Critical Ecosystem Partnership Fund

Twenty-first Meeting of the Donor Council
Conservation International, Arlington, VA
11 June 2012
8 a.m. – 11 a.m. EST

CEPF's Monitoring Framework

Recommended Action**:**
The Donor Council is asked to review and approve the final version of the CEPF Monitoring Framework.

Background:
The CEPF Monitoring Framework has evolved and improved based on the recommendations and revisions of the Donor Council during its Nineteenth and Twentieth meetings. During the Twentieth meeting, the Donor Council requested that the Secretariat revise the budget and discuss it with the Working Group. The CEPF Monitoring Framework was discussed at the Thirty-first meeting of the Working Group held on 11 April 2012, at which time the Working Group agreed to recommend the Framework to the Donor Council for approval. The Working Group also requested that the Secretariat present the budget in two parts to allow costs pertaining to spatial analysis to be viewed separately; the budget has been separated and the Monitoring Framework has been revised accordingly. Finally, the Working Group requested that the Secretariat provide an example of spatial analysis from one of CEPF's regions. This example is presented below.

Remote sensing in the Eastern Arc Mountains and Coastal Forests of Tanzania and Kenya:
CEPF has supported two grants to undertake remote sensing and forest change analysis in the Eastern Arc Mountains and Coastal Forests of Tanzania and Kenya, in order to monitor the impact of CEPF and other investments, including that of the UNDP/GEF Conservation and Management of the Eastern Arc Mountains Forest project (CMEAMF).

Remote sensing is the best tool to measure large-scale habitat change and assess the impacts of increasing the protected area network as a result of CEPF's investment. These data allow the rate of forest loss in protected areas to be calculated and compare between those sites where CEPF invested, and those where it has not. These data, in conjunction with data from biodiversity and socioeconomic surveys and species assessments, enable stakeholders to develop a comprehensive understanding of threats and ways to mitigate these in priority sites.

The first project, *Instituting a Standardized Sustainable Biodiversity Monitoring System in the Eastern Arc / Coastal Forests of Tanzania and Kenya*, was undertaken by Conservation International in conjunction with the Sokoine University of Agriculture in Morogoro, Tanzania. Completed in June 2009, this project analysis focused on a three-stage time series, 1990-2000 and 2007, as these dates would provide data relevant to the Kyoto Protocol, Clean Development

Mechanism and REDD+, as well as a measure of the impact of the combined investments. The second project, also implemented by Conservation International, *Update the Forest Cover and Change Analysis of the Eastern Arc and Coastal Forests Region of East Africa*, is currently active and will be completed in December 2013. This project is a continuation of the original project and will update the forest change analysis to include data through 2010/2011. Combined, the amount awarded for these two projects totals $225,962.

These remote sensing projects have involved a series of activities including designing, directing and conducting aerial and field surveys, field data analysis, image processing and validation, preparation of forest cover maps and capacity building of local technicians. Of particular importance is the effort devoted to image processing and analysis.

With regard to the Eastern Arc Mountains and Coastal Forests region, because of the extreme cloudiness, the preprocessing necessitated that several images were compiled into a single multi-date image for the three target years. These multi-date images were then analyzed by a technician classifying "training polygons" of known habitat types including forest, woodland, mangroves, non-forest/woodland, water and cloud/cloud shadow. To ensure compatibility there were several iterations of this analysis for each image in each year. These were visually inspected to check for errors and match the edges between scenes as well as validating the image through Google Earth's QuickBird images.

