CEPF SMALL GRANT FINAL PROJECT COMPLETION REPORT

Organization Legal Name:	Foundation for Ecological Research, Advocacy and Learning
Project Title:	Spatial decision support for conservation planning in the Western Ghats
Date of Report:	31st May 2011
Report Author and Contact Information	Ravinder Singh Bhalla No.27, Appavou Nagar, Vazhakulam, Pondicherry 12. India. Email: bhalla@feralindia.org

CEPF Region: Entire Western Ghats

Strategic Direction:
2.3 Evaluate the existing protected area network for adequate globally threatened species representation and assess the effectiveness of types of protected areas in biodiversity conservation.

2.4 Support interdisciplinary efforts to analyse and disseminate biodiversity data.

Grant Amount: $19,925.00

Project Dates: 1st September 2010 to 31st May 2011.

Implementation Partners for this Project (please explain the level of involvement for each partner):
Foundation for Ecological Research, Advocacy and Leanring (FERAL) - main partner responsible for project administration, activities and outputs and contribution of spatially explicit data to the project.
French Institute of Pondicherry (IFP) - Contribution of spatially explicit data to the project, contribution to research papers and attending consultations and workshops.
Ashoka Trust for Research in Ecology and the Environment (ATREE) - Contribution of spatially explicit data, contribution to research papers and attending consultations and workshops.

Conservation Impacts

Please explain/describe how your project has contributed to the implementation of the CEPF ecosystem profile.
We have made available a large dataset to the conservation community in a standardised formats and re-projected into a standard projection system. The data provides a **substantial baseline to any conservation group interested in working in the Western Ghats**. We believe this dataset will provide the critical mass required for open source data portals such as the CEPF supported Western Ghats portal (http://thewesternghats.in) to build a community of users around them. This is the first effort at such a scale and with explicit objectives of **sharing data** in geo-spatial formats in India.
Two specific research papers have been initiated which use this data to **identify critical gaps in data for identification of ecologically sensitive areas based** on scientifically established and replicable methods. Appendix 1 presents the titles and abstracts of these papers.
Finally, the project has demonstrated the use of open source software for the analysis and representation of geo-spatial data. In doing so it has **built and consolidated a network** of

agencies and individuals committed to conservation and ecological research in the Western Ghats region (Appendix 2. Network of partners/initial end-user agencies and individuals).

Please summarize the overall results/impact of your project against the expected results detailed in the approved proposal.

The project has met all expectations in terms of results. It has:

1. Collated spatially explicit, geometrically corrected data for the project area.
2. Developed scientifically sound and replicable methodology to identify and evaluate ESAs that combines ecosystem services and biodiversity within a single conceptual frame-work. This is being worked into a scientific publication.
3. Made available maps of ecological sensitivity based on available datasets and covering the entire Western Ghats based on the compiled datasets (list with hyperlinks presented in Appendix 3). A presentation of this was made at an international geomatics event and the abstract was published (Appendix 1). A more complete manuscript is currently under preparation.
4. Identified gaps in baseline data required for identification of ESAs and to guide conservation efforts in the Western Ghats. This is part of the paper described in point 2 above. The gap analysis itself has been completed.
5. Shared digital datasets comprising of this information through the India Biodiversity Portal (http://indiabiodiversity.org/) and interested institutions. Data has been provided to the WGEEP team and to the three partners (IFP, ATREE and FERAL). It has been agreed that all the data will be shared on the CEPF-funded Western Ghats portal (http://thewesternghats.in) pending minor modifications and resolving potential copyright conflicts.

Please provide the following information where relevant:

Hectares Protected: Not applicable

Species Conserved: Not applicable

Corridors Created:

Not applicable.

Describe the success or challenges of the project toward achieving its short-term and long-term impact objectives.

The project owes its success to the support provided by the partner organisations and individuals leading their respective teams. The major challenge faced is the limitation on time for collaborative publications, both of which are still being worked upon.

In the long term, the work done on this project has directly been utilised by the Western Ghats portal which is also supported by the CEPF. This has made the effort truly worthwhile as the portal project will have the expertise and time available to sort out pending copyright issues and share the data on a much wider scale.

