CEPF FINAL PROJECT COMPLETION REPORT

I. BASIC DATA

Organization Legal Name: Aaranyak

Project Title (as stated in the grant agreement): ***Identification and Strengthening of Key Habitat Linkages in Manas Tiger Reserve using Geo-spatial Technology and Policy Advocacy***

Implementation Partners for this Project:

Dolphin Foundation
Ecosystems-India

Project Dates (as stated in the grant agreement): January 1, 2008 - May 31, 2010

Date of Report (month/year): 30 July 2010

II. OPENING REMARKS

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

Manas Tiger Reserve is located in foothills of Bhutan at the critical juncture of the Indo-Malayan and the Indo-Gangetic bio-geographical pathways. Manas Tiger Reserve (MTR) comprises of one National Park (Manas National Park), one Wildlife Sanctuary (Barnadi Wildlife Sanctuary) and 16 Reserve Forests covering a total area of over 2800 square kilometer. Administratively, MTR is controlled by a Field Director with headquarters in Manas National Park. There is also an overlapping jurisdiction with five territorial Divisions for Barnadi Wildlife Sanctuary and Reserved Forests (RF) areas. MTR is also spread over four districts namely Kokrajhar, Chirang, Baksa and Udalguri of Bodoland Territorial Council (BTC) in the state of Assam. The north boundary of MTR is shared with Royal Manas National Park of Bhutan.

The trans-boundary conservation challenges in Bhutan Biological Conservation Complex (B2C2) of Eastern Himalaya Ecosystem Profile highlight the need for decision-making processes that go beyond the borders of individual nation-states. This illustrates the need of developing sound information system along with proactive environmental governance within the B2C2 complex and North Bank Landscape for effective channels for cooperation and collaboration among a number of stakeholders. The CEPF Eastern Himalaya Profile mentioned clearly that only Terai Arc Landscape has done some GIS based initiative for habitat linkage and as such and effort in MTR would act as a blue print for future habitat linkages within MTR and between MTR and other key habitat of B2C2 and possibly North Bank Landscape.

The Project was developed and implemented in accordance with the CEPF Strategic Direction-1 and Investment Priorities 1.1 & 1.3 of the strategic direction.

III. ACHIEVEMENT OF PROJECT PURPOSE

***Project Purpose**: Local stakeholders and forest managers effectively manage the Manas Tiger Reserve through science based conservation tools and wider community consultations towards long term conservation of the biodiversity within the tiger reserve.*

Planned vs. Actual Performance

Indicator	Actual at Completion
Purpose-level:	
***1.** A comprehensive GIS database developed for effective management of key species and habitats in MTR after the completion of the project.*	As planned a comprehensive GIS database on habitats and distribution of key species has been done at the end completion of the project. Surveys were conducted in habitats and also in the forest villages of MTR and villagers' views have been gathered about their history, cultivation practices and confrontation with wild animals.
***2.** Management Plan of MTR reflects the priorities of all key stakeholders and is based on information and database developed with scientific precision and stakeholder consultations by end of the project.*	Initially all stakeholders were informed about the project and necessity of a management plan. Further series of discussions were taken up with the managers on historical and present management regime of MTR. Joint field visits were undertaken by managers and project team who interacted with the local communities. All the scientific information gathered during the project period was shared with park directorate to develop tiger conservation action plan for MTR as well as for drafting a new management plan.

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

The two-year project has been successful to achieving its intended impact objective and performance indicators given that the project team has been able to collect both historical and current information on different habitats of MTR. Further, MANTRIS (Manas Tiger Reserve Information System), a web-based GIS archive has been developed from data generated by the project. This system is created on external data source, models and expertise as well as remote sensing, GIS capabilities data and information processing. Through this system, one can search out information such as forest types, road network, rivers, information of forest villages, key animal distribution, location of NGOs working to support ecotourism and conservation. This pioneering work has been done for the first time in Northeast India. We are sure that outcome of this project will greatly benefit policy makers and conservation agencies in planning and decision making in matters related to key animal conservation in the region.