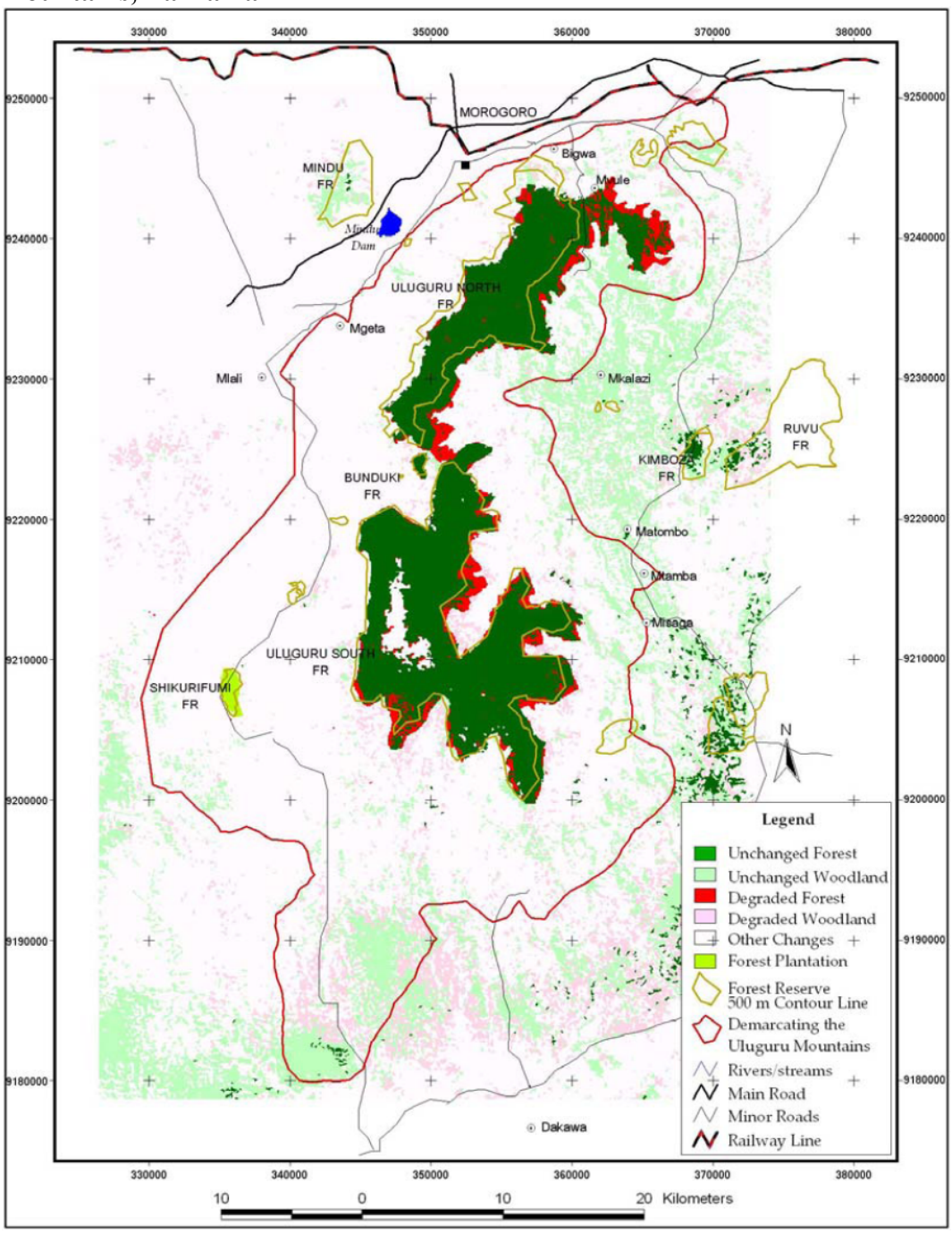
Results

The results of the project to date show that coastal Tanzania and Kenya contained over 273,700 hectares of forest in 2007 reduced from 420,765 hectares in 1990. However, deforestation rates in the area have slowed from 1 percent per year during the 1990s, to 0.4 percent per year during 2000-2007 (Fabiano et al. 2011). This translates into approximately 3,735 hectares per year in 1990 to 1,233 hectares per year in 2007. Rates of forest loss were eight times higher in unprotected areas than in national parks, national reserves and forest reserves (Tabor et al. 2010). This reduction was without a doubt a response to the assistance of many conservation and sustainable livelihood interventions, including CEPF's, during this period.

Data with this level of accuracy were able to demonstrate the rates and patterns of forest loss. The upper montane zone (>1800 m) has lost 52% of its paleoecological forest area, 6% since 1955. Conversely, the submontane habitat (800–1200 m) has lost close to 93% of its paleoecological extent, 57% since 1955 (Hall et al. 2009). The foothills are most at risk as populations expand further up mountain sides in search of land.

These trends are clearly reflected by the situation around the Uluguru Mountains, an Alliance for Zero Extinction site. This analysis highlighted the extreme pressure that the Uluguru North and South Forest Reserves were experiencing (Figure 1) especially the deforestation in the 661 hectare Bunduki Gap between the two Forest Reserves. These data combined with a socioeconomic study supported by CEPF were critical in securing the gazettment of this entire area as the Nature Reserve (24,115 hectares).

Figure 1: Forest change analysis for the Uluguru Mountains 1990-2000 for the Uluguru Mountains, Tanzania



Similar statistics combined with recent discoveries of the Kipunji mangabey added momentum to gazettment of the Kilombero Nature Reserve, which totals 134,511 hectares.

These data have been published and used to advise the Tanzanian Ministry of Natural Resources and Tourism as well as the Kenya Forest Service. In addition, they have been key in implementing the $70 million REDD Readiness projects supported by the Norwegian government in Tanzania, by providing a baseline for measuring carbon stocks, and specifically for identifying where the greatest benefits will be for implementing REDD in Tanzania.

This project has also made a contribution to building local capacity. Both the technicians trained in these methods are fully engaged in additional remote sensing activities and Sokoine University of Agriculture is an established center of excellence in this field. In addition, the team at Sokoine led the monitoring, reporting and verification (MRV) work for Tanzanian national vegetation, carbon and vegetation change maps. If CEPF had not trained this team, the FAO and Norwegian Embassy would have had to bring in expatriates for the remote sensing work.

