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# VCS FINAL VALIDATION REPORT

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## WILDLIFE WORKS KASIGAU CORRIDOR REDD PROJECT PHASE II – THE COMMUNITY RANCHES

REPORT No. 2011-9202

REVISION No. 01



VCS PROJECT VALIDATION REPORT

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Det Norske Veritas (U.S.A.), Inc. (DNV) has performed a validation of the “The Kasigau Corridor REDD Project Phase II – The Community Ranches ” (hereafter called “the project”) in Kenya on the basis of Verified Carbon Standard 2007.1 (VCS), as well as criteria for consistent project operations, monitoring and reporting. This validation report summarizes the findings of the validation.

The validation consisted of the following three phases: i) a desk review of the project design, the baseline and the monitoring plan, ii) follow-up interviews with project stakeholders and the issuance of the finding list, and iii) the resolution of outstanding issues and the issuance of the final validation report and opinion.

The total emission reductions from the project are estimated to be 38 759 015 tCO<sub>2</sub>e over the 30-year crediting period (1 January, 2010 to 31 December, 2039). This includes project emissions, the total confidence deduction, a 20% leakage deduction applied to years 2011-2040, and the VCS AFOLU non-permanence risk buffer deductions currently assessed at 20%. This estimate assumes the baseline does not change during the baseline re-evaluation.

In summary, it is DNV’s opinion that the “The Kasigau Corridor REDD Project Phase II – The Community Ranches” as described in the VCS Project Document dated 12 April, 2011 meets all relevant VCS 2007.1 requirements and correctly applies the VCS approved methodology element VM0009 – Methodology for Avoided Mosaic Deforestation of Tropical Forests Version 1.0.

Report No.: <b>2011-9202</b>	Date of this revision: <b>9 May, 2011</b>	Rev. No. <b>No. 1</b>
Report title: <b>VCS Validation Report – Wildlife Works Kasigau Corridor REDD Project Phase II – The Community Ranches</b>		
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## Abbreviations

AFOLU Guidelines	Agriculture, Forestry and Other Land Uses Section of Guidelines for National Greenhouse Gas Inventories 2006
CAR	Corrective Action Request
CCBA	Climate Community and Biodiversity Alliance
CDM	Clean Development Mechanism
CL	Clarification Request
CO <sub>2</sub>	Carbon Dioxide
DNA	Designated National Authority
DNV	Det Norske Veritas
DR	Document Review
EB	Executive Board
GHG	Greenhouse Gas(es)
GPG LULUCF	Intergovernmental Panel on Climate Change's Good Practice Guidance for Land-Use Land Use Change and Forestry
GWP	Global warming potential
m	Meters
MED	Methodology Element Documentation
MoV	Means of Verification
PD	Project Document
REDD	Reduced Emissions from Deforestation and Degradation
SCS	Scientific Certification Systems
tCO <sub>2</sub> e	Tonnes CO <sub>2</sub> equivalent
VCS	Verified Carbon Standard
VCSA	VCS Association
VCU	Voluntary Carbon Unit
WBCSD	World Business Council for Sustainable Development
WRI	World Resources Institute



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## 1 INTRODUCTION

Wildlife Works Carbon LLC. (Wildlife Works) has commissioned Det Norske Veritas (U.S.A.), Inc. (DNV) to validate the “Kasigau Corridor REDD Project Phase II – The Community Ranches” in Kenya. This report provides a description of the steps involved in conducting the validation and the findings of the validation based on the Verified Carbon Standard 2007.1 (VCS), as well as criteria for consistent project operations, monitoring and reporting.

The validation team consisted of the following personnel:

<i>Role/Qualification</i>	<i>Last Name</i>	<i>First Name</i>	<i>Country</i>
Project manager	Stevenson	Samuel	USA
VCS Validator / VCS REDD AFOLU Expert	Smith	Gordon	USA
Technical reviewer	Kapambwe	Misheck	Australia

### 1.1 Objective

The purpose of a validation is to have an independent third party assess the project design. In particular, the project’s baseline, monitoring plan, and the project’s compliance with the VCS 2007.1 are validated. This is to ensure that the project design, as documented, is reasonable and meets the identified criteria. Validation is a requirement for all VCS projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of emission reductions.

### 1.2 Scope and Criteria

The validation scope is defined as an independent and objective review of the VCS Project Document (VCS PD). The VCS PD is reviewed against the criteria stated in the Verified Carbon Standard 2007.1 (VCS), and the approved VCS methodology VM0009 – Methodology for Avoided Mosaic Deforestation of Tropical Forests, Version 1.0.

The validation is not meant to provide any consulting for the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design.

### 1.3 VCS Project Description

The “Kasigau Corridor REDD Project Phase II – The Community Ranches” has been developed by Wildlife Works Carbon LLC., a project proponent based in California, USA. The project is implemented on 13 blocks of land known as the Kasigau Corridor, which is owned by the Indigenous Community Ownership Groups or an individual, each one of the 13 blocks being owned by different legal entities formed in the 1960s and



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1970s by the Communities and the Government of Kenya to hold legal title of the land. The project also includes the Maungu Hill Bio-diversity Conservation and Eco-tourism Project and a Wildlife Corridor adjacent to the Nairobi-Mombasa Highway.

The project proponent and project developer is Wildlife Works Carbon LLC. DNV has confirmed that Wildlife Works Carbon LLC has the right to all and any greenhouse gas (GHG) reductions generated by the Project during the Project Crediting Period /2/.

The project area is 169 741.4 hectares with an average canopy cover of 34.6%, with mature tree heights ranging from 5-10 meters (m), and therefore conforms to the latest VCS definition of “forest” /26/ (see Section 3.2.1).

The main project activity is to prevent deforestation caused by subsistence farming activities. The objective of the project activity is to prevent the conversion of forest to cropland for annual crops, typically maize that ultimately results in net GHG emissions into the atmosphere. The primary agents of deforestation are the growing population of the local Taita and Kamba people living in the Reference Area. Forest clearing for agricultural purposes in the Reference and Leakage Areas is permanent and cultivation activities do not shift.

The project start date is 1 January, 2010, which is the date Wildlife Works assumed financial responsibility for the project area and began specific GHG mitigation activities within the project area /4/. The selected crediting period is from 1 January, 2010 to 31 December, 2039. The total emission reductions from the project are estimated to be 38 759 015 tonnes CO<sub>2</sub> equivalent (tCO<sub>2</sub>e) over the 30-year crediting period. This includes project emissions, total confidence deduction, and the VCS Agriculture, Forestry and Other Land Uses (AFOLU) non-permanence risk buffer deductions, currently assessed at 20%. This estimate also includes an *ex-ante* deduction of a further 20% to account for leakage in years 2011-2039 (per VM0009 Version 1.0). The estimate does not include offsets expected to be released from the VCS buffer account to the project developer upon future re-verifications of the project. VCS AFOLU guidance requires the baseline to be re-calculated after 10 years and if the baseline changes, the estimated future emission reductions will also change.

#### **1.4 Level of Assurance**

DNV provides reasonable assurance that the emission reduction estimations for the “Kasigau Corridor REDD Project Phase II –The Community Ranches” are conservative and meet the VCS criteria and approved methodology, VM0009 Version 1.0.



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The project will use a quantitative *ex-post* measurement of leakage. As a result, *ex-ante* estimation of leakage at the project outset is highly uncertain. Wildlife Works has determined an *ex-ante* leakage rate for the project crediting period at 20% and it is DNV's assessment, given a lack of past project data, that this is appropriate given the conditions of the project, and DNV finds the assessment conforms to the requirements in the approved methodology, VM0009 Version 1.0.

To ensure complete transparency, DNV has included any clarification or corrective actions that were raised in this validation report in Appendix B.

## 2 METHODOLOGY

The validation consisted of the following three phases:

- A desk review of the project design and the baseline and monitoring methodology.
- Site visit and interviews with project stakeholders.
- The resolution of outstanding issues and the issuance of the final validation report and opinion.

In order to ensure transparency, a validation protocol was customized for the project. The protocol used shows in a transparent manner the criteria, means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

- It organizes, details and clarifies the requirements a VCS project is expected to meet.
- It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.

The validation protocol consists of two tables. The different columns in these tables are described in Figure 1. The completed validation protocol for the “Kasigau Corridor REDD Project Phase II – The Community Ranches” is enclosed in Appendix A to this report.

Findings established during the validation can either be seen as a non-fulfilment of validation protocol criteria or where a risk to the fulfilment of project objectives is identified. Corrective Action Requests (CAR) are issued where:

- Mistakes have been made with a direct influence on project results.
- Validation protocol requirements have not been met.
- There is a risk that the project would not be accepted as a VCS project or that emission reductions will not be certified.

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The term Clarification (CL) may be used where additional information is needed to fully clarify an issue.

<b>Validation Protocol Table 1: Requirement Checklist</b>				
<b>Checklist Question</b>	<b>Reference</b>	<b>Means of verification (MoV)</b>	<b>Comment</b>	<b>Draft and/or Final Conclusion</b>
<i>The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organized in seven different sections. Each section is then further sub-divided. The lowest level constitutes a checklist question.</i>	<i>Gives reference to documents where the answer to the checklist question or item is found.</i>	<i>Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.</i>	<i>The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.</i>	<i>This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) due to non-compliance with the checklist question (See below). A request for Clarification (CL) is used when the validation team has identified a need for further clarification.</i>

<b>Validation Protocol Table 2: Resolution of Corrective Action Requests and Requests for Clarification</b>			
<b>Draft report corrective action requests and requests for clarifications</b>	<b>Ref. To Table 1</b>	<b>Project participants' response</b>	<b>Final conclusion</b>
<i>If the conclusions from the draft Validation are either a Corrective Action Request or a Clarification Request, these should be listed in this section.</i>	<i>Reference to the checklist question number in Table 1 where the Corrective Action Request or Clarification Request is explained.</i>	<i>The responses given by the project participants during the communications with the validation team should be summarized in this section.</i>	<i>This section should summarise the validation team's responses and final conclusions. The conclusions should also be included in Table 1, under "Final Conclusion".</i>

**Figure 1: Validation Protocol Tables**

## 2.1 Review of Documents

The project document /1/, dated 12 April, 2011 and previous versions for "Kasigau Corridor REDD Phase II – The Community Ranches" was submitted by Wildlife Works Carbon LLC, along with additional background documents related to the project design and baseline, which were assessed as part of the validation. The project documentation followed the guidance set out in VCS 2007.1.

