CEPF FINAL PROJECT COMPLETION REPORT

I. BASIC DATA

Organization Legal Name: International Centre of Insect Physiology and Ecology

Project Title (as stated in the grant agreement): ***Promotion of Nature-Based, Sustainable Businesses for Forest-adjacent Communities in the East-Usambara-Tanga, Taita Hills, and Lower Tana River Forests***

Implementation Partners for this Project: East African Wildlife Society and the Tanzanian Forest Conservation Group

Project Dates (as stated in the grant agreement): April 1, 2005 - December 31, 2008
Date of Report (month/year): April 2009

II. OPENING REMARKS

Provide any opening remarks that may assist in the review of this report.

It is widely accepted that the poverty of forest-adjacent communities is a root cause of much forest degradation. Poverty, combined with inadequate forest protection, leads to over-exploitation of "free" forest resources (fuelwood, pole-wood, medicinal plants) and to illegal activities (poaching for timber, carving wood and game-meat). It also restricts the ability of forest-adjacent communities to think beyond immediate needs, making them unreceptive to forest conservation messages. Sustainable Income–Generating Activities (IGAs) for local communities have therefore become a standard feature of forest conservation projects throughout the developing world. They are particularly appropriate in the context of East African coastal forests where poverty levels are severe.

Forest conservation IGAs can be clustered into three categories: 1) enterprises that depend on the continued existence of the forest; 2) plant/tree-based enterprises that may or may not depend on the forest; and 3) enterprises that are completely independent of the forest. The first category includes activities such as ecotourism, bee-keeping and butterfly farming. Such IGAs add conservation value to poverty alleviation by building local and political support for conserving the forests (Gordon & Ayiemba 2003). The second category typically involves agroforestry, woodlots and the cultivation of medicinal plants, with conservation spin-offs through forest product substitution, forest rehabilitation and buffer zone development. The third has benefits in terms of public relations with the local communities and the diversification of livelihood options, reducing vulnerability to environmental and economic shocks. In this project the emphasis was on the first two categories as these have the greatest conservation impacts. Enterprises based on apiculture, sericulture, butterfly farming and bioprospecting were established, based on tried-and-tested models and innovative research, and capitalizing on the expertise of scientists at the International Centre of Insect Physiology and Ecology

III. ACHIEVEMENT OF PROJECT PURPOSE

***Project Purpose**: Sustainable nature based businesses improve community livelihoods and secure active local support for forest conservation and connectivity within the East Usambaras, Taita hills, and Lower Tana River.*

Planned vs. Actual Performance

Indicator	Actual at Completion
Purpose-level:	
***1.** At least 3 viable nature-based enterprises established.*	Accomplished. Naturub (Maramba, East Usambara); honey (Tana) and butterfly farming (in the Taitas)
***2.** Income levels of participating households improved by at least 20%.*	Baseline data indicated that 75% of households from Taita Hills and 78% from Tana River earned below Ksh. 3,000.00 (USD 45) on average. End of project data on income levels is not available. However, incomes have been realized by participating households during the project period.. Total recorded income to date is US$ 8,449: US$ 2,385 from *Ocimum kilimandscharicum* (Naturub) in East Usambara; US $ 300 from Neem oil in Tana River; US$ 2,242 from honey in Tana and US$ 3,522 earned from butterflies in the Taitas. It should be noted that some incomes generated by this project went unrecorded. This was the case with both butterflies and honey. An independent butterfly farmer in Watamu moved in on the Taita operation and began purchasing their pupae (particularly *Papilio ophidicephalus* and *Salamis parhassus*). We were unable to determine how many he bought. In addition some of the honey was sold through middle men and was used for home consumption. We guess that total earnings, including these unrecorded sales, were around $15,000 by the end of the project.
***2.** At least a 20% increase in the proportion of community members supporting conservation*	Baseline data indicated that 38% of community from Taita Hills and 6% from Tana River supported and participated in forest conservation. End of project data is not incorporated, but communities generally understand the linkage between conservation and nature-based enterprises

Describe the success of the project in terms of achieving its intended impact objective and performance indicators.

Overall, the project largely achieved the intended success. Training and equipment to support three nature-based enterprises has been provided. The market linkages are in place and products arising from the enterprises have generated incomes for the communities. Post project sales have continued for all three enterprises, and we are confident that the revenues can be sustained, although more support will be need to consolidate the bee keeping and Naturub enterprises. The Taita link has greatly assisted Kipepeo in maintaining supplies to their clients during the dry season when production at Arabuko is very low. We anticipate a jump in butterfly sales when the live butterfly exhibit in Mombasa becomes operational later this year. The gift shop associated with this exhibit will also provide a further outlet for honey and Naturub.