As in many countries where these type of analyses have taken place, the largest long-term impact of this investment is the fact that these data will serve not only as a unique monitoring tool, allowing CEPF and others to observe CEPF's impact, but also as great base information for future investments (i.e. REDD and REDD+, as in Tanzania). Governments and other donors and NGOs can relate to the forest change maps and statistics generated by this analysis. This, in turn, can lead to improvements in forest policy, more informed interventions and sustainable financing with mechanisms such as REDD+.

References:

Fabiano L. Godoy, Karyn Tabor, Neil D. Burgess, Boniface P. Mbilinyi, Japhet J. Kashaigili and Marc K. Steininger (2012). Deforestation and CO2 emissions in coastal Tanzania from 1990 to 2007. *Environmental Conservation*, 39 , pp 62-71.

Hall, J., N. D. Burgess, J. Lovett, B. Mbilinyi, and R. E. Gereau. 2009. Conservation implications of deforestation across an elevational gradient in the Eastern Arc Mountains, Tanzania. Biological Conservation, 142: 2510–2521.

Tabor, K., Burgess, N.D., Mbilinyi, B.P., Kashaigili, J.J. & Steininger,M.K. (2010) Forest and woodland cover and change in coastal Tanzania and Kenya, circa 1990 to circa 2000. The *Journal of East Africa Natural History* 99(1): 19–45.

CEPF Monitoring Framework

Introduction:

Over the past several years, CEPF has reviewed and revised its monitoring efforts as part of ongoing learning and management of the fund. The initial adjustments have focused on streamlining grant-making processes and understanding progress on grant-making assumptions. Discussion and recommendations from the Donor Council and independent evaluations have revealed an interest in more clearly measuring the impact of CEPF investments in order to tell the story of the Fund. This review has been informed by the 2006 program evaluation, 2009 external evaluation, and 2010 impact evaluation, all of which documented the need for CEPF to build a more robust impact evaluation framework. As indicated in the 2006 program evaluation, *"While worthy efforts have been made, the overall efforts to monitor impacts and progress have not been particularly convincing so far" (Michael Wells)*.

The existing and continually evolving CEPF management tools include the ecosystem profiling process, and the grants management procedures and monitoring systems. These have been very useful in identifying and promoting the strategies for profiles, managing a large and dynamic pool of grants, and tracking progress on the assumptions the fund uses in grant making and achieving its goals. These provide the management framework and enable the fund to focus on achieving conservation impacts on the ground. Documenting those impacts, however, has been more challenging because of cost, capacity and resource limitations.

The CEPF Strategic Framework outlines overarching "key indicators of success":

- At least 14 critical ecosystems/hotspots with active investment programs involving civil society in conservation.
- At least 600 civil society actors, including NGOs and the private sector, actively participate in conservation programs guided by the CEPF ecosystem profiles.
- 20 million hectares of key biodiversity areas with strengthened protection and management, including at least 8 million hectares of new protected areas.
- 1 million hectares in production landscapes managed for biodiversity conservation or sustainable use.

These represent four goals for the fund, but lack the sensitivity to gauge progress over shorter time periods and don't necessarily speak to all areas that CEPF seeks to impact. It should be noted that CEPF does not seek to change these key indicators of success. Rather, the framework presented seeks to **complement** the broad goals, **underpin** these goals with more sensitive data, **support** management at the fund and profile levels, and better **communicate** the stories of CEPF's work. This document uses CEPF's experience and refinements made over the last several years to develop an overall framework for monitoring both impact and management of the fund. It is structured as follows:

1) CEPF statement of purpose
2) Purpose of the monitoring framework
3) Elements of the monitoring framework
4) Program impact monitoring
    - Impact categories
    - Statements of success for impact categories
    - Description of impact categories and proposed indicators

5) Portfolio management monitoring
6) Reporting framework
7) Additional metrics and indicators for specific profiles[1]

Appendix 1 - Indicators, descriptions and methods for data collection

1. CEPF purpose: To strengthen the involvement and effectiveness of civil society in the conservation and management of globally important biodiversity.

2. Purpose of the monitoring framework: i) to efficiently and adaptively manage the CEPF portfolio both globally and at the profile levels; ii) to capture information on impacts of CEPF investments in a systematic manner to enable more effective communication of results; and iii) to identify emerging conservation needs or those that are cross cutting/critical to the conservation success of a given investment region.

3. Elements of the monitoring framework: This framework is split into two main components: program impact and portfolio management. Program impact focuses on the impacts CEPF will have as a fund and is split into four broad categories as described below. Portfolio management focuses on CEPF internal processes and the ability of CEPF to efficiently and effectively operate.

