



# Kulera Landscape REDD+ Program for CoManaged Protected Areas

## Distinctive features

The Kulera Landscape REDD+ Program for Co-Managed Protected Areas, Malawi, is being developed as part of the Kulera Biodiversity Project (KBP), funded by the United States Agency for International Development (USAID). This was one of the first large USAID programs that included financial support to assess the feasibility of developing emission reductions, and to undertake the activities to produce verified emission reductions. The project proponents and the Department of National Parks and Wildlife (DNPW), the Nyika-Vwaza Association (NVA), Nkhotakota Wildlife Reserve Association (NAWIRA), and Terra Global Capital (TGC). They have partnered with a Malawi-based NGO, Total LandCare (TLC), to prepare the Project Description.

The Project Area is located in 5 km zones inside the boundaries of three key protected areas in central and northern Malawi: Nyika National Park, Vwaza Wildlife Reserve, and Nkhotakota Wildlife Reserve. Deforestation drivers include conversion of forest to small-scale agriculture and settlements, unsustainable collection of fuelwood, grazing livestock inside the forest and setting fires for hunting, honey collecting, and territorial revenge against other land users. The Project targets more than 45,000 households in more than 800 villages.

The overall goals of the Kulera REDD+ project are to reduce deforestation and forest degradation in the three protected areas, and improve livelihoods by managing natural resources as an asset base, creating long-term sustainable alternative livelihoods, improving biodiversity and increasing food security. Project activities include; strengthening land-tenure and protected area governance, support for the development and implementation of sustainable forest and land use management plans, forest protection through patrolling, social fencing and maintenance of forest boundaries, fire prevention and suppression activities, reducing fuelwood consumption and increasing energy efficiency by introducing fuel-efficient woodstoves, creation of alternative sources of fuelwood through agroforestry and farm woodlots management, sustainable intensification of agriculture on existing agricultural land, and development of local enterprises based on sustainably harvested NTFPs such as honey, coffee, macadamia, and livestock.



	Heading	Explanation
<b>Locational factors</b>		
	<b>Location</b>	5km band inside three Protected Areas in the Northern and Central Regions in Malawi: Nyika National Park, Vwaza Marsh Wildlife Reserve, and Nkhotakota Wildlife Reserve
	<b>Spatial boundaries</b>	<p>Project area: 169,136 ha</p> <p>The Project Area is defined as the area within 5km of the park boundary that meets the forest definition at both the start of the historic period and at the start of the Project. The 5 km buffer distance represents an estimated mean maximum distance a villager will travel into the Protected Area for agriculture or wood product harvesting.</p> <p>Reference area: 687,802 ha (includes project areas and leakage belt)</p> <p>Leakage monitoring area: 285,994 ha leakage belt</p> <p>Leakage management area:</p> <p>Project Zone: 750,898 ha, includes the Project Areas and the communities living 10 km outside of the park boundaries</p>
	<b>Land cover</b>	<p>Nyika National Park: montane grasslands and evergreen forests with patches of relic montane evergreen forests</p> <p>Vwaza Wildlife Reserve: open to dense woodland dominated by areas of Brachystegia, Acacia Bauhinia-Combretum, and mopane woodlands, with wetland grasslands and marshes in the central lowlands</p> <p>Nkhotakota Wildlife Reserve: dense Brachystegia woodland and riverine forests, interspersed with occasional patches of tall Hyparrhenia-Andropogon grasses in the low-mid altitudes, and dense evergreen forest in the uppermost elevations</p>
	<b>Agents and drivers of forest cover change</b>	<p><b>Agents:</b> Hunters and poachers; Local communities; Local farmers; Migrants; Tobacco farmers</p> <p><b>Underlying drivers:</b></p> <ul style="list-style-type: none"> <li>▪Lack of Protected Area enforcement</li> <li>▪Community uncertainty of formal park boundaries</li> <li>▪Depleted forest resources from areas surrounding the Protected Areas</li> <li>▪Livelihood needs of surrounding communities</li> </ul> <p><b>Proximate causes:</b></p> <ul style="list-style-type: none"> <li>▪Collecting wood for charcoal making</li> <li>▪Conversion of forest to small-scale agriculture</li> <li>▪Forest fires by mice hunters</li> <li>▪Forest fires for other anthropogenic reasons</li> <li>▪Wood and poles for construction and domestic use</li> </ul>

