

# BUKALEBA FOREST PROJECT



Document Prepared By Green Resources

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1 INTERNAL RISK

Project Management		
Risk Factor	Risk Factor and/or Mitigation Description	Risk Rating
a)	<p>Species planted (where applicable) associated with more than 25% of the stocks on which GHG credits have previously been issued are not native or proven to be adapted to the same or similar agro-ecological zone(s) in which the project is located.</p> <p>The BFP does use non native species (pine and eucalyptus) associated with more than 25% of the stocks on which GHG credits; however, the credits have not yet been issued and, furthermore, the species are proven to be adapted to the same or similar agro-ecological zone in which the project is located. This is substantiated through the land licence from the NFA, which recommends the species used in the project for planting<sup>1</sup>. In addition, the Sawlog Production Grant Scheme (SPGS) in Uganda also recommends the species being used due to their proven adaptation to the region<sup>2</sup>.</p>	0
b)	<p>Ongoing enforcement to prevent encroachment by outside actors is required to protect more than 50% of stocks on which GHG credits have previously been issued.</p> <p>Due to the local communities living within the CFR there is a risk of encroachment into the project area. However, the project aims to mitigate these risks through a Collaborative Forest Management plan with the local communities<sup>3</sup>.</p>	2
c)	<p>Management team does not include individuals with significant experience in all skills necessary to successfully undertake all project activities (ie, any area of required experience is not covered by at least one individual with at least 5 years experience in the area).</p> <p>Green Resources has a well qualified and experienced management team in place to ensure that the BFP is implemented effectively. The company has senior local management with a track record in planting, forestry and carbon operations which are also supported by the management team at GRAS, who interact with them remotely, and visit the plantations every few months. In addition, both the local team and staff at GRAS have proven experience with other forest carbon projects – namely, the Kachung Forest Project, which is registered under the CDM; and also the Uchindile and Mapanda Forest Project, which was the world’s first registered and verified AFOLU VCS project.</p> <p>Short CVs of key local management:</p>	0

<sup>1</sup> National Forestry Authority (NFA); Tree Farming license to Busoga Forestry company (BFC) in Bukaleba Central forest Reserve (BCFR); clause( 2(d).

<sup>2</sup> SPGS; Tree planting guideline for Uganda, pp. 81-86  
[http://www.sawlog.ug/index.php?option=com\\_content&view=article&id=64&Itemid=74](http://www.sawlog.ug/index.php?option=com_content&view=article&id=64&Itemid=74)

<sup>3</sup> Steven Nsita et al.,(2011) Collaborative Forest Management in the Bukaleba Central Forest Reserve for Busoga Forestry Company Ltd