4. Program impact: A 2010 assessment performed by Conservation International's Science and Knowledge Division emphasized the need to improve the monitoring system of CEPF to ensure that the program could report not only on its achievements pertaining to process and management, but also on its contribution to achievement of conservation outcomes. To this end, four main categories of impact have been identified. These are:

Table 1: Impact categories and associated statements of success

Biodiversity Improve the status of globally significant biodiversity in critical ecosystems within hotspots	**Human well-being** Improve the well-being of people living in and dependent on critical ecosystems within hotspots
Civil society Strengthen the capacity of civil society to be stewards and effective advocates for the conservation of globally significant biodiversity	**Enabling environment** Establish the conditions needed for the conservation of globally significant biodiversity

These four impact categories are interwoven and interactive. The first two categories, to conserve biodiversity and to build civil society capacity to achieve conservation, are closely linked. Strong civil society capacity is essential for a sustainable foundation for biodiversity conservation. Underpinning both these goals are two additional pillars. The first, human well-being, is directly linked to the success of biodiversity conservation efforts because healthy ecosystems are essential for human well-being, while ecosystems that are unhealthy or devoid of biodiversity cannot deliver the benefits that people need, such as freshwater. The fourth category, enabling conditions, is a critical factor for successful conservation, but can be altered and improved by civil society, in particular a civil society that is empowered and informed.

[1] Items 5, 6 and 7 are not included in this document

CEPF will strive to measure progress in all four of these interlinked categories to gain a holistic understanding of impact of the fund. Each impact category is presented below.

Impact category 1: Biodiversity
Statement of success: Improve the status of globally significant biodiversity in critical ecosystems within hotspots
Description: Measuring the status and trends in biodiversity can take many forms. CEPF has chosen three focal areas to describe progress toward this impact category: species, sites and corridors.

Species: represent the smallest recognizable and (in most cases) replicable unit of biodiversity and also underpin CEPF's ecosystem profiling framework. Strategic directions are built 'from the species up'; threatened species inform the selection of important sites (KBAs[2]) and guide conservation investments within a hotspot.

CEPF proposes two methods to monitor the status and trends of threatened species populations. These are: 1) The Red List Index (RLI), which will allow CEPF to monitor the status of threatened species as a whole, and 2) expert assessments to document changes in threats that affect individual populations of species where CEPF projects are being conducted.

Sites: represent manageable spatial units where management activities are occurring for the primary purpose of biodiversity conservation. These include key biodiversity areas that are either protected areas or productive landscapes. Examples of management activities may include protected area management and community conservation agreements among others.

Corridors: represent larger spatial units, or landscapes, where management activities are occurring for the primary purpose of ensuring connectivity and promoting sustainable management practices. Corridors are defined as areas where connectivity between two or more key biodiversity areas is necessary to meet the long-term conservation needs of the biodiversity found there. Included in this definition are areas where it is necessary to increase the actual or potential natural habitat in order to maintain evolutionary and ecological processes. Examples of management activities may include conservation enterprises, sustainable agriculture and environmentally friendly ecotourism.

Both sites and corridors incorporate conservation/sustainable management of spatially explicit areas through promoting conservation health and minimizing threats. CEPF proposes several methods to monitor changes to sites and corridors: 1) habitat change (using remote sensing and associated methods for assessing the change in habitat extent and connectivity); and 2) documenting the change in land area under different types of management (new formal protection, improved management or under better practices). In addition, for sites we propose an expert assessment of bio-physical health/threat mitigation.

Impact category 2: Human well-being
Statement of success: Improve the well-being of people living in and dependent on critical ecosystems within hotspots
Description: Conservation and human well-being have a complex, bi-directional relationship. Conservation success depends on the willing participation of human societies—from the local to the global level. Conversely, human communities need nature to thrive, depending on the valuable services such as fresh water and disaster mitigation that natural ecosystems provide. CEPF embraces this complex

[2] KBAs, or key biodiversity areas, are sites selected using standardized, globally applicable, threshold-based criteria, driven by the distribution and population of species that require site-level conservation. The criteria address the two key issues for setting site conservation priorities: vulnerability and irreplaceability. (Eken et al, 2004, Key Biodiversity Areas as Site Conservation Targets, *BioScience* 54(12):1110-1118)

relationship and invests to ensure compatibility between and improvement in ecosystems and the communities that depend on them. There are many metrics that can be used to assess changes in human well-being over time that range in data resolution, intensity and cost. CEPF proposes two types of beneficiaries that have relevance across the varied investment profiles and that can be assessed at the fund level: 1) direct beneficiaries; and 2) indirect beneficiaries (through the provision of ecosystem services).

Direct beneficiaries: comprise those people and communities that receive socioeconomic benefits from activities undertaken through CEPF investments. To gauge impact in this category, CEPF will monitor a selection of benefits. These include but are not limited to:

- Increased income from direct employment (long-term, green);
- More secure sources of energy
- Improved land tenure
- Households with improved, sustainable living conditions (via improved cookstoves; resilient agricultural practices; secure and sustainable access to wild plants for food and medicine, etc.)
- Training for conservation management.

CEPF proposes to monitor direct beneficiaries through organized self-reporting from grantees at the beginning, middle and end of the investment period with verification by the RITs.