- (including tobacco curing)
- Wood for cooking and heating locally

## Basic project features



<b>Objectives</b>	<ul style="list-style-type: none"> <li>▪Climate: Avoid further deforestation and degradation in the Project Areas, which will lead to a significant reduction in GHG emissions</li> <li>▪Community: Improve governance of the three protected areas through a participatory, decentralized structure that provides economics incentives to support sustainable natural resource management</li> <li>▪Biodiversity: Contribute to the protection and conservation of Malawi’s most important protected areas, which are home to many threatened and endemic species and considered High Conservation Value areas</li> </ul>
<b>Proponent/s</b>	<ul style="list-style-type: none"> <li>▪Department of National Parks and Wildlife (DNPW) (responsible for management of project areas)</li> <li>▪Nyika-Vwaza Association (NVA) (Community Association that represents the villages adjacent in the Project Zone around the Nyika National Park, Vwaza Wildlife Reserve)</li> <li>▪Nkhotakota Wildlife Reserve Association (NAWIRA) (Community Association that represents the villages adjacent in the Project Zone Nkhotakota Wildlife Reserve)</li> <li>▪Terra Global (investor in the project and is supporting the registration, issuance and marketing of emission reductions)</li> </ul>
<b>Tenure and Carbon rights holder/s</b>	<p><b>Tenure</b></p> <ul style="list-style-type: none"> <li>▪The Government of Malawi, as managed by the DPNW, is the legal owner of the land and forests in the Project Areas</li> </ul> <p><b>Carbon</b></p> <ul style="list-style-type: none"> <li>▪The other three project proponents and DPNW have signed an agreement for the carbon development, carbon rights and benefits sharing with respect to emission reductions for the Kulera biodiversity landscape REDD+ project whereby the latter agrees to vest the right of use in an independent entity participated by all four project proponents which will manage the revenues coming from the commercialisation of carbon credits</li> </ul>
<b>Actors involved in project design and implementation and their roles</b>	<p><b>Proponents:</b> Listed above with their roles</p> <p><b>Implementing partners:</b></p> <ul style="list-style-type: none"> <li>▪Terra Global – also a proponent. Its roles are i) conducting all carbon development work under the VCS and CCB standards for PD development and carbon calculations; ii) support for on-going monitoring and the development of the VCS and CCB monitoring reports; iii)</li> </ul>

	<p>management of the validation and verification process; iv) training for community-based participatory filed data collection; v) establishment of the institutional arrangements for REDD+ legal, operational and financial management; vi) development of web-based monitoring tools; vii) marketing and transaction structuring for emission reductions, and; viii) acting as the general manager for the REDD+ entity for the initial years until local capacity is built.</p> <ul style="list-style-type: none"> <li>▪Total LandCare – the lead institution for project administration, partner coordination, community mobilization, decentralization-governance and monitoring and evaluation; will also coordinate livelihoods strategies with a focus on community-based natural resource management, diversification, conservation agriculture, irrigation, forestry, and enterprise initiatives based on agricultural and natural products.</li> <li>▪CARE Malawi – focuses on supporting the formation of Village Savings and Loan groups including training on economic activities, selection, planning and management.</li> <li>▪The project also lists legal partners and funders as its implementing partners</li> </ul>
<b>Upfront financing</b>	USAID competitive grant in Malawi secured by project proponents.
<b>Start date</b>	1 October 2009
<b>Crediting period</b>	30 years (1 October 2009 – 30 September 2039)