The following table lists the documentation that was assessed during the validation:





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*Documents provided that relate directly to the project:*

- /1/ Wildlife Works Carbon LLC, VCS PD for Kasigau Corridor REDD Project Phase II – The Community Ranches” with VCS template and supporting document, version 12, 12 April, 2011 and previous versions.
- /2/ “Carbon Rights Agreement” between Wildlife Works Carbon LLC and each of the 13 ranches.
- /3/ Leasehold titles and ownership structures to each of the 13 ranches.
- /4/ Re: - Management Authority for Rukinga Ranch (1 January, 2005).
- /5/ The National Environment Management Authority (*NEMA*) Kenya, Audit Report of Wildlife Works EPZ, December, 2006.
- /6/ Shareholder lists and AGM minutes from each of the 13 ranches.
- /7/ Wildlife Works, Inc. financial statements and projections – As of 23 March, 2011.
- /8/ Image Classification Protocol (as of 1 April, 2011).
- /9/ How to Use the Classification Tool (as of 1 April, 2011).
- /10/ Logistic regression model for deforestation (as of 1 April, 2011).
- /11/ Field measurement protocol – Standard Operating Procedure Biomass (as of 1 April, 2011).
- /12/ Field measurement protocol – Standard Operating Procedure Soils (as of 1 April, 2011).
- /13/ Soil lab report of measured soil carbon concentrations (1m Soil Analysis, 1 April, 2011).
- /14/ Forest Biomass Data (Forest Inventory Phase II Summary-Strata2\_v4.xlsx, 1 April, 2011).
- /15/ Soil lab report of measured soil carbon concentrations (Kasigau Corridor Phase II 1m Soil Analysis.xlsx, 19 April, 2011).
- /16/ Data used to develop tree biomass allometric equations (allometry\_weighted\_PhaseII.xlsx, 24 March, 2011).
- /17/ Forest Biomass Data (PhaseII\_PlotLevel\_Strata2\_v3.xlsx, 19 April, 2011).
- /18/ Letters to shareholders of the 13 ranches pertaining to an Extraordinary Annual General Meetings.
- /19/ Wildlife Works Carbon LLC. Tool for AFOLU Non-Permanence Risk Analysis and Buffer Determination for the Kasigau Corridor REDD Project, Phase II – The Community Ranches (12 April, 2011).
- /20/ Phase II NERs v6.xlsx (12 April, 2011).
- /21/ Leakage Model Expanded.xls (12 April, 2011).
- /22/ Grid\_Data\_RefArea\_flaggedPoints\_Phase2.xlsx (12 April, 2011).



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*Background documents related to the design and/or methodologies employed in the design or other reference documents:*

- /23/ VCSA: *Approved VCS Methodology: "VM0009 Methodology for Avoided Mosaic Deforestation of Tropical Forests"* Version 1.0, 11 January, 2011.
- /24/ VCSA: *Verified Carbon Standard 2007.1*, November, 2008.
- /25/ VCSA: *VCS Sectoral Scopes* ([http://www.v-c-s.org/sectoral\\_scopes.html](http://www.v-c-s.org/sectoral_scopes.html)).
- /26/ VCSA: *Guidance for Agriculture, Forestry and Other Land Use Projects*, 18 November, 2008.
- /27/ VCSA: *Tool for AFOLU Non-Permanence Risk Analysis and Buffer Determination*, 18 November, 2008
- /28/ VCSA: *Update to the VCS 2007.1: Tool for Non-Permanence Risk Analysis and Buffer Determination*, 8 September, 2010.
- /29/ VCSA: *Tool for the Demonstration and Assessment of Additionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) Project Activities*, Version 1.0, 21 May, 2010.
- /30/ CAR: *Forest Project Protocol*, Version 3.2, August 31, 2010.

## **2.2 Follow-up Interviews**

During 16-23 March, 2011, DNV performed interviews with project stakeholders at the project site in Rukinga, Kenya to confirm selected information and to resolve issues identified in the document review. Representatives of Wildlife Works Carbon LLC were interviewed. The main topics of the interviews are summarized in

**Table 1.**

**Table 1 Interview Topics**

<b>Interviewed Organization</b>	<b>Interview Topics</b>
Wildlife Works Carbon LLC	<ul style="list-style-type: none"> <li>✓ Project start date.</li> <li>✓ Demonstration of additionality.</li> <li>✓ Emission reduction estimates.</li> <li>✓ Monitoring plan.</li> <li>✓ Baseline determination.</li> <li>✓ Buffer determination.</li> <li>✓ Leakage rates.</li> <li>✓ Resources, training, procedures of management structure.</li> <li>✓ Project Implementation Plan.</li> <li>✓ Disbursement structure and plan.</li> <li>✓ Environmental Monitoring and Impacts.</li> <li>✓ Biodiversity Monitoring and Impacts.</li> <li>✓ Land use rights.</li> <li>✓ Carbon Easements review.</li> <li>✓ Community Outreach methods.</li> <li>✓ Procedure for handling conflicts.</li> </ul>
Maungu Hill Conservation Association	<ul style="list-style-type: none"> <li>✓ Disbursement methods of carbon revenues to affected communities.</li> <li>✓ Management structure.</li> <li>✓ History of organization.</li> <li>✓ Affiliation with Wildlife Works.</li> <li>✓ Concerns about potential negative impacts.</li> <li>✓ Purpose and expected benefits.</li> <li>✓ Method for prioritizing community projects.</li> <li>✓ Growth plans for respective organizations.</li> </ul>
Ranch Directors of the 13 ranches (listed below)	<ul style="list-style-type: none"> <li>✓ Understanding of Carbon Easement.</li> <li>✓ Financial Records.</li> <li>✓ Future plan for ranch land.</li> <li>✓ Free, Prior, and Informed Consent.</li> <li>✓ Disbursement Plans to shareholders.</li> </ul>

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**Table 2. Participants at Project Site (Rukinga, Kenya)**

Name	Position	Organization
Jeremy Freund	VP, Carbon Development	Wildlife Works Carbon LLC
Rob Dodson	General Manager	Wildlife Works EPZ, Ltd.
Patrick Kabatha	Biodiversity Specialist	Wildlife Works Sanctuary, Ltd.
Hassan Sachedina	VP, Conservation Enterprise	Wildlife Works Carbon LLC
Laura Cowan	Office Manager	Wildlife Works Sanctuary, Ltd.
Eric Sagwe	Head Ranger	Wildlife Works Sanctuary, Ltd.
Lenjo Laurian	Community Relations, Office Manager	Wildlife Works Sanctuary, Ltd.
Joseph Mwanganda	Greenhouse, Nurseries and Jojoba Project Manager	Wildlife Works Sanctuary, Ltd.
Jamie Hendriksen	Carbon Operations Manager	Wildlife Works Sanctuary, Ltd.
Berhard Mwadime Fumbu	Secretary	Kambanga Ranch
George Mwakideu	Vice Chairman	Kambanga Ranch
Elijah B. Mwakio	Secretary	Dawida Ranch
Edward Chege	Chairman	Dawida Ranch
Benson M. Murwana	Treasurer	Dawida Ranch
Renson Did Mwamodo	Director & Treasurer	Taita Ranch
Angelina Mdari	Director	Taita Ranch
Alfonoeji Mwamghvnda	Secretary	Wangala Ranch
Leonard Mbogho Monge	Secretary & Treasurer	Wangala Ranch
Livingston M. Ikonge	Chairman	Wangala Ranch
Davison M. Jgoda	Director	Washumbu Ranch
Samuel K. Mkungo	Treasurer	Washumbu Ranch
Saul J. Mwamgola	Chairman	Kutima Ranch
Raymond J. Mwangola	Chairman	Choke
Jones M. Mlolwa	Treasurer	Maungu Ranch
Gerald M. Mbela	Vice Chairman	Maungu Ranch
Dawson Marami	Secretary	Maungu Ranch
Leonard Kapalla	Director	Mgeno Ranch
Anold Msheshe	Treasurer	Mgeno Ranch
Sam Mwammanga	Representative	Sagalla & Ndara Ranch
Babu Kisai Kifuso	Organizing Secretary	Maungu Hill Conser Asso
Donald M. Konde	Chairman	Maungu Hill Conser Asso
Andrw MwDyoho	Project Secretary	Maungu Hill Conser Asso
Jamis M' Mboge	Project Co-coordinator	Maungu Hill Conser Asso

### 2.3 Resolution of Any Material Discrepancy

To guarantee the transparency of the validation process, the concerns raised by DNV and the response provided by the project proponent and the consultant are documented in Table 2 of the Validation Protocol in Appendix A.

## 3 VALIDATION FINDINGS

### 3.1 Project Design

The project avoids deforestation and forest degradation caused by clearing for subsistence agriculture. Clearing is often preceded by degradation in the form of removal of larger trees with dense wood during illegal charcoal making operations. The project encompasses a variety of activities to monitor and protect project lands, provide local people with alternative ways of sustaining themselves, and provide sustainably produced charcoal.



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Quantification of deforestation was performed by human interpretation of a time series of LANDSAT images of the reference area, classifying each point of a sample as forest, non-forest, built, cloud/shadow or no image. Methods described in approved VCS Methodology VM0009, Version 1.0 were used to statistically weight each forest state observation and calculate a logistic curve representing cumulative baseline deforestation over time.

Starting vegetation and soil carbon stocks were measured within the project area. Vegetation sampling was stratified by vegetation type. Soil carbon was measured using unstratified random sampling. Destructive sampling of trees and shrubs was used to construct allometric equations to predict tree biomass as a function of diameter and shrub biomass as a function of height. Loss of soil carbon was estimated by measuring carbon stocks in farmed fields and finding the difference between stocks in fields and in undisturbed forest.

The project avoids deforestation within the project boundary by controlling project lands with ranger patrols and developing relationships between Wildlife Works staff and members of surrounding communities. The project provides alternatives to subsistence agriculture to avoid leakage in the form of displacing land clearing from within the project boundary to outside the project boundary. The project is developing a sustainable charcoal production program to avoid displacement of charcoal production from within the project boundary to other locations. The sustainable charcoal program involves establishing new plantations of acacia trees on degraded woodland, and pruning branches less than 2 cm in diameter for material to make charcoal. Because the sustainable charcoal production involves establishing new plantations that are expected to have higher carbon stocks than the degraded vegetation they replace, DNV believes it is conservative to exclude accounting of change in carbon stocks on sustainable charcoal project lands.

Baseline emissions are calculated as a function of the baseline area predicted to be deforested each year, multiplied by the carbon stock per hectare in woody biomass, plus the soil carbon loss as a decay function since conversion to agriculture. The project avoids emissions to the extent that monitored deforestation is less than predicted baseline deforestation, adjusted for changes in biomass carbon stocks.

The project is eligible for crediting under the VCS because it meets the applicability requirements of approved VCS Methodology VM0009 Version 1.0, as explained in Section 3.2.1 below.



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DNV finds that the project conforms to VCS AFOLU guidance /26/, as well as conforming to the applicability requirements of VCS Methodology VM0009 Version 1.0. DNV also finds that the project proponent has appropriately defined a reference area, appropriately measured deforestation over time within the reference area, and appropriately monitored starting biomass and soil carbon stocks within the project boundary. DNV has also confirmed that the project is implementing leakage mitigation activities and has performed baseline measurements needed to quantify whether or not leakage occurs over time.

**Project Boundary**

The project area covers 100% (169 741.4 hectares) of the 13 community ranches. At the time of the project start date, 94.3% of the project area was forested for 10 years prior to the project start date. The project boundary was confirmed by DNV by reviewing the two documents provided by Wildlife Works, the leasehold titles to each of the 13 ranches /2/, and the Carbon Rights Agreement between Wildlife Works Carbon LLC and each of the 13 ranches/3/.