Were there any unexpected impacts (positive or negative)?

The level of support provided by the project partners was quite unexpected and totally welcome.

Lessons Learned

Describe any lessons learned during the design and implementation of the project, as well as any related to organizational development and capacity building. Consider lessons that would inform projects designed or implemented by your organization or others, as well as lessons that might be considered by the global conservation community.

1. The community has the ability to put aside concerns of plagiarism and loss of credit and contribute decades of its work to the larger objective of conservation. This has been a revelation. It would augur well for networking efforts to capitalise on this good will.

2. A lot more effort needs to be put into training the conservation community in the analysis and collection of data. A small fraction of available technologies and techniques are presently being utilised. The “frog in the well” scenario is all too common and many agencies tend to repeat mistakes of others and/or fail to make use of contemporary methods and tools.
3. Substantial allocations are required to continuously derive baseline layers from commercial sources such as from procurement of satellite images.
4. Policy interventions are needed to ensure that data collected by government agencies and through government funds is shared openly and not withheld from potential users.

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

1. The project was formulated *after* the potential partners had already met and agreed in principal to its objectives. This went a long way towards ensuring the success of the major objectives.
2. Insufficient time was allocated to the analytical component of the project leading to delays in the preparation of manuscripts. A separate consultation should have been scheduled for the sole purpose of completing the pending analysis and write up.

Project Implementation: (aspects of the project execution that contributed to its success/shortcomings)

This was a very short project and the use of available human resources on an *ad hoc* basis allowed us to complete the data collation and preparation of the metadata on time. Facilitation of meetings and consultation by the partners improved the quality of these interactions and ensured they were attended by representatives of relevant organisations.

Other lessons learned relevant to conservation community:

Nothing more to add

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	Notes
IFP, ATREE, FERAL	C	No known	These agencies have contributed years, of work and research to the project and to the WG portal.

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

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

Sustainability/Replicability

Summarize the success or challenge in achieving planned sustainability or replicability of project components or results.

The Western Ghats portal project and the India Biodiversity Portal and two of the many mechanisms by which the work done on the present project could be perpetuated and enhanced.

Summarize any unplanned sustainability or replicability achieved.

Some agencies such as the WWF-India and NCBS have also pledged their support to this initiatives. Modalities for the same are being worked out by the IFP WG Portal team and facilitated by the present P.I.

Safeguard Policy Assessment

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

Not applicable to the project.

Performance Tracking Report Addendum

CEPF Global Targets

(Enter Grant Term)

Provide a numerical amount and brief description of the results achieved by your grant.
Please respond to only those questions that are relevant to your project.

Project Results	Is this question relevant?	If yes, provide your numerical response for results achieved during the annual period.	Provide your numerical response for project from inception of CEPF support to date.	Describe the principal results achieved from July 1, 2007 to June 30, 2008. (Attach annexes if necessary)
1. Did your project strengthen management of a protected area guided by a sustainable management plan? Please indicate number of hectares improved.	No			
2. How many hectares of new and/or expanded protected areas did your project help establish through a legal declaration or community agreement?	No			
3. Did your project strengthen biodiversity conservation and/or natural resources management inside a key biodiversity area identified in the CEPF ecosystem profile? If so, please indicate how many hectares.	Not known			The project had set out to support and facilitate biodiversity conservation through making spatially explicit data available and identifying ecologically significant and vulnerable areas across the Western Ghats. It is not known how and when this data and information will be used by the conservation community but it is likely to facilitate better conservation action over a long term. The project has provided data to the partner institutions and to the WG portal which will assist in biodiversity conservation. Individuals from 7 conservation agencies have been trained in the use of open source GIS and remote sensing software (Appendix 4).
4. Did your project effectively introduce or strengthen biodiversity conservation in management practices outside protected areas? If so, please indicate how many hectares.	Not known			
5. If your project promotes the sustainable use of natural resources, how many local communities accrued tangible socioeconomic benefits? Please complete Table 1below.	No			

If you answered yes to question 5, please complete the following table.