### Baseline emissions



<b>Methodology</b>	VM0006 v2.1 “Carbon Accounting for Mosaic and Landscape-scale REDD+ Projects”
<b>Reference data (unplanned deforestation/degradation)</b>	Reference period: 1998 – 2009 Imagery: 17 Landsat images (Landsat 4 TM and Landsat 7 ETM+) between 1991 and 2009 were used. Rapid Eye high resolution imagery and Google Earth were used for validation purposes. Three maps were generated for three points in time for the three protected areas.
<b>Reference data (planned deforestation/degradation)</b>	Not relevant
<b>Stratification of project area</b>	2 strata: Miombo Forest and Evergreen Forest
<b>Deforestation/degradation rate and location</b>	<b>Historical (unplanned deforestation/degradation)</b> Nyika - 1.38% Nkhotakota - 1.89%

Vwaza - 2.89%

**Projected** 0.24% (based on various figures in project design)

**Likely baseline scenario**

Historical deforestation rate, deforestation trend, and dynamics of deforestation and forest degradation continue in the future, leading to a deforested landscape in the Project Area.

**Modelling procedure**

- The analysis of deforestation agents and drivers followed four steps as required by the methodology: 1) identify agents and drivers, 2) assess their relative importance, 3) analyze the mobility of agents, and 4) analyze the geographic variables or “predisposing factors”
- 8 deforestation drivers were identified. Based on the remote sensing analysis, participatory rural appraisals and household’s surveys the relative importance of each of these drivers to deforestation as well as to degradation were determined.
- The Mobility of each deforestation and forest degradation driver was determined factoring in the modes of transportation for each driver and the distance of activity shifting by individual drivers.
- Three spatial drivers and variables influencing deforestation were identified – access to forests (elevation and proximity to forests), physiographic conditions (slope, aspect, elevation), and proximity to settlements. Logistic regression models were used to assess the potential influence of the spatially driven variables on deforestation drivers. Logistic regression input derives from a data matrix representing the values of predictor variables and the transition class (DF or no DF) for 10,000 random points.
- Transitions related to deforestation and consequently reforestation were included and emissions factors for these transitions were calculated

**Carbon pools**

**Carbon pools included** ✓ ✗

- Aboveground tree biomass ✓
- Belowground tree biomass ✓
- Non-tree woody biomass ✓
- Litter ✗
- Dead wood ✓
- Soil ✓
- Wood products ✗

**Estimation method**

- Biomass and carbon stock density for soil carbon pool was estimated from sample plots from the Project Area

for forest classes while a conservative default value was used for soil carbon stock density for non-forest classes.

- A stratified random sampling approach was used to locate sample plots. The final number of samples collected was 85, with 68 within miombo woodland, five in evergreen forest and 12 in non-forest strata.

- The biomass survey was conducted using 25m x 25m plots. 3 subplots were demarcated and measurements were made on aboveground live tree biomass, standing and downed dead wood biomass, and non-woody living biomass. Parameters recorded included plant name up to genus level, dendrometric measurements such as diameter at breast height (DBH), tree height, canopy percentage cover, number of seedlings and DBH of saplings, as well as location and topographic characteristics (slope, aspect, latitude and longitude).

For each species, trees with diameter >5 cm were identified, counted and diameter determined. Apart from recording bio-physical characteristics, status/condition of plots and pressures due to anthropogenic activities were also noted. The criteria for assessing the condition of plots was based on DBH, ground cover, disturbance, number of seedlings and saplings.

- Various allometric equations and root-shoot ratios were used to calculate tree biomass. All saplings were counted and their biomass estimated using an allometric equation. Non-woody biomass was sampled in the plots using destructive methods and root-shoot ratios were applied. Standing deadwood was sampled applying the method used for living trees and lying deadwood was sampled using a transect method. Soil Organic Carbon for the forest areas was estimated by obtaining core samples at three depths (0-10 cm, 10-20 cm and 20-30 cm) in three subplots within each sample plot.