Were there any unexpected impacts (positive or negative)?

There were no unexpected impacts, although there were some unexpected obstacles in Tanzania related to wild silk farming. The Conservator at the Amani Nature Reserve refused to allow this activity as he feared a pest outbreak might occur.

IV. PROJECT OUTPUTS

***Project Outputs**:*

Planned vs. Actual Performance

Indicator	Actual at Completion
Output 1: Community based sustainable apiculture and sericulture enterprises established and operational in the target sites.	Apicultural activities initiated at all sites but most successful in the lower Tana. No sericulture established.
***1.1.** At least 4 tonnes of honey (blended with 10% honey from stingless bees) and 0.5 tonnes of beeswax produced and marketed per harvest by year 3.*	841.5 kilograms of honey produced and sold, earning US$ 2,242. With the equipment in place and capacity developed, the original targets will be attained in time.
***1.2.** t least 1 tonne of silk cocoons (including wild silkmoth cocoons) produced and marketed by year 3.*	Mulberry silk failed to pick up in the Taitas as expected. Wild silk farming could not be carried out in the Usambaras due to lack of permits. However, food plants (Acacia and Mulberry) have been established and this could be built upon.
***1.3.** Two community-owned honey and silk market places (with processing equipment) established (one each in Taitas and Amani) by year 2.*	In place, with all requisite processing equipment (4 honey extractors, 2 processors, 5000 honey jars, 2 refractometers and 5000 honey labels). Community members also trained in extraction and packaging. Connection to mains electricity is being carried out
***1.4.** By year 3, evidence of good prospects for financial sustainability for silk/honey enterprises in at least two sites.*	With the equipment supplied and the capacity built, and with the entry of other stakeholders as already witnessed financial sustainability will be achieved.
***1.5.** By year 3, first steps taken for organic certification for bee products from important forests from the Tana River in Kenya to the East Usambaras in Tanzania.)*	Funding is being sought separately (from GEF and IFAD) for organic certification along the Kenyan coast and to eventually be extended into Tanzania
Output 2: Community based sustainable medicinal plant enterprises developed in the target sites.	A sustainable enterprise based on essential oils was established in the East Usambaras, and will be receiving further funding from Biovision to consolidate its operations.
***2.1.** At least 2 commercialisable aromatic/medicinal plants identified by end of year 1.*	3 commercializable aromatic/medicinal plants were identified including Neem in Tana River, Pine Resin in Taita Hills and *Ocimum kilimandscharicum* in East Usambara Mountains.
***2.2.** At least 2 commercialisable aromatic/medicinal plants domesticated by end of year 2.*	Seedbeds and nurseries were raised in Tana River for Neem plant and *Ocimum kilimandsharicum* plant in East Usambara mountains. On-farm cultivation of *Ocimum kilimandsharicum* was realized
***2.3.** At least one product developed for sale by end of year 3.*	Essential oil from East Usambara mountains was used to manufacture Naturub®, a branded product. Labels for 25-G pack of Naturub® was developed specially for the Tanzanian market
***2.4.** Processing equipment provided to at least one community group*	One oil expeller equipment was provided to Salama Hewevu community group in Tana River and used to extract neem oil. One hydro-distillation equipment was provided to East Usambara Farmers Conservation Group and used to extract *Ocimum kilimandscharicum* oil