**Project Duration, Crediting Time and Project Start Date**

Wildlife Works took financial responsibility for all conservation activities within the Project Area on 1 January, 2010. As such, the project start date and project crediting period is 1 January, 2010 – 31 December, 2039. Although Wildlife Works was performing conservation activities centered around the ecofactory administered by Wildlife Works EPZ prior to 2005, all activities were located outside of the Project Area and thus do not affect the project start date or project crediting period of Phase II of this project. DNV confirmed that the project start date and project crediting period was determined properly through reviewing the contract signed between each of the 13 ranches/4/ and the Carbon Rights Agreements between these ranches /2/. A 30-year crediting period was selected, with 1 January, 2010 as the start date. The project will therefore end on 31 December, 2039.

**Project Ownership**

DNV can confirm the project ownership by Wildlife Works by reviewing documents provided by Wildlife Works /2/ and /3/. The validity of these ownership documents was supported by interviews with local government officials and community members who universally recognized Wildlife Works' ownership as existing and valid. Lack of coercion was shown during DNV's field visits with Wildlife Works staff by observation of multiple spontaneous friendly greetings of Wildlife Works staff by members of local communities, and multiple requests for additional Wildlife Works activities. In addition, DNV can confirm that the project is not included in any emission trading program and is not subject to binding GHG emissions limits /1/.

**Project Eligibility Under the VCS**



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This project has not applied to nor been rejected by other GHG crediting systems.

## **3.2 Baseline**

The project falls into sectoral scope 14 as defined by VCS /24/. The project start date is 1 January, 2010. The project applies a new VCS methodology “VM0009 Methodology for Avoided Mosaic Deforestation of Tropical Forests Version 1.0” /25/, which was approved on 11 January, 2011. The project baseline is constructed according to the approved methodology. The project proponent elected to use the linear model baseline alternative provided within VM0009 Version 1.0.

### **3.2.1 Applicability**

DNV was able to verify that the project meets all applicability criteria of the methodology through document review and interviews /1/:

- DNV confirmed that in fact the primary driver of deforestation is the conversion of forest to cropland for annual crops and harvesting of wood to support the illegal charcoal trade by visiting the project site. Evidence of forest conversion to agriculture was evident both in the reference area and in the immediate surroundings of the project area. The existence of illegal charcoal trade was deduced from observing rangers checking charcoal permit papers on a charcoal transport truck, from news reports of government arrests and destruction of illegal charcoal kilns in the area, observed charcoal kilns in the bush, and stumps of trees cut and removed.
- DNV confirmed that the project area has been tropical dryland forest for at least 20 years with the review of LANDSAT imagery dating back to 1987.
- DNV confirmed that the project area meets the FAO 2010 and residing designated national authority’s (DNA) definition of “forest” for the project country for a minimum of 10 years prior to the project start date /24/.
- DNV confirmed that the project is located in a semi-arid tropical region through its site visit.
- DNV confirmed that the project is not mandated by any enforced law, statute, or other regulatory framework by reviewing the relevant laws and regulations outlined in the project document, leasehold title, management authority agreement, and the audit report performed by the Kenya National Environmental Management Authority /1/ /3/ /4/ /5/.
- DNV confirmed by reviewing soil maps (/1/ section 6.5) and field observation that the project area does not contain organic or peat soils.
- DNV confirmed that the reference area meets the requirements outlined in section 6.3.1 and 6.3.2 of the approved VCS methodology, “VM0009 - “Methodology for Avoided Mosaic Deforestation of Tropical Forests Version 1.0.”





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- DNV confirmed that as of the project start date, historic imagery in the reference region exists, with sufficient coverage to meet the requirements of section 6.4.2 of VM0009 Version1.0.
- DNV confirmed that a wide range of project activities have been implemented to mitigate deforestation by addressing the agents and drivers of deforestation as described in Section 10.1 of VM0009 Version1.0 (see Section 6.1 in Project Document).
- DNV confirmed that the project start date, end date and crediting period are clearly defined in the Project Document (see Section 6.3) /1/.
- DNV confirmed that the project proponent and primary agents of deforestation have access to the leakage area by randomly visiting a leakage plot used to create the leakage model during the site visit.
- DNV confirmed that the project area does not include lands designated for legally sanctioned logging activities by reviewing the appropriate titles and ownership documents /3/ /4/.

### **3.2.2 Baseline Scenario**

The selected baseline scenario is ongoing deforestation from subsistence agriculture. The rate of deforestation was calculated by defining a reference area that is near the project area and has similar conditions and drivers of deforestation, and then observing the proportion of the reference area that is deforested at each of several points in time, ranging from 1987 to 2009.

DNV concludes that the selected baseline scenario appropriately applies to the project area because:

- There are settlements to the south, east, and north of the project area and active deforestation is occurring on the outskirts of these settlements.
- There is a major highway near the eastern boundary of the project area and validators observed large amounts of locally produced legal and illegal bush charcoal for sale and being transported along this highway.
- Observations of time-series land cover images show rapid deforestation continuing to occur within the reference region.
- Prior to the project start date, subsistence farmers had begun clearing land for farms within properties that compose the project area. It was clear that there is clear pressure from encroaching farm lands. The Kambanga Ranch, for example, excised an area on the southeast border for the project, since there was a community permanently settled within the boundaries of the ranch.





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Thus, it is DNV's opinion that the selection of the continuation of the pre-project practice of the conversion of forest to cropland as the baseline scenario is deemed to be appropriate.

### **3.2.2.1 The Cumulative Deforestation Model**

A pilot study estimated the variance of land cover state observations. The project calculated that fewer than 8 650 observation points would be needed to meet statistical precision goals. The project elected to observe 8 650 points. Points were assigned by GIS software, in a regular grid pattern within the project boundary. LANDSAT imagery was obtained for the area, for 17 different years from 1987 to 2009. To build the Cumulative Deforestation Model, imagery was used from 1987 until the one year prior to the project start date (2009). For some years, images from different times within the year were tiled to create complete or relatively complete coverage of the project area. The project developed an image interpretation protocol and the protocol was used to guide classification of each point at each time for which imagery was obtained.

In the region where the project is located, most deforestation occurs in a mosaic pattern. A key element of the methodology is having a consistent decision rule for distinguishing (a) areas of forest with nearby deforested fields, from (b) remnant patches of trees among fields that are classified as deforested. The image classification protocol states that if the forest fragment is surrounded by cleared area and the point is within a forest fragment but is less than one field width from the edge of the fragment, the point is classified as deforested.

Points that switched back and forth between forest and non-forest were identified. Imagery for each flagged point was reviewed, and inconsistencies were removed.

Each vegetation state observation was given a weight, using the procedure described in VM0009 Version1.0. A commercial statistical software package, "R" was used to fit a logistic curve to the observed changes in the forest state over time. DNV reviewed the code used to fit the logistic curve and the software appears to have been used appropriately. The statistical uncertainty in the cumulative deforestation model is 5.36% at the 95% confidence level.

Population was tested to see if it added explanatory power to the model. Population did not add power and was left out of the final deforestation model.

As allowed by the methodology, the project developer elected to be credited according to a linear deforestation rate that is cumulatively less than the logistic model at all times within the project life.



It is DNV's opinion that the model was applied in conformance with the methodology.

### **3.2.2.2 The Soil Carbon Loss Model**

Soil carbon stocks were measured to a one-meter depth in undisturbed forest within the project boundary and in fields near the project that had been in agricultural use for at least 10 years. The average carbon stock was calculated for forest soil and for agricultural soil and the difference was assumed to be the loss resulting from deforestation and conversion to agriculture. The observed 45% loss of forest soil carbon is within the common range of soil loss given in published studies of other locations around the world. Carbon loss was assumed to occur at a declining exponential rate, starting from the date of deforestation. The exponential rate was chosen to match the rate graphed in Figure 10 of Methodology VM0009 Version 1.0.

It is DNV's opinion that the soil carbon loss model was applied in conformance with the methodology.

### **3.2.2.3 Baseline Scenario for Selected Carbon Pools**

The project developer has elected to count above-ground and below-ground carbon in live trees and shrubs, above-ground and below-ground carbon in herbaceous vegetation, and carbon in the top one meter of soil.

No commercial harvesting of wood for long-lived wood products occurs within the project area. Very small amounts of wood are retained in subsistence use. Branches are used in wattle-and-daub walls of farm huts. Few trees are suitable for using as posts, and few posts are used in local construction or farming. Some ranches will continue owning cattle on their lands without degradation and loss of carbon stock. DNV believes it is reasonable to omit accounting of enteric methane because there is expected to be no increase in total cattle numbers. Even if there were to be complete leakage of reductions in cattle numbers within the project boundary in the form of displacement of cattle to other locations, the numbers of cattle, intensity of cattle operations elsewhere, and total emissions are not expected to increase.

The cumulative deforestation model provides the baseline rate of deforestation for the project area. When a hectare is deforested, the carbon in woody biomass is assumed to be emitted to the atmosphere as carbon dioxide (CO<sub>2</sub>).

The project is expected to reduce burning of stumps during clearing, which may reduce emission of methane from the burning. However, the project does not claim avoided methane from biomass burning as an emission reduction. Not claiming the avoided emission is conservative. Relatively small amounts of biomass are burned during land

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clearing in this area. Tree trunks appear to be left to decompose on site, used for domestic fuel, or removed prior to deforestation during illegal charcoal production. The project counts decomposition as emission and does not claim to reduce total wood fuel and charcoal emissions. Most tree branches are moved to the edges of fields to function as fencing. Because the amount of biomass burned is small, not counting avoided methane emissions from burning does not cause material inaccuracy in emissions accounting.

Woody debris decomposition rates in the area are not well documented. When asked how long some individual pieces of woody debris on tree measurement plots had been dead, local field staff gave estimates ranging from six to eighteen months for Class Two and Class Three woody debris. Pieces that local staff identified as being dead for at least 12 months were very light—for example, a few kilograms for a 20-cm diameter, 4-meter long tree trunk. Decomposition of buried dead wood is even less well documented. Soil sampling pits in forest revealed significant amounts of tough, live roots between 0.5 and 2 cm in diameter. However, hand tilling soil within a year of deforestation did not appear to be impeded by roots. As is common, it appears that decomposition of buried dead wood is faster than decomposition of above-ground dead wood.

It appears that little carbon stock remains in woody debris one year after clearing, especially when trees with dense wood (and presumably slower decomposing wood) are removed for charcoal before clearing the land for farming. Counting woody debris pieces on a couple of sites gave densities on the order of 20 pieces per hectare greater than 15-cm in diameter. Even if the points where woody debris was counted had unusually high woody debris mass, it is unquestionable that within one year of deforestation the carbon stock in the remaining wood is substantially less than the carbon stock in the dead wood in undisturbed forest. Because the project elected not to count avoided emissions from woody debris in the undisturbed forest, it is conservative not to count any carbon that may remain stored in biomass that survives more than a year after deforestation.

Soil carbon stocks in undisturbed forest and in fields that had been cleared at least 10 years previously were measured by sampling. The measured difference between the average soil carbon stock in forest and the average soil carbon stock in tilled fields was taken to be the soil carbon loss due to clearing. Soil carbon loss dynamics are not well documented in this ecosystem. As noted above, the soil carbon loss function used to calculate soil emissions after deforestation was set to match Figure 10 in the approved methodology.