- To verify that the land in the Project Areas met the minimal crown cover requirement, crown cover in each plots were also measured and tested for the applicable thresholds of 10%.

<b>Carbon stock changes</b>	All carbon is immediately lost from deforestation. Regeneration and reduced emissions from fuel stoves are included in accounting, while emissions from degradation and long-lived wood products harvesting and Assisted Natural Regeneration (ANR) are not
<b>GHG emissions</b>	CH <sub>4</sub> and N <sub>2</sub> O from firewood included
<b>Net emissions without project</b>	17,786,680tCO <sub>2</sub> e

### Project GHG emissions reduction strategy



Scope

Deforestation

<b>Activities</b>	<ul style="list-style-type: none"> <li>▪Strengthening land-tenure and Protected Area governance</li> <li>▪Support for the development and implementation of sustainable forest and land use management plans</li> <li>▪Forest protection through patrolling, social fencing and maintenance of forest boundaries</li> <li>▪Fire prevention and suppression activities</li> <li>▪Reducing fuelwood consumption and increasing energy efficiency by introducing fuel-efficient woodstoves</li> <li>▪Creation of alternative sources of fuelwood through agroforestry and farm woodlots management</li> <li>▪Sustainable intensification of agriculture on existing agricultural land</li> <li>▪Development of local enterprises based on sustainably harvested NTFPs such as honey, coffee, macadamia, and livestock</li> </ul>
<b>Leakage mitigation strategy</b>	<i>The project and leakage activities are basically integrated</i>
<b>Non-permanence risk mitigation strategy</b>	<ul style="list-style-type: none"> <li>▪Fire prevention activities are in place</li> </ul>
<b>Additionality</b>	<ul style="list-style-type: none"> <li>▪Identification of Alternative Land Use Scenarios: Continuation of the pre-project land use expected as finances for enhanced protection unlikely</li> <li>▪Investment analysis: Barrier analysis was performed instead of investment analysis as allowed by the Additionality Tool. Barriers to Project implementation are mostly financial, but also institutional (lack of resources for governance) or related to poverty, local tradition and prevailing practice.</li> <li>▪Common Practice Analysis: While the general concept of some of the planned Project activities is known and understood among Project stakeholders, the Project activities have not been implemented systematically or at scale in the Project Area and Project Zone</li> </ul>

### With-project emissions



<b>Effectiveness of measures</b>	Varies by activity and year up to 2020. From 2020 onwards, all activities are 100% effective in stopping deforestation. Effectiveness estimates based on based on information gathered from social assessments conducted in the Project Area, literature review, and expert opinion.
<b>Carbon stock changes</b>	Carbon stock changes estimated from assumed effectiveness of project activities. Sequestration from assisted natural regeneration activities excluded. Avoided carbon stock losses from fuel stoves included.