	<ol style="list-style-type: none"> <li>1. Isaac Kapalaga, Managing Director, joined 2009, Ugandan born 1958, Bsc. Forestry Makerere University, Masters Forestry Business Management Aberdeen University UK, Operations Manager USAID Rural Finance Project 2007 – 2008, Director Technical Services NFA 2004 – 2006, Grants Manager USAID Enterprise Development Project 2001 – 2003, Grants Manager USAID Environmental program 1995 – 2000, Forestry Manager Forest Department 1981 - 1994</li> <li>2. John Begumana, Mapping and Inventory Manager, joined 2008, Ugandan born 1962, Bsc Forestry Makerere University; Msc Environment Makerere University, Forest department 1991-2003, NFA 2004-2007</li> <li>3. Anatole, Batabane, Finance Manager, joined 2011, Ugandan born 1970, B.Commerce Makerere University; ACCA 2005; Head of Finance &amp; Administration ZK Advertising 2007-2009; Director Finance National Forestry Authority-2005-2007; Senior Accountant(mgt) NFA 2004-2005; Management Accountant Unilever Uganda Ltd 1997-2004; Accountant Nile Breweries Ltd 1995-1997</li> <li>4. Daphne Ayiekoh Chikuru, CDM Manager, joined 2005, Ugandan born 1981, Bsc. Forestry Makerere University</li> <li>5. Simon Kizza, FSC™ Manager, joined 2007, Ugandan born 1979 Bsc. Forestry Makerere University, 2005-2007 NFA</li> <li>6. Paul Bagenze, Mapping and GIS Manager, joined 2007, Ugandan born 1974 Bsc. Forestry Makerere University, Msc. Environment Makerere University; Bwindi Park ITFC 2000-2006, CIAT Kawanda 2006-2007</li> <li>7. Prossy Nanyonjo, Community Development Manager, joined 2007, Ugandan born 1982, Bsc. Forestry Makerere University</li> <li>8. Teddy N. Nsamba, Senior Plantation Manager, joined 2007, Ugandan born 1980, BA Environmental Management Makerere University, plantations manager Deutsche Forst consult 2004- 2007.</li> <li>9. Sarah Nassuuna, Industrial Manager, joined 2005, Uganda born 1981, Bsc. Forestry Makerere University</li> <li>10. Alfred Macapili, Plantation Manager, joined 2006, Ugandan born 1946, Dip. Forestry from Sonthowet Norway; Certificate in Forestry Nyabyeya Uganda, 1969-2005 Forest department /NFA</li> </ol>	
d)	<p>Management team does not maintain a presence in the country or is located more than a day of travel from the project site, considering all parcels or polygons in the project area.</p> <p>All of the local management team, shown in the previous sub-category, are based in Jinja, Uganda, at the company’s headquarter site, which is 40 km from the BFP. All areas of the project can be reached within a few hours.</p>	0
e)	<p><b>Mitigation:</b> Management team includes individuals with significant experience in AFOLU project design and implementation, carbon accounting and reporting (eg, individuals who have successfully managed projects through validation, verification and issuance of GHG credits) under the VCS Program or other approved GHG programs.</p>	-2

	The same team as noted above implemented the registered A/R CDM project for the Kachung Forest Project in Uganda. The team were also involved with GRAS staff in developing the world's first registered and verified AFOLU VCS project.	
f)	<p><b>Mitigation:</b> Adaptive management plan in place.</p> <p>The project has a detailed forest management plan in place which is updated regularly with lessons learnt and input from stakeholders<sup>4</sup>. However, currently evidence is lacking to demonstrate that this can be classed as an adaptive management plan.</p>	0
<b>Total Project Management (PM) [as applicable, (a + b + c + d + e + f)]</b>		<b>0</b>
Total may be less than zero.		

Financial Viability		
Risk Factor	Risk Factor and/or Mitigation Description	Risk Rating
a)	<p>Project cash flow breakeven point is greater than 10 years from the current risk assessment</p> <p>Not applicable</p>	0
b)	<p>Project cash flow breakeven point is between 7 and up to 10 years from the current risk assessment</p> <p>Not applicable</p>	0
c)	<p>Project cash flow breakeven point is between 4 and up to 7 years from the current risk assessment</p> <p>Not applicable</p>	0
d)	<p>Project cash flow breakeven point is less than 4 years from the current risk assessment</p> <p>As demonstrated through the financial model of the BFP ARR VCS project used for investment analysis in the PD, the cash flow breakeven point is expected in 2011, which is the current year. Therefore the project fits this sub criterion.</p>	0

<sup>4</sup> Bukaleba Forest Management plan for Busoga Forestry Company Ltd

	BFC is currently in the process of closing its accounts for 2011 which will show that the cash flow has turned positive. However, since the final, approved accounts are not yet available, a provisional statement has been provided.	
e)	Project has secured less than 15% of funding needed to cover the total cash out before the project reaches breakeven  Not applicable since the project has already reached the cash flow breakeven point.	0
f)	Project has secured 15% to less than 40% of funding needed to cover the total cash out before the project reaches breakeven  Not applicable since the project has already reached the cash flow breakeven point.	0
g)	Project has secured 40% to less than 80% of funding needed to cover the total cash out before the project reaches breakeven  Not applicable since the project has already reached the cash flow breakeven point.	0
h)	Project has secured 80% or more of funding needed to cover the total cash out before the project reaches breakeven  Not applicable since the project has already reached the cash flow breakeven point.	0
i)	<b>Mitigation:</b> Project has available as callable financial resources at least 50% of total cash out before project reaches breakeven  Not applicable.	0
<b>Total Financial Viability (FV) [as applicable, ((a, b, c or d) + (e, f, g or h) + i)]</b> Total may not be less than zero.		<b>0</b>