It is DNV's opinion that the baseline scenario was modelled in conformance with the methodology.



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**3.2.3 Project Boundary**

The project area covers 100% (169 741.4 hectares) of the 13 community ranches. At the time of the project start date, 94.3% of the project area was forested for 10 years prior to the project start date. Areas that were not forested were mostly roads, old cattle bomas, rock outcrops, and seasonally wet sites that grow grass instead of trees. The project boundary was confirmed by DNV by reviewing the two documents provided by Wildlife Works, the leasehold titles to each of the 13 ranches /2/, and the Carbon Rights Agreement between Wildlife Works Carbon LLC and each of the 13 ranches/3/.

**3.2.4 Additionality Assessment**

As per the approved VCS methodology, “VM0009 – Methodology for Avoided Mosaic Deforestation of Tropical Forests Version 1.0,” the additionality of the project is demonstrated through the use of the latest version of the VT0001 VCS Tool for the Demonstration and Assessment of Additionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) Project Activities /24/.

**Identification of Alternative Land-use Scenarios**

DNV has confirmed that the alternative land use scenarios identified by Wildlife Works are appropriate. It was also determined that the identified alternative land uses are consistent with enforced mandatory laws and regulations.

DNV confirmed that the project is not mandated by any enforced law, statute, or other regulatory framework by reviewing the relevant laws and regulations outlined in the project document, leasehold title, management authority agreement, and the audit report performed by the Kenya National Environmental Management Authority /1/ /3/ /4/ /5/.

**Investment Analysis**

DNV confirmed the project proponent’s simple cost analysis. DNV has confirmed the physical protection of the project area and costs to implement mitigation activities such as school building, scholarships, ranger patrols, and reforestation of deforested indigenous forests with native tree species /7/. DNV has confirmed in the without project scenario that in fact there is not any significant income to offset the approximately \$1 000 000 USD per year cost of maintaining the project activities and forest protection. It is therefore DNV’s conclusion that without the revenue from the sale of GHG credits, the project activities are economically unsustainable.

**Step 4: Common Practice Analysis**

Although it is common practice to protect wilderness areas and provide sustainable development support for rural African communities in Africa, governments and donor agencies do not have a history of protecting the private lands. This project is the second

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AFOLU Project Activity of its type in Kenya (the first being Phase I – Rukinga Sanctuary, located immediately adjacent to Phase II). As such, it can be reasonably concluded that the project is not common practice.

In summary, it is demonstrated that the project activity is not a likely baseline scenario due to the need of financial revenues to offset mitigation activities, and that the emission reductions are additional to what would have happened in the absence of the project activity.

### **3.2.5 Leakage**

Following methodology VM0009 Version 1.0, the project developer has randomly located plots for measuring leakage. Baseline amounts of degradation and deforestation have been measured on these plots. The needed number of plots was calculated using the observed variance of forest state observations across the reference area.

Leakage model parameters were calculated from the field measurements and compared to the cumulative deforestation model. The leakage lag was calculated as the difference between the deforestation curve and the leakage curve, and was given in the Project Document.

As required by the methodology VM0009 Version 1.0, leakage is measured empirically post-project start date from the shifted leakage curve. At the time of the next verification of offsets generated by the project, the leakage plots can be re-measured and the change in degradation and deforestation can be calculated. These measurements and calculations are expected to support quantification of the amount of leakage, if any, that has occurred. Thus leakage will be empirically assessed during the next verification cycle.

As part of the project validation, the validator will assess the project proponent's leakage *ex-ante* estimation of what is likely to occur during the life of the project. Leakage is defined as displacement of deforestation from within the project area to outside the project area. This project will quantify leakage by measuring the rate of deforestation observed over time within the leakage area. The leakage area is selected as equivalently accessible to drivers of deforestation that would have deforested the project area. Any deforestation on the leakage area that is greater than the baseline rate of deforestation is counted as leakage.

The project is implementing a variety of leakage mitigation activities that are providing alternative livelihoods to local people. Leakage mitigation activities include employment in a clothing factory, work on project monitoring and Kasigau Corridor protection, development projects through a local women's center, a sustainable charcoal program, schooling, the establishment of an organic greenhouse and nursery program, and other



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activities. These activities are scheduled for expansion in the future, using funding from the sale of the initial tranche of offsets generated by the project. DNV does not have data on the complete number of people who will benefit from leakage mitigation activities, and does not know if these people would have cleared forest for subsistence agriculture in the absence of the project. Also, it is not possible to know for certain the scale at which leakage mitigation activities will be implemented in the future.

If leakage mitigation activities are less than the displaced demand for land, leakage is likely to occur. The current baseline deforestation is 955 hectares per year within the project area. If each farm were to clear 2.5 hectares (the area estimated by the project proponent), this would mean that the project should avoid the establishment of 382 new farms each year to avoid leakage. If the baseline rate of deforestation is adjusted down in the future, clearing for fewer farms would need to be avoided.

We have been unable to find historical leakage observations for any other REDD projects besides the Phase I project validated in January, 2011, and have no historical data on which to make actuarial projections for this project. As a reference point, we assessed The Climate Action Reserve's default leakage risk for crop displacement activities, and the leakage risk is identified as 24% /30/. As noted, we do not have data on the exact number of people involved in leakage mitigation activities, and do not know the extent to which leakage mitigation activities will be implemented over the life of the project. Also, DNV is unable to determine if people involved in leakage mitigation activities would have cleared forest if they did not participate in leakage mitigation activities.

In the absence of past project data, any estimate of future leakage thus needs to rely on the conditions observed during site visitation, knowledge of other ecosystems, and assessment of the agents and drivers of deforestation when judging the appropriateness of the *ex-ante* leakage estimation of this project.

Estimating a leakage rate at the project outset is highly uncertain. Wildlife Works has determined an *ex-ante* leakage rate for the project crediting period at 20% and it is our assessment that this is appropriate given the conditions of the project and is consistent with values proposed by The Climate Action Reserve. DNV thus finds the leakage assessment to conform to the requirements in the approved methodology VM0009 Version 1.0.

### **3.3 Monitoring Plan**

The project applies the approved VCS "VM0009 Methodology for Avoided Mosaic Deforestation of Tropical Forests Version 1.0." The monitoring plan is in accordance with the methodology. The monitoring plan specifies how to measure and document real, achieved emission reductions over the life of the project. As required by the



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methodology VM0009 Version 1.0, leakage will be measured *ex-post* from the shifted leakage curve.

All the variables defined in VCS “VM0009 Methodology for Avoided Mosaic Deforestation of Tropical Forests Version 1.0” are measured in order to determine and account for emission reductions. Each carbon pool monitored is a separate variable, with the exception that the project has elected to count large and small live trees together.

The baseline is calculated *ex-ante*. The current baseline is reported in the project document.

Although VCS addresses leakage separately from monitoring, it is useful to consider this project’s leakage monitoring as a part of the overall monitoring program. The project document reports computation of a “lag” variable, used to find the correspondence between the baseline deforestation model curve and the observed degradation and deforestation measured on leakage plots. Re-measurement of the leakage plots in the future, calculation of total degradation and deforestation on the leakage area, and adjustment by the lag factor will yield a cumulative actual deforestation number that can be compared to the baseline deforestation proportion for the date of the leakage measurement.

In the future, when offsets are to be verified, the project developer will map any deforestation that may occur within the project boundary. Biomass carbon stocks will be re-measured using the same protocols as used for the original measurement. Change in carbon stocks within the project area are included in the calculation of net emission reductions as the  $C_{PE}^1$  term of Equation 34 of the approved methodology. Project emissions may be positive (emissions) or negative (a sink resulting from forest growth).

Consistent with the VCS requirements for grouped projects, the data management systems used by Wildlife Works Carbon LLC are centralized. The general responsibility and authority for registration, monitoring, measurement and reporting activities are defined in the VCS PD. Wildlife Works Carbon LLC has a carbon easement with each of the 13 ranches and a contract to measure, monitor, report, and register offsets generated by avoiding deforestation within the project area. The agreement was ratified during general meetings of the shareholders of the landowning companies. DNV has reviewed this documentation /2/.

The parameters being monitored were discussed with the project proponent. The project proponent has developed sufficient guidance for image classification and monitoring

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<sup>1</sup> In the approved methodology,  $C_{PE}$  refers to the estimated project emissions for the monitoring period





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carbon in soils and biomass in order to ensure that reliable field data is collected /8//11//12/.

The frequency of the data collection depends on the specific parameter included in the monitoring plan. DNV found that these are in line with the requirements of the methodology, VM0009 Version 1.0.

### **3.4 Calculation of GHG Emissions and Reductions**

DNV considered the VCS Standard /24/, VCS AFOLU guidance /26/, VCS approved methodology VM0009 /23/, conditions observed during site visitation, and knowledge of other ecosystems and forest projects when judging the appropriateness of the GHG emission reduction calculations of this project. DNV concludes that all significant emission sources are included in the project emission calculations. Calculation equations are published in VM0009 Version 1.0. DNV reviewed the calculations in detail and, with the corrections made in response to the CARs, calculations are correctly applied as specified by the VM0009 Version 1.0. Factors used in calculations are stated in the project document and are derived from local measurements, VM0009 Version 1.0, or widely-referenced public sources. Equations for specifying statistical confidence intervals are specified in VM0009 Version 1.0. Statistical confidence intervals are calculated for the baseline deforestation function, allometric equations developed to predict tree biomass, and carbon stocks estimated from sampling. As with any sampling, biased measurement and classification errors are expected to increase the statistical error observed in sampling. DNV found no potential sources of bias in GHG accounting, other than the conservative exclusions described above. Statistical confidence levels meet the precision levels required to avoid uncertainty deductions.

#### ***The GHG Sources Determination***

GHG sources that are counted are live trees above-ground and below-ground biomass, shrub above-ground and below-ground biomass, herbaceous above-ground biomass, and soil carbon. Emissions that are negligible or conservatively omitted include woody debris, methane from biomass burning, and fuel consumed in land management. Any sink in long-term wood products is negligible. Credible justification of the selection of the carbon pools is included within the Project Document and DNV assessed that the selection conforms to the requirements set out in VM0009 Version 1.0.

#### ***The Correctness and Transparency of Formulas and Factors Used***

The approaches to estimate emission reductions for years 2010-2039 are described in the VCS Project Document. DNV can confirm that the approaches conform to the requirements in the VCS approved methodology “VM0009 Methodology for Avoided Mosaic Deforestation of Tropical Forests Version 1.0.”





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***Estimated Cumulative Project Lifetime Emission Reductions***

As part of the project validation, the validator is to express its estimate of a conservative amount of offsets the project is likely to generate through the life of the project. The project proponent estimates that the project will generate 38 759 015 metric tons CO<sub>2</sub>e of offsets over the project life. This estimate is calculated by:

- Extending the current baseline deforestation rate through the project life.
- Assuming that the carbon stock within the project boundary does not change,<sup>2</sup> soil carbon stock changes at the rate quantified in the Project Document, and no deforestation occurs within the project area.
- Assuming 20% leakage in years 2011-2039.
- Applying a 20% AFOLU buffer deduction through the entire project crediting period.