<b>GHG emissions</b>	CH4 and N2O from firewood included (due to introduction of improved cookstoves)
<b>Leakage</b>	<p><b>Types</b></p> <p>Activity shifting: The Leakage Area was selected to be sufficiently large to encompass all forests around the Project Areas that could be under higher pressure from deforestation displaced by Project activities during the project's lifetime. The location was selected by taking into account the "cost" local agents of deforestation would need to incur to move their activities. It is assumed that leakage will only occur when the cost to displace the deforestation activity is below a certain threshold or is less than alternative resources. To select the extent of the Leakage Area, this threshold was set conservatively by using the maximum distance travelled for forest products, 10 km, as reported in Participatory Rural Appraisals. Leakage from drivers of deforestation that are not constrained by geography is discounted by using a factor approach. The cost distance analysis was conducted using the Spatial Analyst extension for ArcGIS software.</p> <p>Market leakage: There is no commercial timber harvesting in the baseline and thus, there is no market leakage.</p> <p><b>Deduction</b> 7,155,981 tCO<sub>2</sub>e</p>
<b>Non-permanence risk</b>	<p><b>Buffer:</b> 10%</p>
<b>Ex-ante estimated net greenhouse gas emissions reductions</b>	<p><b>Total over crediting period:</b> 6,312,632 tCO<sub>2</sub>e <b>Annual average:</b> 210,421 tCO<sub>2</sub>e <b>Annual average per ha:</b> 1.24 tCO<sub>2</sub>e</p>
<b>Monitoring of carbon stock changes and emissions</b>	<p><b>Parameters</b></p> <p><i>Sizes, Areas, and Transitions</i></p> <ul style="list-style-type: none"> <li>▪ Deforestation drivers, project activities and emission sources related to REDD project activities inside and outside of the Project Area</li> <li>▪ Land use, land change (LULC) class and forest strata transitions in the Project Area, leakage area and reference region</li> <li>▪ Carbon stock densities in LULC classes and forest strata</li> <li>▪ Natural disturbances</li> </ul> <p><i>Indicators are also monitored for Locations, Descriptions, Qualitative, and Social Data; Drivers and Actions; Organic Matter and Carbon Densities (too many to list)</i></p> <p><b>Methods</b></p> <ul style="list-style-type: none"> <li>▪ Remote sensing technologies validated with ground-truthing data</li> </ul>

	<ul style="list-style-type: none"> <li>▪GIS analysis</li> <li>▪Analysis of records of implemented activities or forest harvest and management plan</li> <li>▪PRA</li> <li>▪Literature reviews</li> <li>▪Sample plots</li> </ul> <p><b>Frequency</b></p> <p>The results of the above monitoring will be included in the VCS monitoring report at each verification</p>
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### Stakeholder identification and engagement

	<p><b>Stakeholders identified</b></p> <p><i>No stakeholder list provided. Seem to be:</i></p> <ul style="list-style-type: none"> <li>▪Communities living within 10 km of the Nyika and Vwaza areas</li> <li>▪Government departments</li> <li>▪Community-based organisations</li> </ul>
	<p><b>Identification process</b></p> <ul style="list-style-type: none"> <li>▪Extensive consultations with officials from all relevant Ministries and Departments, and leaders of community-based organizations around protected areas and local private sector firms; Over first four years of project extensive consultations were conducted with communities.</li> </ul>

### Full and effective participation

	<p><b>Access to information and consultation</b></p> <ul style="list-style-type: none"> <li>▪During the first four years, the Project conducted a variety of community consultation activities aimed at training, information sharing, and learn-by-doing on topics related to the Project activities. These community consultations included staff training, community sensitization meetings, community training and demonstrations, field days, and field tours.</li> </ul>
	<p><b>Participation in design, implementation and monitoring</b></p> <ul style="list-style-type: none"> <li>▪The Project supports the co-management of the Protected Areas with the government and communities through the establishment of Community Associations, which represent the villages around the Protected Areas.</li> <li>▪Along with NVA, NAWIRA will be trained in leadership, group dynamics, finance and business administration, business management, marketing and product development.</li> <li>▪In addition to Project staff, the Project will engage and train village extension agents/volunteers who reside within the target villages to participate in extension and training activities. These agents will be provided with basic tools, skills and resources to help deliver services to the community in which they live.</li> <li>▪TLC has an approved Performance Monitoring Plan (PMP) and will continually track progress against Project Level performance indicators. The PMP monitoring</li> </ul>