Indirect benefits: comprise those benefits resulting from the impacts of CEPF investments on the status of biodiversity. These include the provision of services through the conservation of natural systems in the main areas of climate, water, food, and health security. Because quantification of the number of people benefiting from indirect impacts is very challenging, CEPF will use indicators related to the nature of benefits – or ecosystem services – that will be maintained. Specifically, for projects that aim to deliver ecosystem services, CEPF will monitor two factors: cubic meters of fresh water flows from natural systems to downstream need, and tons of carbon stored, because of CEPF actions).

Impact category 3: Enabling environment
Statement of success: Establish the conditions needed for the conservation of globally significant biodiversity
Description: CEPF, and indeed conservation in general, operates under the premise that conservation actions in isolation are far less likely to succeed without the presence of several enabling conditions. Three broad areas are outlined here that lay the foundation for reflecting on success for this impact category. They are: ensuring that policies are in place that promote/don't inhibit conservation action; ensuring sufficient capital and flow of financial resources for conservation; and establishing and using conservation best practices.

Regulatory environment
Statement of success: Ensure that public policies, the capacity to implement these, and the systems of governance in each individual country are supportive of the conservation of global biodiversity.
Description: In order for conservation interventions to proceed and be successful, the underlying legal and policy frameworks must be in place. This includes the general legislation and regulatory framework for civil society to participate in conservation management, as well as the inclusion of conservation management and sustainable best practices within political development frameworks. CEPF has directed funding toward both aspects of the conservation policy space, but the common need across most profiles is with the latter (because most countries/regions have regulations in place that allow for a free and operational civil society sector). Grants that promote the inclusion of conservation principles within development strategies will be identified at the onset and monitored based on the final written version of these strategies. Clearly, simply being included in a strategy is different from being implemented and promoting conservation impact on the ground, but it is a first step that is assumed could lead to impact and a clear metric for result of a specific policy-oriented investment.

Long-term financing
Statement of success: Ensure that sustained, sufficient and timely financing is available to conduct conservation management activities.
Description: One of the greatest barriers to effective conservation is the lack of financial resources to implement management that will lead to conservation success. CEPF targets a portion of investments to ensure financial sustainability of civil society and conservation activities in the long term. This not only entails establishing long-term financing vehicles (e.g., conservation trust funds), but it also includes supporting them to ensure that they function well and deliver financially. This indicator will be measured in five ways: 1) tracking the number of and 2) the amount invested within long-term financing mechanisms; 3) tracking the financial management and governance of these mechanisms using a Long-term Financial Tracking Tool (see Appendix 1); 4) return on investment/financial performance of the financing mechanism; and 5) timely delivery of resources to targeted conservation actions.

Conservation best practices
Statement of success: Ensure that management continually improves such that conservation effectiveness can be reasonably assured.
Description: This section includes two important facets of conservation implementation: determining priorities for targeting action/investment; and promoting best management practices for implementation. The first of these takes place during the profiling process (establishing the conservation targets using threatened species and KBAs) and sets the stage for the entire investment strategy of a portfolio. This component will be addressed through the portfolio management portion of the monitoring framework (see section 5 below). The second focuses on management and will be assessed using the Management Effectiveness Tracking Tools (METT 1) and the adoption of better practices for sustainability in production landscapes.

Impact category 4: Civil society
Statement of success: Strengthen the capacity of civil society to be operationally effective as stewards and effective advocates for the conservation of globally significant biodiversity.
Description: CEPF is premised on the assumption that a capable and functioning civil society is necessary for sustained conservation progress. CEPF takes a wide perspective of civil society that encompasses more than traditional definitions. CEPF includes all nongovernmental actors in seeking to improve the organizational capacity of institutions to deliver conservation success. CEPF views civil society and assesses this impact category on two levels. The first is the strength of individual civil society organizations to undertake conservation actions, including ensuring their ability to raise funds to conduct their activities. The second is the collective group of civil society organizations working on conservation issues in a particular investment region. Additional factors that CEPF will monitor to gauge impact on the collective group are the partnerships and networks created to build a strengthened and resilient civil society and the availability of information, because access to information is essential to identify and respond to conservation threats and opportunities.

The proposed monitoring framework incorporates relevant impact indicators from the Global Results Framework. It is presented in Annex A.

5. **Portfolio management:** In addition to program impact indicators, CEPF monitors its ability to function as an effective and efficient grant-making facility. This section focuses on three management categories: conservation strategies; compliance monitoring and communication; and grants management.

Capturing CEPF qualitative impact
There is a great need for CEPF to properly capture and communicate the numerous qualitative results that CEPF grantees are producing. As a complement to the collection of data on the indicators proposed

above, CEPF's communication team will continue to capture stories from CEPF grantees and develop more consistent products that effectively share the impact of CEPF's investment, conserving the biodiversity of the hotspots for nature and people. These efforts will include, but will not be limited to, enhancing our lessons learned white papers, promoting thematic short documents and sharing these materials and stories at various forums around the world.