Opportunity Cost		
Risk Factor	Risk Factor and/or Mitigation Description	Risk Rating
a)	NPV from the most profitable alternative land use activity is expected to be at least 100% more than that associated with project activities; or where baseline activities are subsistence-driven, net positive community impacts are not demonstrated  As shown in the additionality section of the PD, the only alternative land use activity is the continuation of the land-use prior to project start. This means the continuation of subsistence agricultural activities, which have been leading to a succession of degradation within the BCFR. Since the alternative land use activity is subsistence driven, the NPV does not need to be calculated.	8

	<p>The project is expected to bring net positive community impacts through employment opportunities and a range of community development projects, including the provision of free seedlings for community woodlots, water security, HIV and AIDS sensitization, construction of a maternity ward, supply of fuel-wood and sharing of 10% of the carbon revenues from the project for additional community development projects. The project plans to seek certification under the CCBS in the future. In addition the project is already certified under the FSC, which demonstrates the sustainable management of the project, covering social, environmental and economic aspects.</p> <p>Other than the FSC assessments which cover the social and economic well-being of the surrounding communities, a formal assessment of these net impacts has not been carried out. Therefore currently the project cannot demonstrate this point.</p>	
b)	<p>NPV from the most profitable alternative land use activity is expected to be between 50% and up to 100% more than from project activities</p> <p>Not applicable</p>	0
c)	<p>NPV from the most profitable alternative land use is expected to be between 20% and up to 50% more than from project activities</p> <p>Not applicable</p>	0
d)	<p>NPV from the most profitable alternative land use activity is expected to be between 20% more than and up to 20% less than from the project activities; or where the baseline activities are subsistence-driven, net positive community impacts are demonstrated</p> <p>As stated and substantiated in a) of this sub category, the project demonstrates net positive community impacts.</p>	0
e)	<p>NPV from project activities is expected to be between 20% and up to 50% more profitable than the most profitable alternative land use activity</p> <p>Not applicable</p>	0
f)	<p>NPV from project activities is expected to be at least 50% more profitable than the most profitable alternative land use activity</p> <p>Not applicable</p>	0
g)	<p><b>Mitigation:</b> <i>Project proponent is a non-profit organization</i></p> <p>The project proponent is not a non-profit organization.</p>	0
h)	<p><b>Mitigation:</b> <i>Project is protected by legally binding commitment to continue management practices that protect the credited carbon stocks over the length of</i></p>	0

	<i>the project crediting period</i>	
	Not applicable.	
i)	<b>Mitigation:</b> Project is protected by legally binding commitment to continue management practices that protect the credited carbon stocks over at least 100 years  Not applicable.	0
<b>Total Opportunity Cost (OC) [as applicable, (a, b, c, d, e or f) + (g + h or i)]</b> Total may not be less than 0.		<b>8</b>

Project Longevity		
a)	Without legal agreement or requirement to continue the management practice  Not applicable	0
b)	With legal agreement or requirement to continue the management practice  BFC has a land licence for 50 years which is valid from 1996 to 2046 and the licence is renewable - according to clause 6b. The project therefore has a 42 year crediting period from 2004 – 2046.  =30- (project longevity/2) =30-(42/2)= 9	9
<b>Total Project Longevity (PL)</b> May not be less than zero		<b>9</b>

Internal Risk	
<b>Total Internal Risk (PM + FV + OC + PL)</b> Total may not be less than zero.	<b>0 + 0 + 8 + 9 = 17</b>