Table 1. Socioeconomic Benefits to Target Communities

Please complete this table if your project provided concrete socioeconomic benefits to local communities. List the name of each community in column one. In the subsequent columns under Community Characteristics and Nature of Socioeconomic Benefit, place an X in all relevant boxes. In the bottom row, provide the totals of the Xs for each column.

Name of Community	Community Characteristics								Nature of Socioeconomic Benefit																	Other
Total																										

If you marked "Other", please provide detail on the nature of the Community Characteristic and Socioeconomic Benefit:

Additional Comments/Recommendations

The project made a start to dissemination of essential data and skills for conservation support. This work could be accelerated by engaging with conservation research and teaching institutions across India by:

- Making them part of the data sharing community - presently being pursued by the Western Ghats portal project.
- Having them modify their syllabi appropriately to cover the use of these tools and/or to conduct workshops with them for the same.
- Ensuring that the efforts in India are made part of other similar endeavours across the world.

Information Sharing and CEPF Policy

CEPF is committed to transparent operations and to helping civil society groups share experiences, lessons learned, and results. Final project completion reports are made available on our Web site, www.cepf.net, and publicized in our newsletter and other communications.

Please include your full contact details below:

Name: R.S. Bhalla
Organization name: Foundation for Ecological Research, Advocacy and Learning (FERAL)
Mailing address: No.27, 2nd Cross, Appavou Nagar, Vazhakulam, Pondicherry 605012. India.
Tel: +91413-2671566, 2225441
Fax:+91413-2671567
E-mail: bhalla@feralindia.org

Appendices

Appendix 1: Tiles and abstracts of papers

Published Paper:

Citation: R. S. Bhalla, Jagdish Krishnaswamy, and Srinvas Vaidyanathan, “Vulnerabilities of Critical Ecosystems and Services in the Western Ghats to Overland Flows and Sedimentation during Extreme Rainfall Events,” in *Geospatial World Forum: Seminars: Disaster Management* (presented at the Geospatial World Forum, Hyderabad, A.P. India: GIS Development, 2011), 66.

Abstract: Over-land flow and sediment transport models provide a useful set of tools for predicting flow paths and simulation erosion and deposition. We use the r.sim.water and r.sim.sediment modules built into the GRASS GIS package in combination with predicted extreme rainfall events for the Western Ghats to develop a vulnerability layer for the region. Extreme rainfall events in this region are occurring more frequently and predictions are that variability of these events is likely to intensify. This information is an important component of a decision support system for conservation planning in the Western Ghats, particularly for identification of ecologically sensitive areas from the perspective of hydrologic goods and services.

Manuscripts Under Preparation

1. The conference abstract cited above is presently being re-worked into a full length paper for publication.
2. Title: Spatial Decision Support for Conservation Planning in the Western Ghats.
   Abstract: Spatially and temporally explicit data plays a crucial role in conservation planning and restoration the world over. The availability of such data poses a serious challenge, particularly in developing countries where access to resources by the research community can be severely limited. An effort to address the issue of data availability for conservation planning for the Western Ghats in South India was launched in late 2010. Three institutions partnered in pooling together their respective datasets and building a framework for releasing it to the public under various free and open source licenses. Various challenges were faced in the process of cataloguing and sharing the dataset. This paper presents the major learnings and achievements of this effort.

Appendix 2. Network of partners/initial end-user agencies and individuals

Agencies that have contributed their data to the pool and shared datasets:

1. French Institute, Pondicherry. Dr.B.R. Ramesh and team.
2. Ashoka Trust for Research in Ecology and the Environment, Bangalore. Dr.Jagdish Krishnaswamy and team.
3. Foundation for Ecological Research, Advocacy and Learning. Srinivas.V. and R.S. Bhalla.
4. National Centre for Biological Sciences, Bangalore. Dr.Mahesh Sankaran and team.
5. Western Ghats Ecology Experts Panel. Dr.Narendra Prasad and SACON team (received data)

Agencies who have agreed to participate in the sharing of data once the network is set up and formalities resolved:

1. World Wide Fund for Nature, New Delhi. Dr.Sejal Worah and Dr.Areendran and team.
2. Natural Resources Data Management Systems, Department of Science and Technology, New Delhi. Dr.Bhoop Singh.