2.5. *At least 20 community members trained in cultivation, processing, manufacture and marketing of products*	More than 200 community members were trained in Tana River and East Usambara mountain project sites
2.6. *Business plan developed by year 3 for at least one medicinal product.*	A business plan is being developed for the *Ocimum kilimandscharicum* enterprise in East Usambara mountain as enterprise operations are at the initial stages.
Output 3: Community based sustainable butterfly farming and insect dead stock enterprises established and operational in the target sites.	Butterfly farming successfully established in the Taitas
3.1. *At least 5000 Taita butterfly pupae produced and marketed by end of year 3.*	7,841 pupae produced; 4,212 pupae marketed by end of year 3; $3,522 earned. Market linkages in place through Kipepeo. There is every prospect of sustainability with butterflies being produced and sold up to December 2008.
3.2. *At least two community groups in the Taitas are benefitting from butterfly farming by end of year 2.*	Done since year 2: Chawia and Mbololo groups farming butterflies since May 06 with production sustained up through the last quarter of 08 (368 pupae produced, ca $300 earned) and beyond into 2009
3.3. *At least two community groups establish butterfly foodplants for the 2 Taita endemics in plantations, degraded forests and on farm*	Rutaceous (citrus family) trees (*Papilio* foodplants) have been planted on farms and included in the forest restoration projects. *Dasylepis* (*Cymothoe* foodplants) seedlings were all eaten by monkeys.
3.4. *Wild populations of the 2 Taita endemics remain stable or increase between year 1 and year 3.*	44 transects were conducted by community farmers from Nov 2005-Mar 2008) following training by Charo Ngumbao (Kipepeo farmer) and with the dedicated assistance of James Mwangombe (EAWLS). 24 of these were conducted at Chawia (11 species, 838 individuals recorded) and 20 at Mbololo (13 species, 1157 individuals recorded). Totals (and means) recorded for the two endemics were: *Papilio desmondi teita*, 88 at Chawia (mean 3.7 per transect), 201 at Mbololo (mean 10.1 per transect); *Cymothoe teita*, 39 at Chawia (1.6 per transect), 15 at Mbololo (0.8 per transect*). P. desmondi* showed positive trends with the highest numbers recorded in the last three months (8.0 mean at Chawia; 14.1 at Mbololo). *Cymothoe*, however showed declining trends (0.7 mean at Chawia; 0.3 at Mbololo in the last three months) and is a cause for concern. It is notable that *Cymothoe* was hardly farmed at all, owing to limited market demand and foodplant problems.
3.5. *At least two other kinds of insects (buprestid beetles) will be produced and marketed as insect curios and for the deadstock trade.*	Not done.
Output 4: Conservation impacts documented in target forests and successes used as demonstration projects for replication elsewhere in the hotspot.	This output was inadequately addressed
4.1. *At least 20% increase in proportion of community members supporting forest conservation by end of project.*	Inadequate baseline and end of project data has made it impossible to determine this
4.2. *500 copies of Kiswahili guidelines on best practices for selected project enterprises.*	Guidelines available in Kiswahili for processing of *Ocimum* oil and copies supplied to the Tanga operation. Silk and honey manuals are also available. Distribution has been targeted to key community members owing to a shortfall of funds for larger scale production.
4.3. *At least five community exchange visits arranged by year 3 with co-funding from other projects*	One group from Tanga visited Kakamega (*Ocimum*), Mwingi (bees and silk) and Gede (butterflies). There was also on site training provided by Kipepeo farmers at Gede and in the Taitas, as well as silk and honey training by icipe staff at icipe for community members from all sites

Describe the success of the project in terms of delivering the intended outputs.

Equipment has been supplied and capacity built to support nature-based enterprises. Market linkages have been established and communities are earning supplementary income from three nature-based enterprises. It is hoped the realization of income from nature-based enterprises will lead to more support for conservation in the long run.

All three enterprises are providing incomes (beekeeping in Tana, butterflies in the Taitas and Ocimmum in Usambaras); US$ 8,149 in total recorded income and an estimated equivalent $7-8000 in unrecorded sales and home consumption.

Were any outputs unrealized? If so, how has this affected the overall impact of the project?

Beetle farming, silk farming and pine resin in the Taitas did not succeed, as such community groups are not earning income from these enterprises. In the case of the beetles there was an unexpected loss of expertise, when a key person relocated to Europe. Silk farming did not take off because of poor establishment of mulberry plantations in the Taitas and the refusal of a permit for wild silk farming at Tanga. The pine resin enterprise could not move because the existing market linkages could not be penetrated without significant interruption of revenue flows.

Other outputs concerned with monitoring impacts on attitudes and overall income levels were also not realized. This is a concern for the conservation community since it is important to demonstrate such linkages, but the project level impact on the communities was not affected.

Revenue levels were constrained by delays in establishing the Mombasa butterfly exhibit. This would have significantly increased earnings from butterfly farming, as only 54% of all pupae could be exported. The extra market would have boosted motivation to produce butterflies in addition to the extra revenues it would have provided. The gift shop would also have given a market outlet for the other products. The exhibit will be in place by the Christmas tourist season in 2009 and will help to sustain the enterprises established in this and other IGA projects in the coastal forests.

V. SAFEGUARD POLICY ASSESSMENTS

Provide a summary of the implementation of any required action toward the environmental and social safeguard policies within the project.

The main action required is an impact assessment with respect to realized incomes and attitudes to conservation..

VI. LESSONS LEARNED FROM THE PROJECT

Describe any lessons learned during the various phases of the project. Consider lessons both for future projects, as well as for CEPF's future performance.