2 EXTERNAL RISKS

Land Ownership and Resource Access/Use Rights		
Risk Factor	Risk Factor and/or Mitigation Description	Risk Rating
a)	<p>Ownership and resource access/use rights are held by same entity(s)</p> <p>The NFA (National Forestry Authority) is a government parastatal with full ownership of the title as well as right to assess the land as stated in clause 3 and 5 of the tree farming license to BFC in the BCFR.</p> <p>This is therefore not applicable.</p>	0
b)	<p>Ownership and resource access/use rights are held by different entity(s) (eg, land is government owned and the project proponent holds a lease or concession)</p> <p>The NFA has ownership of the BCFR and BFC possess the lease to the land. Therefore the ownership and resource access/ use right are held by different entities.</p>	2
c)	<p>In more than 5% of the project area, there exist disputes over land tenure or ownership</p> <p>There has been an ongoing dispute regarding 999 ha of land which BFC holds under licence. The dispute is regarding double ownership, as the NGO, Arise Africa International also claims to have been issued a land licence. The issue of land dispute is handled by the licensor (NFA)<sup>5</sup>, and as such, BFC has not planted any of the land in this area nor included it as part of the ARR VCS project. Therefore the dispute is not within the project area.</p>	0
d)	<p>There exist disputes over access/use rights (or overlapping rights)</p> <p>As mentioned in c), there is a dispute over access/ use rights regarding Arise Africa International; however, this dispute is not taking place within the project area.</p>	0
e)	<p><b>Mitigation:</b> Project area is protected by legally binding commitment (eg, a conservation easement or protected area) to continue management practices that protect carbon stocks over the length of the project crediting period</p>	-2

<sup>5</sup> NFA letter on encroachment in Bukaleba Central Forest Reserve by Arise Africa International, March 2011



	As the project is being implemented within a CFR, the area is protected in the sense that the only activity that is legally allowed within the CFR is forestry. The continuation of management practices that protect carbon stocks over the length of the project crediting period is therefore protected.	
f)	<p><b>Mitigation:</b> Where disputes over land tenure, ownership or access/use rights exist, documented evidence is provided that projects have implemented activities to resolve the disputes or clarify overlapping claims</p> <p>The company has engaged with the NFA and Arise Africa directly to resolve the dispute mentioned in c). Documented evidence exists to demonstrate this<sup>6</sup>. In addition, Arise Africa is also part of BFC'</p>	-2
<b>Total Land Tenure (LT) [as applicable, ((a or b) + c + d + e+ f)]</b>		<b>0</b>
Total may not be less than zero.		

Community Engagement		
Risk Factor	Risk Factor and/or Mitigation Description	Risk Rating
a)	<p>Less than 50 percent of households living within the project area who are reliant on the project area, have been consulted</p> <p>The villagers that have been living within the project area have been involved since the early stages of the project development, and are continuously informed about project activities and plans. Stakeholders have the opportunity to have their say and give suggestions. The project has carried out extensive stakeholder consultation many of which have shaped the projects design. Stakeholders were consulted through meetings, semi-structured interviews, and focus group discussions to capture information pertaining to the project. Participatory Rural Appraisals were carried out in the villages to identify problems, views and concerns of local stakeholders and incorporated into the project design and management plan. More than 50 percent of the households living within the project area who are reliant on the project area have been consulted – this is evidenced through documents such as the EIA/ SEIA, community consultations and PRAs.</p>	0
b)	Less than 20 percent of households living within 20 km of the project boundary outside the project area, and who are reliant on the project area, have been	5

<sup>6</sup> NFA letter on encroachment in Bukaleba Central Forest Reserve by Arise Africa International, March 2011; Arise Africa International is also part of our stakeholders and have attended meetings for BFC

	<p>consulted</p> <p>The focus of the community engagement in the project has been with the communities living within the BCFR. Therefore less than 20 percent of households living within 20 km of the project boundary outside the project area, and who are reliant on the project area, have been consulted.</p>	
c)	<p><b>Mitigation:</b> <i>The project generates net positive impacts on the social and economic well-being of the local communities who derive livelihoods from the project area</i></p> <p>The project is certified under the FSC</p>	0
<b>Total Community Engagement (CE) [where applicable, (a+b+c)]</b>		<b>5</b>
Total may be less than zero.		