MANTRIS can be the basic platform for habitat linkages within MTR and other key habitats of Bhutan Biological Conservation Complex as well as North Bank Landscape. MANTRIS will be of immense help for wildlife conservation and protection as managers will be able to locate vulnerable areas within the wildlife area by using the information system and promptly organise patrolling and other protection measures based on the need.

Further, we have been able to develop an attractive map for analysing habitat stratification, land use pattern and land cover to improve the management by filling the knowledge gap. One of the major achievements of this project is the information about 209 recognized forest villages and illegal settlements that were collected from 14 different Reserve forests of MTR. As we have collected both historical time series data of 2004 and the current information of villagers, that will be helpful to managers to protect the forest from further encroachment and right to forest as per

the Forest Right Act 2006. The cut-off date for qualify the Forest Right Act 2006 is 13 December 2005.
We have also identified six potential sites for habitat connectivity within MTR.

Were there any unexpected impacts (positive or negative)?

Unexpected positive impact:

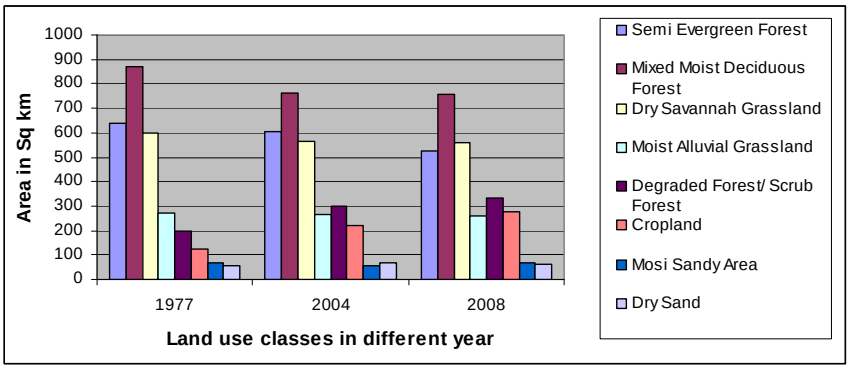
Our findings at the ground level about human settlements within forest areas under study (refer to the map) will help managers to identify illegal human habitats or villages in the light of the provisions of Forest Right Act 2006.

IV. PROJECT OUTPUTS

Project Outputs*:*

Planned vs. Actual Performance

Indicator	Actual at Completion
Output 1: Potential habitat connectivity within the MTR identified to maintain ecological integrity and enhance conservation of biological diversity.	
1.1. *An information base/database containing existing and historical habitat connectivity within the MTR developed by Yr 2 of the project*	During the project planning stage we collected relevant maps and both published and unpublished data of MTR to find out the gap in the knowledge base. To fill up the gaps we have collected satellite imageries of 1977, 2004 and 2008 for finding historical connectivity within MTR. Further field visits were made for identification of connectivity sites and interview local stakeholders. Six potential habitat connectivity sites have been identified within MTR. These sites are- 1) Malivita in Manas Reserve Forest, 2) Subankhat- Darranga, 3) Deosunga in Darranga- Barnadi, 4) Neuli in Barnadi-Khalingduar. 5) Khalingduar-Bhairabkunda, 6) Buxa-Ripu. Apart from these, there may be some sites between MTR and Royal Manas National Park. However, we could not confirm as we did not have permission to work inside Bhutan.
1.2. *A comprehensive document on analysis of habitat stratification, land use, distribution of species (tiger, elephant, rhino, sambar, gaur, Himalayan black bear, Asiatic buffalo, golden langur and capped langur) produced by 11/2 Year of the project*	As per plan, comprehensive documentation has been done on habitat stratification, land use and land cover and distribution of key species such as elephant and golden langur. We could not collect information on distribution of species like tiger, sambar, gaur, Himalayan black bear, Asiatic buffalo, capped langur as time and resources were limited compared to the large landscape.
1.3. *A document*	To find out the present temporal and spatial landuse of MTR initially we acquired