6. Synergy with the Global Results Framework: The Global Results Framework, located within CEPF's Strategic Framework for FY2008-2012, contains indicators that address both impact and management performance. The proposed upgraded monitoring framework should be viewed as **supplementary** to the Global Results Framework, as CEPF will continue to monitor the indicators nested within CEPF's governing documents (e.g. the Project Appraisal Document, or PAD). Further, the Global Results Framework contains intermediate targets for which CEPF will continue to strive to reach. The upgraded monitoring framework will differ in that it will measure progress on the appropriate scale (project, site, corridor, hotspot, global), and will record these differences at varying times throughout implementation of the portfolio and the overall program.

As an example, the Global Results Framework contains the intermediate target "*At least 10 sustainable finance mechanisms established or strengthened with initial capital secured,"* whereas the monitoring framework contains the indicator "*change in the # of sustainable finance mechanisms with improved management,*" which will be monitored at the portfolio level, at the start and end of investment.

In addition, the portfolio management indicators make up a large portion of the global results framework. These will be maintained with few modifications, and if there are any modifications, these will be in addition to the information already required in the Global Results Framework.

As the monitoring framework is refined, more work will go into ensuring that it complements the Global Results Framework and that its implementation is smooth and well-integrated with existing efforts and procedures.

7. **Operations:** This monitoring effort will be undertaken by the CEPF Secretariat, in partnership with an organization that will fulfill a consultancy for the work on remote sensing. CEPF will put out a tender for this work. CEPF will seek to engage an organization that performs the work with a high level of competency. The CEPF Secretariat will continue to conduct the monitoring activities that it has done in the past, including collection of data pertaining to the Global Results Framework, and will expand this work to ensure effective data collection, analysis, aggregation and reporting on global impact. The working relationship and protocols of how Secretariat staff will collaborate and coordinate with the consultant will be defined during the development phase.

8. Implementation: Although further refinement of the monitoring framework will be necessary before implementation can commence, there already exists substantial information on the means of measurement, source of data, scale at which it will be collected, and frequency of collection. Depending on the indicator, data will be gathered at different intervals. Some indicators are not relevant to certain portfolios, and therefore not all portfolios would strive to collect data for all indicators. Only those projects and portfolios with initiatives related to sustainable financing would measure their establishment and performance. Only those projects and portfolios with initiatives aimed at conserving delivery of ecosystem services such as fresh water would measure, via remote sensing, the factors that would contribute to freshwater flow.

Implementation of the monitoring framework will be preceded by three months of preparation, during which the details of operationalization and implementation will be determined. The development phase will include the following: finalization of the monitoring framework document based on any feedback from CEPF's Donor Council, an assessment of hardware and software requirements, and integration of

the monitoring framework into CEPF's work. This will entail extensive consultations with CEPF grant directors and RITs, training sessions, and validation of proposed protocols/methods. Additionally, the terms of reference for the remote sensing portion of the framework will be defined.

The implementation phase will cover four years and nine months. During this phase information on biodiversity, human well-being, civil society and enabling environmental indicators will be periodically gathered, analyzed and reported. The beginning of this phase includes the generation of baseline information for the four components of the framework.

9. **Budget:** CEPF plans to implement the monitoring framework for a five-year investment period for a total cost of **$725,976**. As stated above, the Secretariat will continue with ongoing data gathering for the Global Results Framework and for the indicators specified to be the responsibility of the grant director, RIT and grantee in Annex B. Additional funds are needed to ensure that all of CEPF's data are collected, compiled and analyzed in a holistic manner that will allow for articulation of CEPF's aggregated impact. It is this additional work that is articulated in the budget below. The budget includes three key components, which are presented in two separate budgets. The first budget covers the development phase and annual recurring costs, and the second budget covers remote sensing. The components are:

1) Development Phase – This phase will be undertaken in six weeks. Activities to be conducted include development of criteria and tools (two weeks) such as threat rating scales (for species and sites), and the civil society collective assessment tool. A total of four weeks will be devoted to developing a back-end data management system (e.g., working to build in data collection systems into CEPF's electronic Grants Enterprise Management system). It will also include creating a central repository for all CEPF monitoring data, coordinating reminders for data collectors/owners, and building aggregation tools. Protocols will be established to house all of CEPF's monitoring data, from which yearly reports will be generated.

2) Annual Implementation Activities (recurring costs) – On an annual basis, 14 weeks of work will be needed to communicate the framework and data needs to CEPF grant directors, RITs and grantees, and to ensure that each group fully understands their roles and responsibilities in reporting. The bulk of the work will be coordination, consolidation and aggregation across profiles/regions, including consolidating data from the various data collectors/owners (grant directors, RITs, grantees, remote-sensing contractors) on a timely basis, ensuring all data is available and consolidated across CEPF regions, conducting any necessary analyses, and preparing the annual CEPF monitoring reports.