There is a high likelihood that at least one of these three factors will change over the project life. The baseline deforestation rate has a limited chance of increasing, because approximately 95% of the project area is assumed to become deforested by the end of the project life. The baseline could be revised downward if less deforestation is observed over time in the reference area. If the baseline deforestation rate is revised down, the project would generate fewer offsets, all other things remaining unchanged. The carbon stock within the project area could rise or fall over time. It is possible that because of drought or disturbance the existing forest carbon stock could decline. Increasing carbon stock within the project area would increase the number of offsets generated by the project, and decreasing carbon stock would decrease the number of offsets generated. There is a chance that the leakage mitigation activities executed by the project will not succeed in mitigating all of the demand for land displaced by the project, and leakage may occur. The project may not receive credit for positive leakage, so if there is any leakage it can only reduce the amount of offsets generated by the project.

DNV is to express its opinion as to a conservative amount of offsets the project is likely to generate over the project lifetime. To be conservative, the estimate must be a number such that it is likely that the project will not generate less than the estimated amount of offsets. We note that the factors that could result in increased generation of offsets are highly unlikely to cause an increase in offset generation greater than a few percent. At the same time, it is possible that the factors that could result in the project generating fewer offsets could result in a large reduction in benefits. We have been unable to find historical leakage observations for any other REDD projects and have no historical data on which to make actuarial projections for this project.

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<sup>2</sup> The biomass carbon stock within the project boundary is re-sampled and re-calculated at least once every five years. The biomass carbon stock will certainly change to some degree but DNV has no reason to believe that either increase or decrease is more likely than carbon stock change in the other direction. As a result, this estimate uses the middle estimate that biomass carbon stock in undisturbed forests within the project area does not change over time.



In the absence of project data, estimating a leakage rate at the project outset is highly uncertain. Wildlife Works has determined an *ex-ante* leakage rate for the project crediting period at 20% and it is our assessment that this is appropriate given the conditions of the project and is consistent with values proposed by the Climate Action Reserve.

DNV therefore can confirm that the calculation equations and input values are proper as described above, and hence can confirm that the emission reduction estimates of 38 759 015 tCO<sub>2</sub>e over the selected 30-year crediting period are proper.

### **3.5 Environmental Impact**

The environmental and socio-economic impacts of the project activities have been assessed within the context of the Audit report conducted by the Kenya National Environmental Management Authority in December, 2006 /5/. The project is being validated as per the Climate, Community, and Biodiversity Alliance (CCBA) standard in parallel to this validation. DNV has reviewed all documentation pertaining to the environmental audit. In summary, DNV concluded that no negative environmental or socio-economic impacts are expected from project activities.

### **3.6 Comments by Stakeholders**

The relevant stakeholders identified for this project activity include members of the Taita community, the Duruma tribe, and local employees tasked with the implementation and maintenance of the Kasigau REDD project. A local stakeholder consultation process was carried out by soliciting public comments through the internet and postings on local area notice boards. DNV reviewed all comments and found that the process complies with VCS requirements.



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**4 VALIDATION CONCLUSION**

*Det Norske Veritas (U.S.A.), Inc. (DNV) has performed a validation of the “The Kasigau Corridor REDD Project Phase II – The Community Ranches” in Kenya on the basis of Verified Carbon Standard 2007.1 (VCS), as well as criteria for consistent project operations, monitoring and reporting.*

*The project proponent is Wildlife Works Carbon LLC. DNV has confirmed that Wildlife Works Carbon LLC has the right to all and any reductions generated by the Project during the Project Crediting Period of 1 January, 2010 – 31 December, 2039.*

*The review of the project design documentation and the subsequent follow-up interviews have provided DNV with sufficient evidence to determine the fulfilment of stated criteria.*

*The project correctly applies the approved VCS methodology element VM0009 – Methodology for Avoided Mosaic Deforestation of Tropical Forests Version 1.0.*

*The main project activity is to prevent deforestation caused by slash and burn and subsistence farming activities. The project results in reductions of GHG emissions that are real, measurable and give long-term benefits to the mitigation of climate change and have clear socio-economic benefits to the communities surrounding the project area. Emission reductions attributable to the project have been shown to be additional to any that would occur in the absence of the project activity.*

*The total emission reductions from the project are estimated to be 38 759 015 tCO<sub>2</sub>e over the 30-year crediting period (1 January, 2010 to 31 December, 2039). This includes project emissions, total confidence deduction, a 20% leakage deduction applied to years 2011-2039 as per VM0009 Version 1.0, and the VCS AFOLU buffer deductions currently assessed at 20%. This estimate assumes the baseline does not change during the baseline re-evaluation.*

*Estimating a leakage rate at the project outset is highly uncertain. Wildlife Works has determined an ex-ante leakage rate for the project crediting period at 20% and it is our assessment given a lack of past project data that this is appropriate given the conditions of the project and we find the assessment conforms to the requirements in the approved methodology VM0009 Version 1.0.*

*The approaches to estimate emission reductions are assessed to conform to the requirements in the VCS and approved methodology VM0009 Version 1.0.*

*Adequate training and monitoring procedures have been implemented.*

*In summary, it is DNV’s opinion that the “The Kasigau Corridor REDD Project Phase II – The Community Ranches” in Kenya as described in the VCS PD of 12 April, 2011, meets all relevant VCS 2007.1 requirements and correctly applies the VCS approved methodology element VM0009 – Methodology for Avoided Mosaic Deforestation of Tropical Forests Version 1.0.*



## **APPENDIX A**

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### **Validation Protocol**

**Table 3 Requirements Checklist**

Checklist Question	Ref	MoV*	Comments	Draft Concl	Final Concl
<b>A. General Description of Project Activity</b> <i>The project design is assessed.</i>					
<b>A.1. Project Boundaries</b> <i>Project Boundaries are the limits and borders defining the GHG emission reduction project.</i>					
A.1.1. Are the project’s spatial and temporal boundaries clearly defined?	/1/	DR	Section 5.2 - The project is 169 741.4 hectares with an average canopy cover of 34.6%, with mature tree heights ranging from 5-10 meters (m), and therefore conforms to the latest VCS definition of “forest” /26/. The project boundary was confirmed by reviewing the 13 blocks of land known as the Kasigau Corridor, which is owned by the Indigenous Community Ownership Groups, each one of the 13 blocks being owned by different legal entities formed in the 1960s and 1970s by the Communities and the Government of Kenya/2/, the Carbon Rights Agreement between Wildlife Works Carbon LLC and the 13 individual ranches/3/.		OK
<b>A.2. Technology to be employed</b> <i>Validation of project technology focuses on the project engineering, choice of technology and competence/ maintenance needs. The validator should ensure that environmentally safe and sound technology and know-how is used.</i>					
A.2.1. Does the project design reflect current good practices?	/1/	DR, I	The project design outlines current best practices for implementing the project activities. While onsite, DNV witnessed fully operational nurseries, a ranger force, a local GIS analyst, and engagement with the		OK

Checklist Question	Ref	MoV*	Comments	Draft Concl	Final Concl
			community surrounding the project area.		
A.2.2. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies?	/1/	DR, I	The project proponent uses state of the art GIS and modelling techniques.		OK
A.2.3. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	/1/	DR, I	Wildlife Works is working with the REDD Focal Point within the Government of Kenya on future REDD legislation to include sub-national nesting rules.		OK
A.2.4. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?	/1/	DR, I	Yes – Procedures outlined within the <i>How to Use the Classification Tool</i> (as of 1 April, 2011), <i>Standard Operating Procedure Biomass</i> (as of 1 April, 2011), and <i>Standard Operating Procedure Soils</i> (as of 1 April, 2011) are sufficient.		OK
A.2.5. Does the project make provisions for meeting training and maintenance needs?	/1/	DR, I	Yes – Procedures outlined within the <i>How to Use the Classification Tool</i> (as of 1 April, 2011), <i>Standard Operating Procedure Biomass</i> (as of 1 April, 2011), and <i>Standard Operating Procedure Soils</i> (as of 1 April, 2011) are sufficient.		OK
<b>B. Project Baseline</b> <i>The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.</i>					
<b>B.1. Baseline Methodology</b> <i>It is assessed whether the project applies an appropriate baseline methodology.</i>					
B.1.1. Is the baseline methodology previously approved by the VCS?	/1/	DR, I	Yes – VM0009 <i>Methodology for Avoided Mosaic Deforestation of Tropical Forests Version 1.0.</i>		OK

Checklist Question	Ref	MoV*	Comments	Draft Concl	Final Concl
B.1.2. Is the baseline methodology the one deemed most applicable for this project and is the appropriateness justified?	/1/	DR, I	Yes – VM0009 was developed specifically for this project.		OK
<b>B.2. Baseline Determination</b> <i>The choice of baseline will be validated with focus on whether the baseline is a likely scenario, whether the project itself is not a likely baseline scenario, and whether the baseline is complete and transparent.</i>					
B.2.1. Has the baseline been determined using conservative assumptions where possible?	/1/	I	<p>As with any sampling, unbiased measurement and classification errors are expected to increase the statistical error observed in sampling. DNV found no potential sources of bias in counting, other than the conservative exclusions described above. Statistical confidence levels meet required precision levels.</p> <p><b>CAR 9</b>                      In Section 6.1, please include a map of the reference area, including the borders of the ranches. Please provide a narrative of why the ranches were included within the reference region.</p>	CAR 9	OK
B.2.2. Has the baseline been established on a project-specific basis?	/1/	DR, I	Yes – The baseline is specific to the characteristics of the reference region that have similar drivers of deforestation.		OK
B.2.3. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	/1/	DR	The PD identifies possible risks that could have an impact on the project baseline, including change in legislation. The government of Kenya has shown support for the project and		OK

Checklist Question	Ref	MoV*	Comments	Draft Concl	Final Concl
			has no recent history of expropriation of private conservation lands.		
B.2.4. Is the baseline determination compatible with the available data?	/1/		See Section 3.2  <b>CAR 1</b> The inclusion of the most recent imagery prior to the project start date shall be used to establish the baseline deforestation rate.	CAR 1	OK
B.2.5. Is it demonstrated/justified that the project activity itself is not a likely baseline scenario?	/1/		Encroachment of subsistence farming (the primary driver of deforestation) to the borders of the project area was evident.  It was demonstrated to DNV that the project activity, conservation of forest, was not a likely baseline scenario in the project area.  <b>CAR 10</b> In <i>Section 7: Additionality bullet number 2</i> , please include spatial imagery showing the encroachment of illegal settlements within the boundary of the ranches within the reference region to clearly show that the legal boundary of ranches are not a barrier to the primary agents of deforestation, including subsistence farmers.	<b>CAR 10</b>	OK
B.2.6. Have the major risks to the baseline been identified?	/1/	DR	Yes – The following risks have been identified: change in legislation, income, crop failure, invasion of cattle grazers due to famine in adjacent communities, drought, wildlife, cash crops, and fire.		OK
B.2.7. Are all literature and sources clearly referenced?	/1/	DR	Yes - Factors used in calculations using literature and sources are clearly widely-referenced public sources.		OK