	<p>methodology is participatory in that Project participants including Project proponents (TLC and Terra), local partners (NVA, NAWIRA), and government authorities (the DNPW) in providing input into the design, planning, and initial implementation of the monitoring plan.</p> <ul style="list-style-type: none"> <li>▪The Project intends to rely on community participation for monitoring biodiversity and High Conservation Value (HCV) areas in the Project Areas, with support and technical consultation from a locally-based agency.</li> </ul>
<b>Feedback and grievance redress procedures</b>	<ul style="list-style-type: none"> <li>▪The Project relies on existing and emerging institutions to mediate any conflict arising from Project related activities. In the first four years of the Project TLC worked with existing community structures and farmer groups. If these groups did not exist, new ones were formed.</li> <li>▪For the Project, training and capacity development will also include aspects of conflict resolution.</li> <li>▪Basic approach to conflict resolution: The Committee normally will handle any issues at their level; If the Committee fails to resolve the issue, the matter would be taken to the Village Head; If the Village Head cannot resolve the issue, the matter would be taken to the Senior Village Head (highest level is the Traditional Authority); If Traditional Authority cannot resolve the issue, the matter is referred to the District Commissioner</li> </ul>
<b>Worker relations and safety</b>	<ul style="list-style-type: none"> <li>▪TLC is an Equal Opportunity Employer and aims to include community groups in the work that they do regardless of age, gender, ethnicity or other characteristics. Besides training their own staff, they aim to ensure that local community members involved in Project implementation activities are also adequately trained.</li> <li>▪The Project will meet or exceed all applicable national labor laws and regulations covering worker rights. Compliance will be achieved by the explicit approval of the work plans that the DNPW and Associations will develop on an annual basis. The Project managers will inform workers of their employment rights during community meetings.</li> <li>▪During the work in the field, the main risks for the safety of workers include: malaria, falling trees in thinning operations, and bush fires. Safety guidelines will be formulated to address risks that endanger worker health. In order to avoid accidents, daily staff briefings both in the morning and the late afternoon, will be compulsory. The Project Implementation team will review worker risks and mitigation strategies annually to ensure risks are minimized.</li> </ul>

## Communities



### Without-project scenario

Based on literature and detailed socio-economic baseline survey conducted in the three Project Zones over 13 weeks from December 2010 to March 2011 (a total of 1924 households were surveyed with a structured questionnaire in the Project Zones and the control area), the following is expected:

- Households living around the PAs remain in dire poverty, undertaking practices that are destructive to the same natural resources upon which their livelihoods depend
- Communities continue to have limited access to support services such as health care, education, agricultural extension, inputs, markets and tele-communications

### With-project scenario

#### **Expected net benefits**

- Formal inclusion of DNPW and communities in a VCS/CCB emission reduction REDD+ project and increased funding to support implementation according to the Project plan
- Legally enforceable roles and responsibilities to implement Project activities between Project partners
- Legally recognized relationship between the DNPW and the communities to manage Protected Areas
- Formalized dispute resolution process between DNPW and communities around Protected Areas
- Collective recognition between DNPW and communities of the Protected Area boundaries
- Increased level of community education on the value of sustainably managed forests.
- Increased community participation in Protected Area governance by having a clearer understanding of the issues, responsibilities, and roles of all stakeholders and participate in addressing illegal resource use and poaching within Protected Areas
- Reduced fuel wood usage from unsustainable sources
- Improved respiratory health from decreased particulate matter
- Reduced time spent gathering fuel wood
- Increased sources of sustainable fuel wood sources
- Reduced time spent gathering fuel wood
- Increased capacity to adopt conservation agriculture practices
- Increased hectares and farmers using one or more conservative agricultural practices
- Adoption of new conservation agriculture technologies adopted
- Increased crop diversification
- Increased use of soil fertility technologies

- Increased use of irrigation
- Increased adoption of raising of small animals for nutrition and income
- Increased production of value-added products for sale by communities
- Increased eco-tourism enterprises by communities
- Increased village access to finance
- Increased producer's groups with skills and access to finance

**Possible negative impacts on other stakeholders and mitigation strategy**

The impact for communities outside of the Project Areas is expected to be minimal since several of the Project activities are specifically designed to create alternatives to resource extraction and improve livelihoods

**Impact monitoring**

**Indicators**

Household surveys - Key metrics to measure the community impact of the Project activities