analyzing the temporal and spatial landuse/landcover changes in MTR with potential linkages produced by Yr 2.	two seasons' cloud free satellite data of IRS-P6 LISS IV from National Remote Sensing Agency, Hyderabad, India. The satellite data were rectified with reference to (1:50,000 scale) Survey of India topographical maps using geometrical rectification tools of ERDAS 9.1, Imagine and ArcGIS. Entire MTR was divided into 500 x 500 m grids and ground verification was done in randomly selected grids. In each of the sampling grids the measurement of tree were done using 25X25 m qudrat. In middle of the grid 5X5 m sub plot was taken for measurement of shrubs and saplings and 1X1 m taken for herbs and climbers. Total of 120 grids were sampled for ground verification. Finally from satellite data, topographical map and ground verification data we have produced landuse/landcover map of MTR. Further we have anlaysed current data with 1977 and 2004 satellite data to do a comparative study on landuse pattern changing over time scale. 
Output 2: MANTRIS (Manas Tiger Reserve Information System), a GIS based biodiversity information database established and made available at suitable public domain.	
2.1. *A prototype of database is made available on the public domain for review and comments of users and stakeholders by Yr 2*	The prototype database was developed end of the two years of project period and given to forest officials, scientists and conservationists working in the MTR for review. Some suggestions, comments were incorporated before finalizing the MANTRIS. However at this stage forest officials do not want to update in public domain as some crucial point of MANTRIS are not allowing for general public. Hence we made the MANTRIS in CD-ROM format.
2.2. *An updated database made available on the public domain incorporating comments from users after the project period.*	On 25 May 2010, the MANTRIS was released and handed over to forest department in presence of Kampa Borgoyari, Deputy Chief and Executive Member, Forest & Tourism, Bodoland Territorial Council, G.C Basumatary, Council Head of the Department, Forest & Tourism, A Swargowari, Field Director, Manas Tiger Reserve and Tenzin Wangchuk, Park Manager, Royal Manas National Park, Bhutan. Kampa Borgoyari has agreed in principle to upload the MANTRIS on public domain in near future with certain changes of some maps.
Output 3: Management of the MTR improved by disseminating information, influencing key policy makers and by	

encouraging managers and local stakeholders towards participatory management of the MTR.	
***3.1.** 2 interactions organized with local stakeholders and forest managers to advocate for participatory management of the MTR by Yr 2.*	There have been series of interactions with policy makers, managers and stakeholders of the project. Some of the important discussion were mentioned below : An informal discussion was held on 25 July 2009 at Mathanguri of Manas National Park, where Kampa Borgoyari, Deputy Chief and Executive Member, Forest & Tourism, Bodoland Territorial Council, G.C Basumatary, Council Head of the Department, Forest & Tourism, A Swargowari, Field Director, Manas Tiger Reserve along with DFOs of MTR were present along with representative from Royal Manas National Park. The discussions were focused on trans-boundary cooperation, sharing of information between Manas National Park and Royal Manas National Park. A workshop was held in Aaranyak office premises on 29 Sepetember 2009, where Mr. G.C. Basumatary, Council Head of Department, BTC, Mr. A Swargowari, Directior of Manas Tiger Reserve and DFOs of all divisions of MTR were present. Scientists, environmental lawyers were also presents along with project team. On that assembly, policy level discussions were done specially on illegal settlement in MTR and possible intervention to stop it. Participatory management of the landscape also came up for discussion. An interactive workshop was held in 23 May 2010 at Ultapani, where local stakeholders, forest managers, journalists, conservationists were present to discuss the issue of illegal settlement in MTR and participatory management. On 25 May 2010, the day MANTRIS was handed over to Forest Department in the BTC, an interaction was held among project team, policy makers, managers, scientists, local conservation groups and journalist on critical issues like illegal settlement of MTR, participatory management of MTR and trans-boundary conservation efforts. Kampa Borgoyari, Deputy Chief and Executive Member, Forest & Tourism, Bodoland Territorial Council, G.C Basumatary, Council Head of the Department, Forest & Tourism, A Swargowari, Field Director, Manas Tiger Reserve along with DFOs of MTR, Tenzin Wangchuck, Park Manager, Royal Manas National Park were present during the discussion.
***3.2.** An interactive and informative brochure on MTR developed for various key stakeholders by Yr 2.*	An interactive brochure of Manas Tiger Reserve containing information viz. flora, fauna, land use and land cover, tourism, village information and livelihood etc.
***3.3.** Ten articles published in local and national print media on Manas Tiger Reserve during the project period for highlighting pertaining issues, gathering public support and lobbying with the policy makers.*	Two articles were published in local newspapers and three articles were published in national level newspapers during the project implementation period. In addition to that more that 20 articles were published on the occasion of handing and release of MANTRIS both in local and national newspapers. Further All India Radio local station here in Guwahati and Shillong gave coverage about MANTRIS on 31 May 2010.