Checklist Question	Ref	MoV*	Comments	Draft Concl	Final Concl
<p><b>C. Duration of the Project/ Crediting Period/project proponent</b>  <i>It is assessed whether the temporary boundaries of the project are clearly defined.</i></p>					
<p>C.1.1. Are the project’s starting date and operational lifetime clearly defined and reasonable?</p>	/1/	DR, I	The project start date is 1 January, 2010, which is the date Wildlife Works assumed financial responsibility for the project area and began specific GHG mitigation activities within the project area /4/. The selected crediting period is from 1 January, 2010 to 31 December, 2039.		OK
<p>C.1.2. Is the assumed crediting time clearly defined?</p>	/1/	DR, I	The selected crediting period is from 1 January, 2010 to 31 December, 2039.		OK
<p>C.1.3. Is the project proponent identified and has it been confirmed to be an individual or organization that has overall control and responsibility for a greenhouse gas project?</p>	/1/	DR, I	Yes – Wildlife Works Carbon LLC is the project proponent for this project. Wildlife Works Carbon LLC assumed financial responsibility for the project area and began specific GHG mitigation activities on 1 January, 2010 when the company entered into an agreement with the 13 ranches.		OK
<p><b>D. Monitoring Plan</b>  <i>The monitoring plan review aims to establish whether all relevant project aspects deemed necessary to monitor and report reliable emission reductions are properly addressed (blue text contains requirements to be assessed for optional review of monitoring methodology prior to submission and approval by CDM EB).</i></p>					
<p><b>D.1. Monitoring Methodology</b>  <i>It is assessed whether the project applies an appropriate baseline methodology.</i></p>					
<p>D.1.1. Is the monitoring methodology previously approved by the VCS?</p>	/1/	DR	Yes – VM0009 Methodology for Avoided Mosaic Deforestation of Tropical Forests		OK

Checklist Question	Ref	MoV*	Comments	Draft Concl	Final Concl
			Version 1.0.		
D.1.2. Is the monitoring methodology applicable for this project and is the appropriateness justified?	/1/	DR	Yes – The monitoring methodology was developed specifically for this project.		OK
D.1.3. Does the monitoring methodology reflect good monitoring and reporting practices?	/1/	DR	Yes – VM0009 outlines sufficient practices for a monitoring methodology.		OK
D.1.4. Is the discussion and selection of the monitoring methodology transparent?	/1/	DR	Yes – VM0009 outlines sufficient practices and is transparent.		OK
<b>D.2. Monitoring of Project Emissions</b> <i>It is established whether the monitoring plan provides for reliable and complete project emission data over time.</i>					
D.2.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the project boundary during the crediting period?	/1/	DR, I	Yes – Procedures outlined within the <i>How to Use the Classification Tool</i> (as of 1 April, 2011), <i>Standard Operating Procedure Biomass</i> (as of 1 April, 2011), <i>Standard Operating Procedure Soils</i> (as of 1 April, 2011) are sufficient  <b>CAR 3</b>  The <i>SOP: Biomass</i> needs to be rewritten to reflect actual procedures used (both for measurement of trees used to develop allometric equations, and in biomass sampling).	CAR 3	OK
<b>D.3. Monitoring of Leakage</b> <i>It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.</i>					
D.3.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	/1/	DR, I	Yes – Procedures outlined within the, <i>How to Use the Classification Tool</i> (as of 1 April, 2011), <i>Standard Operating Procedure Biomass</i> (as of 1 April, 2011), and <i>Standard Operating Procedure Soils</i> (as of 1 April, 2011) are sufficient.		OK

Checklist Question	Ref	MoV*	Comments	Draft Concl	Final Concl
<p><b>D.4. Monitoring of Baseline Emissions</b>  <i>It is established whether the monitoring plan provides for reliable and complete project emission data over time.</i></p>					
D.4.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining baseline emissions during the crediting period?	/1/	DR, I	Yes – Procedures outlined within the <i>How to Use the Classification Tool</i> (as of 1 April, 2011), Standard Operating Procedure Biomass (as of 1 April, 2011), and Standard Operating Procedure Soils (as of 1 April, 2011) are sufficient.		OK
D.4.2. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	/1/	DR, I	The selected baseline scenario is ongoing deforestation from subsistence agriculture. The rate of deforestation was calculated by defining a reference area that is near the project area and has similar conditions and drivers of deforestation, and then observing the proportion of the reference area that is deforested at each of several points in time ranging from 1987 to 2009.  The parameters of the cumulative deforestation model are in line with the requirements outlined in VM0009.		OK
D.4.3. Will it be possible to monitor / measure the specified baseline indicators?	/1/	DR, I	All of the variables defined in VCS, “VM0009 Methodology for Avoided Mosaic Deforestation of Tropical Forests Version 1.0” are measured in order to determine and account for emission reductions. Each carbon pool monitored is a separate variable, except that the project has elected to count large and small live trees together.		OK
D.4.4. Will the indicators give opportunity for real measurements	/1/	DR, I	At future times when offsets are to be verified, the project developer will map any		OK

Checklist Question	Ref	MoV*	Comments	Draft Concl	Final Concl
of baseline emissions?			deforestation that may occur within the project boundary. Biomass carbon stocks will be re-measured using the same protocols as was used for the original measurement.		
<p><b>D.5. Environmental Impacts and Stakeholders Comment</b></p> <p><i>It is checked to determine if any additional environmental permits are required and if sufficient documentation of environmental impacts are provided.</i></p> <p><i>It is checked if any comments received from stakeholders are summarized properly</i></p>					
D.5.1. Are any additional environmental permits needed for the project activity? If yes, is there any approval documentation provided?	/5/	DR, I	The environmental and socio-economic impacts of the project activities have been assessed within the context of the Audit report conducted by the Kenya National Environmental Management Authority in December, 2006. DNV has reviewed all documentation pertaining to the environmental audit.		OK
D.5.2. Any comments received from stakeholders should be summarized in the VCS PD.	<b>Error! Reference source not found.</b>	DR, I	A local stakeholder process was carried out by soliciting public comments through the internet and posting on local area notice boards. DNV reviewed all comments and found that the process complies with VCS requirements.		OK

Checklist Question	Ref	MoV*	Comments	Draft Concl	Final Concl
<p><b>D.6. Project Management Planning</b></p> <p><i>It is checked that project implementation is properly prepared for and that critical arrangements are addressed.</i></p>					
D.6.1. Is the authority and responsibility of project management clearly described?	/1/		Yes – Procedures outlined within the <i>How to Use the Classification Tool</i> (as of 1 April, 2011), Standard Operating Procedure Biomass (as of 1 April, 2011), and Standard Operating Procedure Soils (as of 1 April, 2011) are sufficient.		OK
D.6.2. Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	/1/		<p>Yes – Procedures outlined within the, <i>How to Use the Classification Tool</i> (as of 1 April, 2011), Standard Operating Procedure Biomass (as of 1 April, 2011), and Standard Operating Procedure Soils (as of 1 April, 2011) are sufficient.</p> <p><b>CL 5</b> <i>SOP: Biomass</i> would be clearer if the document is limited to specification of how plots shall be measured. The document would be clearer if material on the process of the development of protocols is deleted.</p>	CL 5	OK
D.6.3. Are procedures identified for training of monitoring personnel?	/1/		Yes – Standard Operating Procedure Biomass (as of 1 April, 2011) and Standard Operating Procedure Soils (as 1 April, 2011) are sufficient.		OK
D.6.4. Are procedures identified for maintenance of monitoring equipment and installations?	/1/		Yes – Standard Operating Procedure Biomass (as 1 April, 2011) and Standard Operating Procedure Soils (as of 1 April, 2011) are sufficient.		OK
D.6.5. Are procedures identified for monitoring, measurements and reporting?	/1/		Yes – Standard Operating Procedure Biomass (as of 1 April, 2011), Standard Operating Procedure Soils (as of 1 April, 2011) are sufficient.	CAR 12, CL 3	OK

Checklist Question	Ref	MoV*	Comments	Draft Concl	Final Concl
			<p><b>CAR 12</b> Methodology VM0009, Section 13.11 requires "A protocol for assessing the accuracy of plot measurements using a check cruise and a plan for correcting the inventory if errors are discovered." Section 13.14 of the Project Document describes quality control practices, including stating that a 5% check cruise has been done. However, the check cruising has not been done for Phase II. Please perform the 5% check cruise, check the re-measurements against the original measurements, report results including differences exceeding the accuracy threshold specified in the project document, and report actions taken to address differences exceeding the specified accuracy threshold. We recognize that trees will grow and die over time and that growth, mortality, and decomposition can result in accurate re-measurements being different than accurate measurements made in the past.</p> <p><b>CL 3</b> We identified eight trees that were incorrectly entered into the tree database from plot cards. This list of trees has been provided to the project proponent. Please make the data entry corrections.</p>		
D.6.6. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)?	/1/		Yes – Standard Operating Procedure Biomass (as of 1 April, 2011) and Standard Operating Procedure Soils (as of 1 April, 2011) are sufficient.		OK
D.6.7. Are procedures identified for review of reported	/1/		Yes – Standard Operating Procedure Biomass (as of 1 April, 2011) and Standard Operating		OK

Checklist Question	Ref	MoV*	Comments	Draft Concl	Final Concl
results/data?			Procedure Soils (as of 1 April, 2011) are sufficient.		
<b>E. Calculation of GHG Emissions by Source</b> <i>It is assessed whether all material GHG emission sources are addressed and how sensitivities and data uncertainties have been addressed to arrive at conservative estimates of projected emission reductions.</i>					
<b>E.1. Project GHG Emissions</b> <i>The validation of ex-ante estimated project GHG emissions focuses on transparency and completeness of calculations.</i>					
E.1.1. Are all aspects related to direct and indirect GHG emissions captured in the project design?	/1/	DR, I	GHG sources that are counted are live tree above-ground and below-ground biomass, shrub above-ground and below-ground biomass, herbaceous above-ground biomass, and soil carbon. Emissions that are negligible or conservatively omitted include woody debris, methane from biomass burning, and fuel consumed in land management. Any sink in long-term wood products is negligible. Credible justification of the selection of the carbon pools is included within the PD and DNV assessed that it was in line with the requirements set out in VM0009.		OK
<b>E.2. Leakage</b> <i>It is assessed whether leakage effects (i.e. change of emissions which occurs outside the project boundary and which are measurable and attributable to the project) have been properly assessed and estimated ex-ante.</i>					
E.2.1. Are potential leakage effects beyond the chosen project boundaries properly identified?	/1/		Following methodology VM0009, the project developer has randomly located plots for measuring leakage. Baseline amounts of	CAR 4, 11	OK