- A. Household identification (used for tracking)
- B. Household socio-demographic characteristics (used for tracking and disaggregation by gender, age, education, and other demographic factors)
- C. Household sources of income, income and expenditure
- D. Land ownership, management and farming systems
- E. Irrigation farming
- F. Livestock production
- G. Agroforestry practices
- H. Household food security
- I. Access to markets
- J. Environmental and natural resources management
- K. Economic benefits from natural resources
- L. Water and sanitation
- M. Access to extension services
- N. Schools

PRAs will gather data on:

1. Number of NRMC (Natural Resource Management Committee) members
2. Number of families or households in the NRMC
3. Size of VFA (Village Forest Area) if one exists
4. Size of area used or managed within the Protected Area (Co-management Area for some communities)
5. Date of establishment of VFA and Co-management agreement (if one exists)
6. Wealth ranking
7. Main livelihood activities of community members

- 8. Disputes or conflict in boundary, access or use rights
- 9. Brief account of natural risks.
- 10. Identification of High Conservation Value (HCV) Areas that are important because of cultural or ecological significance.

Other indicators relevant to communities are also identified and monitored under the Performance Monitoring Plan (PMP)

**Methodologies**

- Household surveys to measure the quantitative impacts on local communities: semi-structured and will canvass a stratified randomized sample of community members in the Project Zones (participants and non-participants alike) based on socio-economic and geographic variables
- Focused group discussions (FGDs) and participatory rural appraisals (PRAs) to measure the qualitative impacts against the baseline: the participatory rural appraisals and focus groups provide a targeted, purposive sample of Project participants. Using an open-ended, participatory approach, the participatory rural appraisals and the focus groups also provide the opportunity for an in-depth exploration of issues relevant to community members

**Frequency**

- HH surveys and PRAs will be conducted each verification period

A full community impact monitoring plan will be developed and will rely on the Project Performance Monitoring Plan (PMP), the VCS methodology and PD monitoring requirements (HH surveys and PRAs) and the other data procedures and sources that will be defined in the CCB Project Monitoring Plan.

**Biodiversity and ecosystem services**

	<p><b>Without-project scenario</b></p>	<p>Based on a baseline wildlife conducted in the Project Areas and various literature sources, including documents held by the national parks, the following is expected:</p> <ul style="list-style-type: none"> <li>▪ Continued loss of habitat and hunting by community members with homemade firearms and wire snare traps for large mammals, and illegal fishing of the endangered Lake Salmon</li> <li>▪ Rampant poaching and deforestation will continue and almost certainly lead to local extinction of a number of IUCN threatened species and endemic species found in the Project Areas</li> </ul>
	<p><b>With-project scenario</b></p>	<p><b>Expected net benefits</b></p> <ul style="list-style-type: none"> <li>▪ Increased forest cover and health as habitat for wildlife</li> </ul>

- Increase biodiversity
- Reduced poaching
- Increased water quality and quantity

**Possible negative offsite impacts and mitigation strategy**

Since the Project will also support the DNPW and Associations in restricting hunting and fire in the Project Areas, the Project may displace some pressure from hunting or NTFP gathering pressures to areas outside of the Project Areas. These impacts will be monitored within the Leakage Belt surrounding the Project Areas. Sustainable harvesting methods for non-timber forest products will be included as part of a capacity building and livelihood program both within the Project Areas and in the Leakage Belt to mitigate the negative impacts of displaced NTFP collection. Members of communities within the Project Zones will be integrated into Project's support for development of rural enterprises through the promotion of ecotourism activities and the production, processing and marketing of sustainably produced non-timber forest products (e.g. honey, coffee, macadamia). members of the community who are involved in hunting and/or illegal wood extraction (for fuelwood, charcoal, etc.) will be encouraged to find alternative sources of livelihoods and sensitized to the benefits of production of NTFPs. Ongoing biodiversity monitoring and periodic assessments and education work will aim to change behavior with regards to hunting through awareness raising. There will be increased efforts for communities to engage in participatory forest protection. These efforts will include training for protected area and Community Association officials in community mobilization, participatory law enforcement, etc. and improved communications between communities and law enforcement. All of these efforts will help to mitigate any potential negative impacts to biodiversity.