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

The project has been successfully completed in terms of delivering the intended outputs. Due to good and positive relation with the stakeholders and managers, a web based GIS biodiversity information database "MANTRIS" has been made. Production of a series of attractive maps of spatial and temporal landuse and landcover changes, drainage network, villages and roads within MTR with potential linkages is also an indicator of project success. The geo-spatial database on the habitat and key threatened species and other related environmental and geographical aspects of the habitats in the MTR will facilitate an immensely useful tool and resource information system for the forest authorities in day to day and long term management of the tiger reserve. It will also greatly benefit policy makers and conservation agencies in planning and decision making in matters related to tiger conservation in the region. These maps will be useful to develop tiger conservation plan in MTR along with development of a management plan for MTR. As MANTRIS contains the base line information on MTR, this will also help to develop any kind of research design and planning for researchers and conservationists.

Informative booklet is also another successful output of the project. This booklet has nicely summarized information viz. fauna and flora of Manas Tiger Reserve, habitat stratification, tourism hotspots, information of forest villages and their ethnography and livelihood etc. This booklet will help to create awareness and conservation need of MTR. An additional but significant success of the project is the capacity building of field guide from local conservation group in both flora and fauna survey. This will strengthen their interest and involvement in future conservation activities in the area.

The data generated during the vegetation survey from Kokrjhar Working Plan Division has been shared with Divisional Forest Officer, Working Plan Division. The data will be used to develop a work plan for next 5 years for the division.

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

None

V. SAFEGUARD POLICY ASSESSMENTS

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

None

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.

a. The opportunity to work closely with forest managers, policy makers is of great value.
b. It is not always easy to anticipate between project timetables frame during project writing and the completion of projects activity.
c. Local communities should be made to understand about limitations of any project at the beginning of the project.
d. Some stakeholders are more responsive once they understand the project purposes and when they see their immediate benefits.
e. It is important to highlight in yearly calendar for submission of performance and budget report.

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

The most important aspect of this project's design was the consultative approach to develop methodologies for vegetation survey, animal survey and GIS mapping. The combination of expertise available within Aaranyak was the key to the success of the project. The other reason for success this project was the dedication of the project team which was ready to overcome any difficulties encountered in the field and team members' ability to work together. Local expertise, knowledge and enthusiasm also contributed lot towards successful implementation of the project.

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

Aaranyak works very closely with forest managers and policy makers. Involvement of forest officials was helpful in execution of the project. Further involvement of local conservation groups/NGOs help in better execution of the project. Trust and confidence among project team was the key element in achieving the milestones.

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.

Aaranyak has neither received any additional funding nor secure any funding for this project or related works in MTR.

Donor	Type of Funding*	Amount	Notes
		$	
		$	
		$	
		$	
		$	
		$	
		$	
		$	

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.

Fund raising process has already been started to continue the project especially to understand key threatened species distribution in MTR and update that in MANTRIS.

VIII. ADDITIONAL COMMENTS AND RECOMMENDATIONS

Aaranyak would like to recommend following points based on the two years field work while implementing the project

a. Trans-boundary cooperation such as joint patrolling for minimizing wildlife crime, monitoring movement of key species like tiger, elephant should be established immediately between Manas Tiger Reserve and Royal Manas National Park in Bhutan.
b. Similar work like MANTRIS should be developed in Royal Manas National Park for long landscape conservation planning of Indo-Bhutan Tiger Conservation Landscape.
c. Wildlife corridors within MTR, between Royal Manas National Park and MTR and between MTR and Buxa Tiger Reserve should be secured.
d. Regular monitoring of key threatened species and habitat should be carried out.
e. Community participation should be strengthening for conservation of the landscape.

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.

Please include your full contact details below:

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