Checklist Question	Ref	MoV*	Comments	Draft Concl	Final Concl
			<p>degradation and deforestation have been measured on these plots. The needed number of plots was calculated using the observed variance of forest state observations across the reference area.</p> <p><b>CAR 4</b></p> <p>Please include and provide a justification for the estimation of the <i>ex-ante</i> leakage rate for the project crediting period as per the requirements of VM0009 (pg 69, pg 70).</p> <p><b>CAR 11</b></p> <p>Leakage plots numbers 5 through 9 do not meet the criteria set out under the MED <i>Section 10.2 Delineating the Leakage Area</i>. Following the site visit, it became clear these leakage plots do not exhibit the following criteria:</p> <p>1) Landscape configuration: The leakage parcel does not meet the requirement that the leakage area have forest that is relatively similar to the project area, specifically the parcel does not have enough trees to function as forest. Although leakage plots 5 through 9 are spatially proximate to the project area, it was found during the site visit that the threat of degradation is not similar to that of the project area.</p> <p>The project proponent shall move plots 5</p>		



Checklist Question	Ref	MoV*	Comments	Draft Concl	Final Concl
			through 9 to meet the criteria set out in the MED Section 10.2 Delineating the Leakage Area.		
<b>E.3. Baseline Emissions</b> <i>The validation of ex-ante estimated baseline GHG emissions focuses on transparency and completeness of calculations.</i>					
E.3.1. Have the most relevant and likely operational characteristics and baseline indicators been chosen as the reference for baseline emissions?	/1/	DR, I	DNV finds that the project proponent has appropriately defined a reference area, appropriately measured deforestation over time within the reference area, and appropriately monitored starting biomass and soil carbon stocks within the project boundary.		OK
E.3.2. Are the baseline boundaries clearly defined and do they sufficiently cover sources and sinks for baseline emissions?	/1/	DR, I	DNV finds that the project proponent has appropriately defined a reference area, appropriately measured deforestation over time within the reference area, and appropriately monitored starting biomass and soil carbon stocks within the project boundary.		OK
E.3.3. Are the GHG calculations documented in a complete and transparent manner?	/1/		The approaches to estimate emission reductions for 2010 are described in the VCS Project Document. DNV can confirm that the approaches conform to the requirements in the VCS approved methodology "VM0009 Methodology for Avoided Mosaic Deforestation of Tropical Forests Version 1.0" and that a conservative approach has been taken.		OK
E.3.4. Are uncertainties in the GHG emission estimates properly addressed in the documentation?	/1/	DR, I	The statistical uncertainty in the cumulative deforestation model is 5.36% at the 95% confidence level.		OK

Checklist Question	Ref	MoV*	Comments	Draft Concl	Final Concl
<p>E.3.5. Have the project baseline(s) and the project emissions been determined using the same appropriate methodology and conservative assumptions?</p>	/1/	DR, I	<p>The approaches to estimate emission reductions for 2010 are described in the VCS Project Document. DNV can confirm that the approaches conform to the requirements in the VCS approved methodology “VM0009 Methodology for Avoided Mosaic Deforestation of Tropical Forests Version 1.0” and that a conservative approach has been taken</p>		OK
<p><b>E.4. Emission Reductions</b> <i>Validation of ex-ante estimated emission reductions.</i></p>					
<p>E.4.1. Will the project result in fewer GHG emissions than the baseline scenario?</p>	/1/	DR, I	<p>The total emission reductions from the project are estimated to be 38 759 015 tCO<sub>2</sub>e over the selected 30-year crediting period (1 January, 2010 to 31 December, 2039). This includes project emissions, the total confidence deduction, 20% <i>ex-ante</i> leakage estimate, and the VCS AFOLU buffer determination of 20%.</p> <p><b>CAR 2</b> Because bomas, roads, water holes, pans, and dams (as described within the Standard Operating Procedures: Biomass) are not included within the sample plots (plots are moved if the random location is within one of these areas), they shall be excised from the project area.</p> <p><b>CAR 5</b> If the Sasenyi Valley project is kept as a leakage mitigation activity, the dates of deforestation</p>	<p>CAR 2, 5,6,7,8, 13  CL 1</p>	OK

Checklist Question	Ref	MoV*	Comments	Draft Concl	Final Concl
			<p>must be documented and deforestation after the project start date shall be counted as project emissions.</p> <p><b>CAR 6</b> GIS maps showing plot centers shall be updated to show actual plot locations.</p> <p><b>CAR 7</b> In the discussion of allometric equations and the table on page 75 and page 76, specify that the equations predict above-ground biomass in green weight in kilograms and that diameters are measured in centimeters.</p> <p><b>CAR 8</b> The coefficients in allometric equations in the spreadsheet calculations of tree biomass do not always match the coefficients in the raw output files from the fitting of the allometric equations. The coefficients used in project carbon calculations must match the coefficients developed when fitting the allometric equations.</p> <p><b>CAR 13</b> Please either measure the mass of trees as large as the largest trees to which allometric equations will be applied to and use these large trees to construct allometric equations, or produce a more conservative method for estimating carbon stocks in trees larger than the trees used to construct allometric equations.</p>		

Checklist Question	Ref	MoV*	Comments	Draft Concl	Final Concl
			<b>CL 1</b> As the degradation of the land is affected by the number of cattle that graze on these lands, by the next verification, each ranch shall develop a management plan to establish the maximum number of cattle and timing and periodicity of grazing.		
<b>E.5. ISO 14064-2:2006 clause 5.2: Does the VCS PD contain the following essential elements?</b>	<b>/1/</b>				
E.5.1. Does the VCS PD contain the following essential elements as set out in ISO 14064-2:2006 clause 5.2?					
E.5.1.1. Project title, purpose(s) and objective(s)?	<b>/1/</b>		Yes.		OK
E.5.2. Type of GHG project.	<b>/1/</b>		Yes – The project activity falls under VCS sectoral scope 14 (AFOLU) REDD Mosaic Deforestation.		OK
E.5.3. Project location, including geographic and physical information, allowing for the unique identification and delineation of the specific extent of the project.	<b>/1/</b>	DR	Project location and delineation of the specific extent of the project is made clear.  <b>CL 4</b> Please alter the color schemes in the map on page 30 so that forest is different from non-forest (such as green for forest and red or yellow for grassland and developed uses).	CL 4	OK
E.5.4. Conditions prior to the project initiation	<b>/1/</b>	DR	Section 6.1.		OK
E.5.5. A description of how the project will achieve GHG emission reductions and/or removal enhancements	<b>/1/</b>	DR	Section 6.1.		OK
E.5.6. Project technologies, products, services and the expected level of activity.	<b>/1/</b>	DR, I	Project activities include: 1) Wildlife Works Sustainable Development Initiatives 2) Organic Greenhouse and fruit tree propagation 3) REDD Forest and Biodiversity monitoring 4) Ranger force team 5) Ecotourism and 6) School construction and bursary scheme.	CL 2	OK

Checklist Question	Ref	MoV*	Comments	Draft Concl	Final Concl
			<p><b>CL 2</b> On page 16, references to project activities that are anticipated to be completed in 2010 shall be revised to the current schedule.</p>		
<p>E.5.7. Aggregate GHG emission reductions and removal enhancements, stated in tonne of CO<sub>2</sub>e, likely to occur from the GHG project.</p>	/1/	DR, I	<p>The total emission reductions from the project are estimated to be 38 759 015 tCO<sub>2</sub>e over the selected 30-year crediting period (1 January, 2010 to 31 December, 2039). This includes project emissions and the total confidence deduction but does not include the VCS AFOLU buffer determination of 20% and assumes leakage to be 20%.</p>		OK
<p>E.5.8. Identification of risks that may substantially affect the project's GHG emission reduction or removal enhancements.</p>	/1/	Dr	<p>Section 1.11 - Yes – The following risks have been identified: Change in legislation, income, crop failure, invasion of cattle grazers due to famine in adjacent communities, drought, wildlife, cash crops, and fire.</p>		OK
<p>E.5.9. Roles and responsibilities, including contact information of the project proponent, other project participants, relevant regulator(s) and/or administrators of any GHG Program(s) to which the GHG project subscribes.</p>	/1/	DR	<p>Section 1.15 – The project proponent is Wildlife Works Carbon LLC. Appropriate contact information is included within the project document.</p>		OK
<p>E.5.10. Any information relevant for the eligibility of a GHG project under a GHG Program and quantification of GHG emission reductions or removal enhancements, including legislative, technical, economic, sectoral, socio-cultural environmental, geographic, site-specific and temporal information.</p>	/1/	DR, I	<p>Section 5.2 - The project is 169 741.4 hectares with an average canopy cover of 34.6%, with mature tree heights ranging from 5-10 meters, and therefore conforms to the latest VCS definition of "forest" /26/. The project boundary was confirmed by reviewing the 13 blocks of land known as the Kasigau Corridor, which is owned by the Indigenous Community Ownership Groups, each one of the 13 blocks being owned by different legal entities formed</p>		OK

Checklist Question	Ref	MoV*	Comments	Draft Concl	Final Concl
			in the 1960s and 1970s by the Communities and the Government of Kenya/2/, the Carbon Rights Agreement between Wildlife Works Carbon LLC and the 13 individual ranches/3/.		
E.5.11. A summary of environmental impact assessment when such an assessment is required by applicable legislation or regulation.	/1/		The environmental and socio-economic impacts of the project activities have been assessed within the context of the Audit report conducted by the Kenya National Environmental Management Authority in December, 2006. DNV has reviewed all documentation pertaining to the environmental audit.		OK
E.5.12. Relevant outcomes from stakeholder consultations and mechanisms for on-going communication.	/1/		A local stakeholder process was carried out by soliciting public comments through the internet and posting on local area notice boards. DNV reviewed all comments and found that the process complies with VCS requirements.		OK
E.5.13. Chronological plan for the date of initiating project activities, date of terminating.	/1/		<p>The project start date is 1 January, 2010, which is the date Wildlife Works Carbon LLC assumed financial responsibility for the project area and began specific GHG mitigation activities. The selected crediting period is from 1 January, 2010 to 31 December, 2039.</p> <p><b>CL 6</b> Page 10, Sec. 5.2, 3rd paragraph. The project will be verified every five years, not validated.</p> <p><b>CL 7</b> Page 20-21. The Rukinga Phase I material does</p>	CL 6, 7	OK

Checklist Question	Ref	MoV*	Comments	Draft Concl	Final Concl
			not appear to be relevant to Phase II.		
E.5.14. Notification of relevant local laws and regulations related to the project and demonstrate compliance with them.	/1/	DR, I	Section 1.10 – Wildlife Works documents the relevant local laws and regulations and was found to be in compliance with these regulations.		OK
E.5.15. Does the VCS PD contain a Proof of Title which includes either a legislative right, right under local common law, ownership of land, or a contractual arrangement with the owner of the land?	/1/	DR, I	<p>Section 5.1 –The project boundary was confirmed by reviewing the 13 blocks of land known as the Kasigau Corridor, which is owned by the Indigenous Community Ownership Groups, each one of the 13 blocks being owned by different legal entities formed in the 1960s and 1970s by the Communities and the Government of Kenya/2/, the Carbon Rights Agreement between Wildlife Works Carbon LLC and the 13 individual ranches/3/.</p> <p>A copy of the title deeds was provided to DNV. Wildlife Works Carbon LLC acquired the carbon rights from the 13 ranches in 2009 and 2010.</p> <p><b>CL 9</b></p> <p>The project description should provide further detail on the ownership rights for each community ranch, including the existence of a title and the dates of renewal. Where a title is being sought, a description of the steps and schedule of the renewal shall be provided within the PD.</p>	CL 9	OK