3) Remote Sensing (in previously approved hotspots) – On a portfolio basis, CEPF plans to measure change in habitat extent for sites and corridors. CEPF also plans to measure change in the amount of carbon stored, and change in amount of fresh water secured. This monitoring will take place at the beginning and end of each five-year investment phase. Remote sensing is appropriate for some regions that are typified by relatively clear skies, sufficient forest, and a CEPF portfolio that awards grants aimed at reducing deforestation. Remote sensing is not suitable for regions that have pervasive cloud cover, or extensive areas that lack forests. Furthermore, investment in remote sensing for regions that are in the consolidation phase, with few projects, does not justify the expense of purchasing and analyzing images. Included in this budget are the current Phase II regions for which funds are needed for this monitoring function; in future portfolios the remote sensing effort will be funded from the allocation for each region. Each hotspot is listed below in Annex C, with a description of its suitability for remote sensing, and a description of ongoing work that potentially could reduce the cost of the effort.

Two regions have been provisionally selected for inclusion in this budget: Western Ghats and Indo-Burma (to complement ongoing and future efforts funded by MacArthur Foundation). These two regions have allocated all existing grant funds and therefore would not be able to fund any remote sensing out of their current portfolio.

In addition to collection of remote-sensing data for Western Ghats and Indo-Burma, it will be necessary to collect, analyze and report on remote-sensing data that is generated through other CEPF-funded monitoring efforts (funded in each portfolio separately), such as those that will take place in appropriate portions of the Caribbean Islands, Mediterranean Basin, Eastern Afromontane and other hotspots yet to be funded.

Detailed budget for Components 1 and 2

Yearly Budget

Line Item	Description	Level of effort	Total (USD)
Year 1 -- FY13			
Start-up costs	Development of criteria and tools	Two weeks staff time at $2,915 per week	5,830
	Development of back end data management systems	Four weeks staff time at $2,915 per week	11,660
Recurring costs	Coordination, consolidation and aggregation across profiles and regions	Eight weeks staff time at $2,914 per week + $9,000 for travel	32,320
Total Year 1			**49,810**
Year 2 -- FY14			
Recurring costs	Coordination, consolidation and aggregation across profiles and regions	14 weeks staff time at $3,031 per week + $10,000 for travel	52,434
Total Year 2			**52,434**
Year 3 -- FY15			
Recurring costs	Coordination, consolidation and aggregation across profiles and regions	14 weeks staff time at $3,152per week + $10,000 for travel	54,128
Total Year 3			**54,128**
Year 4 -- FY16			
Recurring costs			
	Coordination, consolidation and aggregation across profiles and regions	14 weeks staff time at $3,278 per week + $10,000 for travel	55,892
Total Year 4			**55,892**
Year 5 -- FY17			
Recurring costs	Coordination, consolidation and aggregation across profiles and regions	14 weeks staff time at $3,408 per week + $10,000 for travel	57,712
Total Year 5			**57,712**
Total five-year effort			**269,976**

Detailed budget for Component 3

Yearly Budget

Line Item	Description	Level of effort	Total (USD)
Year 1 -- FY13			
Work in previously approved hotspots	Updating the impact on vegetation cover for twosuitable hotspots without remote sensing information	consultancy estimated at $114,000 for baseline and end of five-year period analysis	228,000
Total Year 1			**228,000**
Year 2 -- FY14			
Work in previously approved hotspots	Updating the impact on vegetation cover for two suitable hotspots without remote sensing information	consultancy estimated at $114,000 for baseline and end of five-year period analysis	228,000
Total Year 2			**228,000**
Year 3 -- FY15			
Total Year 3			**0**
Year 4 -- FY16			
Total Year 4			**0**
Year 5 -- FY17			
Total Year 5			**0**
Total five-year effort			**456,000**

Annex C
List of Global Biodiversity Hotspots

	Hotspot and investment status	**Suitability of remote sensing as a tool to inform about change in land cover (extent of habitat loss)**	**Ongoing efforts—what projects are ongoing that are already doing the work?**
1	Atlantic Forest *Completed*	**Partially Suitable**. The hotspot contains forest and deforestation is a threat. However, the presence of "cabruca," an agroforestry system where cocoa trees grow under the canopy, may make analysis of satellite data more difficult.	No known monitoring efforts.
2	Cape Floristic Region *Completed*	Not suitable. Much of the land cover is fynbos and changes in land cover would not easily be distinguished by remote sensing	No known monitoring effort.
3	Caribbean Islands *Active*	**Partially Suitable**. The hotspot contains forest and deforestation is a threat. Cloud cover could be a problem.	No known monitoring effort.
4	Caucasus *Consolidation*	**Suitable**. The hotspot contains forest and deforestation is a threat. However, the forest is likely to contain lots of old degraded forest and very open formations, with strong deciduous dry seasons.	No known monitoring effort.
5	Cerrado	**Suitable**. The habitat is wooded savanna to closed woodland.	No known monitoring effort.
6	Chilean Winter Rainfall-Valdivian Forests	**Suitable**. The hotspot contains forest and deforestation is a threat.	No known monitoring effort.
7	Coastal Forests of Eastern Africa *Consolidation*	**Suitable**. The hotspot contains forest and deforestation is a threat.	Partially covered by current CEPF grant to CI for mapping change in the EACF.
8	Eastern Afromontane *Active*	**Partially Suitable**. The hotspot contains forest, but also has significant areas of high elevation grassland.	Partially covered by current CEPF grant to CI for mapping change in the EACF.
9	East Melanesian Islands *Profiling process just completed; profile being finalized.*	**Partially Suitable**. The hotspot contains forest and deforestation is a threat. Cloud cover could be a problem, and could increase the cost considerably.	No known monitoring effort.
10	Guinean Forests of West Africa	**Suitable**. The hotspot contains forest and deforestation is a threat.	CI has done Liberia up to 2006.

