improved due to the interventions, and 48.9 % of those interviewed feel that they have get more variety food/ less hungry or more income to spend on something in their families.

#### D. Project Expenditure

29. The total BCI project expenditure in Cambodia amounts to US\$2,056,738 as reported by WWF by 31 July 2009 and WildAid by end of December 2009. Analysis of project finances and allocation of TA costs to components as well as general project management (see figure 2) shows 70% of BCI Project investment going towards achieving project outputs, of which 16% has been utilized on poverty reduction activities, 11% on land use planning, 15% on ecosystem maintenance and biodiversity conservation, 20% on capacity building, and 6% on studies for identifying sustainable financing models. Only 5% has been used for equipment/supplies while 27% has gone towards project management. However, the TA itself account for 42% of the total project cost.

Figure 2. BCI project components inputs with integrated TA costs



#### E. Conclusions and Lessons Learned from Phase 1

30. Implementation of BCI pilot sites in Cambodia over last three years have given an opportunity to test the robustness of the BCI component design. The design seems to be robust and it caters to both conservation and development needs of the communities. The BCI engages in areas outside protected areas, which in most cases, have a higher biodiversity but also a dynamic challenge of development pressure and ecosystem maintenance need. The integration of livelihood improvement activities, addressing infrastructure needs and priority concerns of local people, and improving basic food security needs provides appropriate incentives coupled with awareness raising to tackle conservation and ecosystem maintenance needs. These are small amounts of direct investment with valuable returns in the medium to long term.

31. Key elements and lessons can be drawn from BCI Phase 1 implementation: i) policy and legislative support and commitment to establishment of Biodiversity Conservation Corridor; ii) Corridor land use planning and zonation; iii) intensive inputs/activities to be concentrated in selected communes/villages to achieve significant impact; iv) technical assistance is critical for project implementation, especially for saving groups/Commune Development Fund, livelihood activities, NTFP harvesting and marketing; v) decentralization and empowerment of local level management and decision making (i.e. saving groups) to ensure efficiency of project implementation; and vi) timely fund disbursement to local/households.