## **APPENDIX B**

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### **Resolution of Corrective Action and Clarification Requests**



**Table 4 Resolution of Corrective Action and Clarification Requests**

Draft report corrective action requests and requests for clarifications	Mov	Summary of project participants' response	Final conclusion
<p><b>CAR 1</b></p> <p>The inclusion of the most recent imagery prior to the project start date shall be used to establish the baseline deforestation rate.</p>	<p>Site Visit</p>	<p><b>Accepted and completed:</b> The following imagery was added to the Cumulative Deforestation Model: Landsat 5 TM - 7 September, 2008 and Landsat 7 ETM+ - 4 October, 2009 (SLC-OFF). Both mosaiced images provided complete spatial coverage of the reference area, and provided an additional 2 581 observations for the CDM. The CDM, with the addition of the aforementioned imagery, now features 9 dates and 11 231 forest/non-forest observations.</p>	<p>Additional imagery until 2009 has now been included into the most recent version of the PD.</p> <p>CAR 1 closed</p>
<p><b>CAR 2</b></p> <p>Because bomas, roads, water holes, pans, and dams (as described within the <i>Standard Operating Procedures: Biomass</i> ) are not included within the sample plots (plots are moved if the random location is within one of these areas), they shall be excised from the project area.</p>	<p>Site Visit</p>	<p><b>Accepted with modifications:</b> Proponent agrees to excise roads from the project crediting area. A 2.5 m radius (5 m diameter) buffer was constructed around every road large enough to be recognized via purchased ALOS 10m imagery, and/or ESRI high resolution imagery. These road polygons aggregated to an area of 515 hectares. This area was applied to the mean carbon stock for over all strata for the project for above-ground biomass, and applied to the mean soil carbon "loss" (difference between mean soil carbon inside Phase II and in converted shambas outside the project area). The total CO<sub>2</sub>e removed was 159 728 tonnes.</p> <p>Plots that fell on BOMAS, water holes, pans and dams were not altered, and therefore were removed from the SOP accordingly (this was a remnant from the Rukinga Phase I SOP).</p>	<p>The changes made to the NERs due to the excision of roads is appropriate.</p> <p>CAR 2 closed.</p>
<p><b>CAR 3</b></p>	<p>Site Visit</p>	<p><b>Accepted and completed:</b> The SOP: Biomass</p>	<p>The changes made to the SOP: Biomass are appropriate.</p>

Draft report corrective action requests and requests for clarifications	Mov	Summary of project participants' response	Final conclusion
The <i>SOP: Biomass</i> need to be re-written to reflect actual procedures used (both for measurement of trees used to develop allometric equations, and in biomass sampling).		document was revamped to more accurately reflect measurement procedures in the field, including the measurement of trees with < 5cm bole diameter, location of measurement of multi-trunk trees and other points raised during the site visit.	CAR 3 closed.
<b>CAR 4</b> If the Sasenyi Valley project is kept as a leakage mitigation activity, the dates of deforestation must be documented and deforestation after the project start date shall be counted as project emissions.	Site Visit	<b>N/A:</b> This is a remnant from the Phase I PD that has subsequently been removed from the Phase II document.	N/A to Phase II and thus has been taken out of the PD.  CAR 4 is closed.
<b>CAR 5</b> GIS maps showing plot centers shall be updated to show actual plot locations.	Site Visit	<b>Accepted and completed:</b> A map containing the true plot centers has been generated using the field plot sheets and made available to the validator.	Accepted. The updated plot sheets are appropriate.  CAR 5 is closed.
<b>CAR 6</b> In the discussion of allometric equations and the table on page 75 and page 76, specify that the equations predict above-ground biomass in green weight in kilograms and that diameters are in centimeters.	Site Visit	<b>Accepted and completed:</b> This change has been made.	Requested changes have been made.  CAR 6 is closed.
<b>CAR 7</b> In Section 6.1, please include a map of the reference area, including the borders of the ranches. Please provide a narrative of why the ranches were included within the reference region.	Site Visit	<b>Accepted and completed:</b> A map with high-resolution ALOS (10 m) imagery and group ranches in the reference area overlaid has been added to section 6.1 in the "Narrative describing why the agents of deforestation are evident" section. Additionally, a narrative explaining why these ranches were included in the reference area was added.	During the site visit, the auditors viewed the reference area from several vantage points to make sure that the ranch borders were not preventing the identified agents of deforestation from encroaching on their land. It was clear that in many cases in the reference region, the ranchers

Draft report corrective action requests and requests for clarifications	Mov	Summary of project participants' response	Final conclusion
			<p>were unable to prevent degradation and deforestation activities on their respective lands. Thus the ranches are not a barrier to further deforestation activities.</p> <p>CAR 7 is closed.</p>
<p><b>CAR 8</b></p> <p>Leakage plots number 5 through 9 do not meet the criteria set out under the MED <i>Section 10.2 Delineating the Leakage Area</i>. Following the site visit, it became clear these leakage plots do not exhibit the following criteria:</p> <p>1) Landscape configuration: The leakage parcel does not meet the requirement that leakage area have forest that is relatively similar to the project area, specifically the parcel does not have enough trees to function as forest. Though leakage plots 5 through 9 are spatially proximate to the project area, it was found during the site visit that the threat of degradation is not similar to that of the project area.</p> <p>The project proponent shall move plots 5 through 9 to meet the criteria set out in the MED Section 10.2 Delineating the Leakage Area.</p>		<p><b>Accepted and completed:</b> Leakage Plots 5-9 were moved to areas that more accurately represent the conditions in the project area (in the road to Kasigau corridor, randomly placed within identified forest leakage areas). The project leakage model was re-fit and the lag factor re-calculated, per equation [9] in the MED. All changes were documented in the PD in Section 10. Leakage.</p>	<p>The relocation of the leakage plots 5-9 meet the criteria set out under MED VM0009 Section 10.2.</p> <p>CAR 8 is closed.</p>
	Site Visit		

Draft report corrective action requests and requests for clarifications	Mov	Summary of project participants' response	Final conclusion
<p><b>CAR 9</b> Please either measure the mass of trees as large as the largest trees to which allometric equations will be applied to and use these large trees to construct allometric equations, or produce a more conservative method for estimating carbon stocks in trees larger than the trees used to construct allometric equations.</p>		<p><b>Accepted and completed:</b> A new method for applying allometry to large trees has been developed and applied. In summary, for each tree larger than the largest destroyed tree used to develop the power curve allometric equations, a linear equation was applied with slope equal to the tangent of the all-species curve at 35 cm. This represents a much more conservative approach to large tree biomass estimation, as in almost all cases, this linear model yields less biomass than the previous power curve. Please see section 13.14 Monitoring of Carbon Stocks and the accompanying file "allometry_weighted_PhaseII.xlsx" for further detail.</p>	<p>CAR 9 was addressed while the auditors were on site. The applied changes to the allometry give results that compare reasonably to other allometric equations created from destructing sampling of larger trees of other species and are thus deemed appropriate.</p> <p>CAR 9 is closed.</p>
<p><b>CL 1</b> As the degradation of the land is affected by the number of cattle that graze lands, by the next verification, each ranch shall develop a management plan to establish the maximum number of cattle and timing and periodicity of grazing.</p>	<p>Site Visit</p>	<p><b>N/A:</b> Wildlife Works feels that a cattle management plan is not needed for the following reasons:</p> <p>a) cattle usually only typically affect forest understory. In a dryland ecosystem, this represents an extremely small percentage of the total carbon stocks.</p> <p>b) any degradation that is in fact introduced by cattle within the project area will be captured by the measurement of carbon stocks within the fixed biomass plots, which are required to be sampled at each monitoring period. This is the method that all carbon stocks changes are captured within the project area; Wildlife Works therefore feels it unnecessary to treat cattle grazing as a special case. If the landowners allow any form of significant degradation to their carbon, it will be measured in</p>	<p>As the landowners are directly tied to the success of maintaining their GHG stocks, the auditors agree with the project proponent that the potential losses from destroying their respective carbon stocks are more effective than a cattle management plan.</p> <p>CL 1 is closed.</p>

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		<p>the field campaign, and that particular ranch will receive less carbon funding respectively.</p> <p>This response has been discussed and agreed upon with the validator during the site visit.</p>	
<p><b>CL 2</b> On page 16, references to project activities that are anticipated to be completed in 2010 shall be revised to the current schedule.</p>	DR	<p><b>Accepted and completed:</b> Information about the organic clothing factory has been included as an update to activities taking place in 2010 /2011 due to Phase I Carbon funds.</p>	<p>Changes have been made and accepted.</p> <p>CL2 is closed.</p>
<p><b>CL 3</b> We identified eight trees that were incorrectly entered into the tree database from plot cards. This list of trees has been provided to the project proponent. Please make the data entry corrections.</p>	Site Visit	<p><b>Accepted and completed:</b> These identified erroneous trees have been changed in the global carbon database.</p>	<p>Changes have been made and accepted.</p> <p>CL3 is closed.</p>
<p><b>CL 4</b> Please alter color schemes in map on page 30 so that forest is different from non-forest (such as green for forest and red or yellow for grassland and developed uses).</p>	DR	<p><b>Accepted and completed:</b> The map on page 30 has been altered and re-inserted according to validators' suggestions, making non-forest and forest more distinguishable from each other and other landcover classes.</p>	<p>Changes have been made and accepted.</p> <p>CL4 is closed.</p>
<p><b>CL 5</b> <i>SOP: Biomass</i> would be clearer if the document is limited to specification of how plots shall be measured. The document would be clearer if material on the process of the development of protocols is deleted.</p>	Site Visit	<p><b>Accepted and implemented:</b> Extraneous information has been identified and removed from the SOP- Biomass document.</p>	<p>Changes have been made and accepted.</p> <p>CL5 is closed.</p>
<p><b>CL 6</b> Page 10, Sec. 5.2, 3<sup>rd</sup> paragraph. The project will be verified every five years, not validated.</p>	Site Visit	<p><b>Accepted and completed</b></p>	<p>Changes have been made and accepted.</p> <p>CL6 is closed.</p>
<p><b>CL 7</b></p>	DR	<p><b>Accepted and completed:</b> The Rukinga Phase I</p>	<p>Changes have been made and accepted.</p>

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Page 20-21. The Rukinga Phase I material does not appear to be relevant to Phase II.		material was a relic of a very early version of the PD, and has been updated to include Phase II references of project activities.	CL7 is closed.
<p><b>CL 8</b></p> <p>The project description should provide further detail on the ownership rights for each community ranch, including the existence of a title and the dates of renewal. Where a title is being sought, a description of the steps and schedule of the renewal shall be provided within the PD.</p>	Site Visit	<p><b>Accepted and completed with modifications:</b> Proponent and validator agreed that based on the information thoroughly reviewed during the site visit, a narrative describing the status of the project as a whole will be placed in Section 5.1 Spatial Boundaries, under the subheading "land ownership."</p>	<p>Changes have been made and accepted.</p> <p>CL8 is closed.</p>