	Consolidation		
11	Himalaya *Completed*	**Partially Suitable**. The hotspot contains forest and deforestation is a threat. Cloud cover could be a problem.	Some work done by Beijing University.
12	Horn of Africa	Not suitable. Much of the land cover is desert, scrub, and dry forest shrub mosaics.	
13	Indo-Burma *Active*	**Suitable**. The hotspot contains forest and deforestation is a threat.	The MacArthur Foundation is supporting NatureServe's "dashboard" monitoring framework, which is being piloted in three regions (Andes, Great Lake region of Africa, Mekong). This includes some indicators based on analysis of remote sensing data. Under their recent call for proposals, MacArthur is likely to invite full proposals for one or two projects that make extensive use of remote sensing data with regard to riverine/lacustrine habitats in the lower Mekong region. In two years' time, MacArthur will have a call specifically focused on "cross-cutting" grants in the Greater Mekong Region (Indo-Burma and SW China). Monitoring (potentially including remote sensing) will be covered by this call.
14	Irano-Anatolian	**Partially suitable**. There is some forest, but the hotspot also contains alpine meadows and steppes. Forest slopes south of the Caspian are being cut.	No known monitoring effort.
15	Madagascar and Indian Ocean Islands *Consolidation*	**Suitable**. The hotspot contains forest and deforestation is a threat.	CI is updating the national deforestation map to 2010, and expect to be completed in late 2012.
16	Madrean Pine-Oak Woodlands	**Suitable**. The hotspot contains forest and deforestation is a threat.	Some work done.
17	Maputaland-Pondoland-Albany *Active*	**Partially Suitable**. The hotspot contains forest and deforestation is a threat. However, there is a lot of	No known monitoring effort.

		grassland.	
18	Mediterranean Basin *Active*	**Partially Suitable**. The hotspot is vast and there are many diverse habitats, including a lot of non-forest.	No known monitoring effort.
19	Mesoamerica *Completed in N. Meso; Consoldiation in S. Meso*	**Suitable**. The hotspot contains forest and deforestation is a threat. CEPF's work is directly related to conserving habitat.	Lots of work already done through CEPF (00-05-09).
20	Mountains of Central Asia	Not suitable.	No known monitoring effort.
21	Mountains of Southwest China *Consolidation*	**Suitable**. The hotspot contains forest and deforestation is a threat. However, very cloudy.	Monitoring done for Sichuan 90-00 only by CI and Beijing Univ.
22	Philippines *Completed*	**Suitable**. The hotspot contains forest and deforestation is a threat.	No known monitoring effort.
23	Polynesia-Micronesia *Active*	**Partially Suitable**. The hotspot contains forest and deforestation is a threat. Possible cloud cover.	No known monitoring effort.
24	Succulent Karoo *Consolidation*	Not suitable. The hotspot does not have sufficient forests to merit remote sensing.	No known monitoring effort.
25	Sundaland *Completed*	**Suitable**. The hotspot contains forest and deforestation is a threat.	The University of Maryland has done it, but not published yet. Should be useable by late 2012. Their work covers the years 2000, 2005 and 2010.
26	Tropical Andes *Consolidation*	**Suitable**. The hotspot contains forest and deforestation is a threat.	University of Maryland getting started on this region. But their schedule is not clear, and unclear how their methodology will work in the steep mountains.
27	Tumbes-Chocó-Magdalena *Consolidation*	**Partially Suitable**. The hotspot contains forest and deforestation is a threat. Cloud cover is a problem.	Some ongoing work (RADAR testing/ mapping; NASA's Jet Propulsion Lab, Woods Hole Research Center). Available in 1-2 years.
28	Wallacea	**Partially Suitable**. The hotspot contains forest and deforestation is a threat. Cloud cover is a problem.	Indonesian portion has been done.
29	Western Ghats and Sri Lanka *Active*	**Suitable**. The hotspot contains forest and deforestation is a threat.	India does monitoring, but no one has been able to get the digital results from them.