Agencies who have attended workshops and shown interest in receiving dataset on its release:

1. WRCT, Kerala.
2. AERF, Pune, Maharashtra.

Appendix 3. Links to downloadable maps based on compiled datasets

Elevation:

1. India <http://www.feralindia.org/files/wgsdss/maps/Elevation.ind.pdf>
2. Karnataka <http://www.feralindia.org/files/wgsdss/maps/Elevation.kar.pdf>

3. Kerala <http://www.feralindia.org/files/wgsdss/maps/Elevation.ker.pdf>
4. Maharashtra <http://www.feralindia.org/files/wgsdss/maps/Elevation.mah.pdf>
5. Tamil Nadu <http://www.feralindia.org/files/wgsdss/maps/Elevation.tn.pdf>

Geocover

1. India <http://www.feralindia.org/files/wgsdss/maps/Geocover.ind.pdf>
2. Karnataka <http://www.feralindia.org/files/wgsdss/maps/Geocover.kar.pdf>
3. Kerala <http://www.feralindia.org/files/wgsdss/maps/Geocover.ker.pdf>
4. Maharashtra <http://www.feralindia.org/files/wgsdss/maps/Geocover.mah.pdf>
5. Tamil Nadu <http://www.feralindia.org/files/wgsdss/maps/Geocover.tn.pdf>

Bioclimatic Maps

1. Dry Season <http://www.feralindia.org/files/wgsdss/maps/wg_bioclim_dryseason.pdf>
2. Rainfall <http://www.feralindia.org/files/wgsdss/maps/wg_bioclim_rainfall.pdf>
3. Temperature <http://www.feralindia.org/files/wgsdss/maps/wg_bioclim_temp.pdf>

Output of overland flow and erosion/deposition simulation

(Karnataka only. Will be updated)

1. Depth <http://www.feralindia.org/files/wgsdss/maps/depth_kar.pdf>
2. Discharge <http://www.feralindia.org/files/wgsdss/maps/disch_kar.pdf>
3. Sediment concentration <http://www.feralindia.org/files/wgsdss/maps/conc_kar.pdf>
4. Erosion-depostion <http://www.feralindia.org/files/wgsdss/maps/erdep_kar.pdf>
5. 3-D view of erosion-deposition <http://www.feralindia.org/files/wgsdss/maps/ErDepNVIZ.tif>
6. Sediment flux <http://www.feralindia.org/files/wgsdss/maps/flux_kar.pdf>
7. Transport capacity <http://www.feralindia.org/files/wgsdss/maps/tr_tc_kar.pdf>
8. Transport limited erosion-deposition <http://www.feralindia.org/files/wgsdss/maps/tr_et_kar.pdf>

Appendix 4: List of participants in workshop

1. Elmokhtari, French Institute - Pondicherry.
2. Vega, French Insititute - Pondicherry.
3. Lucial Joy, PAD - Vembar.
4. S. Beemraj, Island Trust, Tuticorin.
5. Susan Verghese - Pondicherry University.
6. Chaitanya, CES, I.I.Sc. - Bangalore.
7. Umesh Srinivasan, NCBS - Bangalore.
8. Devayani Khare, French Insititute - Pondicherry.
9. Girish Punjabi, NCBS - Bangalore.
10. B.R. Ramesh, French Institut - Pondicherry.
11. R.Srilatha, French Institute - Pondicherry.
12. Balasumbramanian. D., French Institute - Pondicherry.
13. Rajat Nayak (Research Assistant), FERAL - Pondicherry.
14. R.Sivarajan, French Institute - Pondicherry.
15. S.Saravanan, FERAL - Pondicherry.
16. A.Dhavanitdham, French Institute - Pondicherry.
17. Appalachari (Resource Person), OSGEO/SACON - Hyderabad.
18. Santosh Gaikwad (Resource Person), OSGEO/SACON - Hyderabad.
19. Nishadh. K.A., WRCT - Kerala.
20. Rahul R Mungikar, AERF - Pune, Maharashtra.