1. Be modest in raising the expectations of the community members.
2. Enterprises are vulnerable to climatic conditions: drought and cold (Taitas); flooding (Tana)
3. The presence of competent technical staff on the ground for the entire project period is essential for success.
4. Collaboration with relevant government departments is a necessary but not sufficient condition for the success and sustainability of projects.
5. Community exchanges and farmer to farmer training are highly valuable as experienced in the *Ocimum*, and butterfly farming projects.
6. The ToT method of training is an effective way of training large groups of community members especially when the local language is used to instruct new trainees and they are allowed to learn at a comfortable pace.

7. Women demonstrated enthusiasm to learn new skills.
8. Skills development for community members in every aspect of enterprise development, such as business skills, technology and enterprise operations, is very important since the community members provide the social capital for sustainability.
9. Without adequate baseline information it is hard to assess income: this should be an absolute priority at the start of the project, rather than rushing to initiate operations.
10. A mix of enterprises that require different periods of time to reap benefits is desirable.

Project Design Process: (aspects of the project design that contributed to its success/failure)

A mix of various enterprises, those that earn income within short periods (e.g. butterfly farming) and long term projects (*Ocimum* and bees) helped to sustain motivation.

Project Execution: (aspects of the project execution that contributed to its success/failure)

Coordination with local partners at each site is crucial. The weakest results were in the Lower Tana where we could not find a partner with a permanent presence and where site access was compromised by security issues, flooding and remoteness.

VII. ADDITIONAL FUNDING

Provide details of any additional donors who supported this project and any funding secured for the project as a result of the CEPF grant or success of the project.

Donor	Type of Funding*	Amount	Date Received	Notes
Biovision	C	$110,000	2006- onwards	Operational and personnel support for Naturub project In East Usambaras, to continue until 2011
MacArthur Foundation	B	$ 50,000	2000 - onwards	Enabled development of Naturub product as a community enterprise at Kakamega, allowing replication in the East Usambaras
Ford Foundation	B	$450,000	2002 -onwards	Enabled development of Naturub product as a community enterprise at Kakamega, allowing replication in the East Usambaras
IFAD	B	$200,000	2005 -onwards	Support for Commercial Insects programme at *icipe*
UNDP GEF	B	$250,000	2005 onwards	Support for Commercial Insects programme at *icipe* and marketplace development at Gede for Tana honey
USAID	B	$500,000	2005 -onwards	Development of live butterfly exhibit in Mombasa

****Additional funding should be reported using the following categories:***

A *Project co-financing (Other donors contribute to the direct costs of this CEPF project)*

B *Complementary funding (Other donors contribute to partner organizations that are working on a project linked with this CEPF project)*

C *Grantee and Partner leveraging (Other donors contribute to your organization or a partner organization as a direct result of successes with this CEPF project.)*

D *Regional/Portfolio leveraging (Other donors make large investments in a region because of CEPF investment or successes related to this project.)*

Provide details of whether this project will continue in the future and if so, how any additional funding already secured or fundraising plans will help ensure its sustainability.

All three enterprises are expected to continue into the future. The butterfly farming in the Taitas is secure and will require minimal additional financing (ca $1,000) to consolidate the group organisation and purchase equipment (new netting and fridge). It will be considerably strengthened by the additional market in Mombasa when the exhibit there becomes operational in 2009. The Naturub enterprise in the Usambaras will receive another $70,000 over the next three years from Biovision for operational support and further capacity building. Following the model established at Kakamega, this will result in complete ownership by the community group, backed by the outsourcing of product formulation and marketing, and by a revolving fund mechanism supported by earnings from sales. Further support for the bee keeping enterprise at Tana, particularly in respect of marketing and certification is anticipated from IFAD and GEF UNDP. The Tana region, however, remains vulnerable to large development projects, particularly for biofuels and export agriculture, and these may have major impacts on the opportunities for small scale enterprises.

VIII. ADDITIONAL COMMENTS AND RECOMMENDATIONS

The monitoring results for the Taita endemic butterfly, *Cymothoe teita,* are a cause for concern, and this species which has only been recorded from the Taitas may need to have its Red List status upgraded (it was listed as NE in 2000). In contrast *Papilio desmondi teita* (also listed as NE in 2000) appears to be thriving. It is much less forest dependent and uses a wide range of rutaceous foodplants that are found within and between the forest patches.

VIII. INFORMATION SHARING

CEPF is committed to transparent operations and to helping civil society groups share experiences, lessons learned and results. One way we do this is by making programmatic project documents available on our Web site, www.cepf.net, and by marketing these in our newsletter and other communications.

These documents are accessed frequently by other CEPF grantees, potential partners, and the wider conservation community.

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