**Impact monitoring**

**Indicators**

- Soil: Bulk density, organic carbon, erosion, sediment loading in key rivers and streams
  - Vegetation habitat and biomass: % change in woody species, % change in herbaceous species, vegetation, age structure/DBH, canopy cover, number of hectares in areas of biological significance under improved management, number of hectares of natural resources showing improved biophysical conditions, number of hectares under improved natural resource management
  - Wildlife: Number of observed mammal species, poached animals, illegal activities, poacher bases
- Biodiversity indicators are also identified and monitored

in the PMP.

**Methodologies**

- Biophysical surveys using soil sample plots
- SLEMSA (Soil Loss Estimation Model for Southern Africa) model
- Vegetation, habitat and biomass surveys using plots
- Wildlife survey (monitoring by consultants and by the DNPW staff as part of their protected area management information system)

**Frequency**

Wildlife parameters – yearly

A full biodiversity impact monitoring plan will be developed and will rely on the Project Performance Monitoring Plan (PMP), the VCS methodology and PD monitoring requirements and the other data procedures and sources that will be defined in the CCB Project Monitoring Plan.

**Progress**

	<b>Validation</b>	VCS validation report issue date: 3 July 2014 (Gold Level) CCBA validation report issue date: 3 July 2014
	<b>Verification</b>	VCS verification report period and issue date: 1 October 2009 to 30 September 2013; 4 July 2014 CCBA verification report period and issue date: 1 October 2009 to 30 September 2013; 4 July 2014
	<b>Number VCUs issued</b>	Number: 103,600 As of: 30 Jan. 2016

**Further information**

	<ul style="list-style-type: none"> <li>▪VCS Project Database: <a href="http://www.vcsprojectdatabase.org/#/project_details/1168">http://www.vcsprojectdatabase.org/#/project_details/1168</a></li> <li>▪CCBA Projects: <a href="http://www.climate-standards.org/2013/11/05/kulera-landscape-redd-project-for-co-managed-protected-areas-malawi/">http://www.climate-standards.org/2013/11/05/kulera-landscape-redd-project-for-co-managed-protected-areas-malawi/</a></li> </ul>
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**Documents reviewed**

<ul style="list-style-type: none"> <li>▪Kulera Landscape REDD+ Program for CoManaged Protected Areas, Malawi – VCS Project Description, <a href="http://www.vcsprojectdatabase.org/services/publicViewServices/downloadDocumentById/16222">http://www.vcsprojectdatabase.org/services/publicViewServices/downloadDocumentById/16222</a></li> <li>▪Kulera Landscape REDD+ Program for Co-Managed Protected Areas, Malawi Project Design Document, Climate, Community &amp; Biodiversity Standard, <a href="http://www.v-c-s.org/sites/v-c-s.org/files/03_KuleraREDD_CCBSPDD_11.pdf">http://www.v-c-s.org/sites/v-c-s.org/files/03_KuleraREDD_CCBSPDD_11.pdf</a></li> <li>▪Validation report: “Kulera landscape REDD+ project for co-managed protected areas, Malawi”, <a href="http://www.vcsprojectdatabase.org/services/publicViewServices/downloadDocumentById/16224">http://www.vcsprojectdatabase.org/services/publicViewServices/downloadDocumentById/16224</a></li> <li>▪Verification report: “Kulera landscape REDD+ project for co-managed</li> </ul>
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protected areas, Malawi”,  
<http://www.vcsprojectdatabase.org/services/publicViewServices/downloadDocumentById/16342>  
▪ VCU issuance records, [http://www.vcsprojectdatabase.org/#/vcus/p\\_1168](http://www.vcsprojectdatabase.org/#/vcus/p_1168)