Political Risk		
Risk Factor	Risk Factor and/or Mitigation Description	Risk Rating
a)	<p>Governance score of less than -0.79</p> <p>Not applicable.</p>	0
b)	<p>Governance score of -0.79 to less than -0.32</p> <p>The mean government score for Uganda across the six indicators of the World Bank Institute's Worldwide Governance Indicators (WGI), averaged over the most recent five years of available data (2010-2006), is -0.589. The political risk for the BFP therefore fits this sub category.</p>	4
c)	<p>Government effectiveness (Governance score of -0.32 to less than 0.19)</p> <p>Not applicable.</p>	0
d)	<p>Governance score of 0.19 to less than 0.82</p> <p>Not applicable.</p>	0
e)	<p>Governance score of 0.82 or higher</p> <p>Not applicable.</p>	0
f)	<p><b>Mitigation:</b> Country is implementing REDD+ Readiness or other activities, as set out in this Section 2.3.3.</p> <p>Uganda is receiving REDD+ Readiness funding from the World Bank Forest Carbon Partnership Facility and is implementing a REDD+ policy framework covering key components such as GHG credit ownership, clear government authority over REDD+ projects, and national measurement, reporting and</p>	-2

verification systems.	
<b>Total Political (PC) [as applicable ((a, b, c, d or e) + f)]</b> Total may not be less than zero.	<b>2</b>

External Risk	
<b>Total External Risk (LT + CE + PC)</b> Total may not be less than zero.	<b>0 + 5 + 2 = 7</b>

3 NATURAL RISKS

Fire	
<b>Significance</b>	<p>Minor (5% to less than 25% loss of carbon stocks)</p> <p>Since the project start there have been a number of small to medium sized fires in the BCFR which have affected the planting by BFC. The largest fire has been 50 ha but more commonly they are between 1 – 5 ha. The total area affected by fire since project start is 165 ha; however, 71.6 ha of this recovered from any fire damage, and thus the current carbon stocks were not affected. Taking the largest fire that has occurred at the project (50 ha) and dividing this by the total project area at the time of the fire, an estimate of the loss of carbon stocks can be calculated. The 50 ha fire took place in 2009 when the total project area (including in eligible areas) was 1,135 ha. An estimate of the loss of carbon stocks from this fire based on a comparison of areas (50 ha/ 1,135 ha), determines a significance loss of 4.4%, which is classed as Insignificant (less than 5% loss of carbon stocks). However, in line with the guidance 2.4.1 from the AFOLU Non-Permanence Risk Tool, the project applies the Minor (5% to less than 25% loss of carbon stocks) category.</p>
<b>Likelihood</b>	Fires have been occurring in the BCFR less than every 10 years.
<b>Score (LS)</b>	5
<b>Mitigation</b>	<p>Mitigation score = 0.5.</p> <p>BFC is implementing a comprehensive fire prevention strategy and as such has a mitigation score of 0.5.</p> <p>The prevention plans take into account traditional uses of fire, based on ordinances restricting fires and involve local community leaders and organizations. It also includes an emergency plan in case of fire outbreak, to eliminating and containing fire outbreaks. The following strategies are currently employed for the project:</p> <ol style="list-style-type: none"> <li>1. Compartmentalization Plantations are divided into compartments of manageable sizes where sufficient buffers (6 m) are maintained to isolate operations and problems associated with each polygon.</li> <li>2. Roads In addition to the compartment, adequate road networks within the plantations also provide accessibility and easy mobilization of resources and equipment in the event of fire.</li> <li>3. Fire breaks Fire lines are put in place to separate compartments. Some fire lines coincide with roads and when they do not, they are graded, and/ or slashed and burnt to about 4-6m wide for internal fire lines. For external boundaries where necessary the firebreak varies from 10 to 30 m depending on the vulnerability of the area.</li> <li>4. Fire towers</li> </ol>

	<p>BFP has one fire tower which allows for the visibility of the forest plantation. There is a plan to construct two more fire towers as planting advances. These points are manned 14 hours a day and in the night there is a patrol team to attend to any fires. The fire tower team is provided with communication systems such as walkie talkie radios and fire fighting equipment.</p> <p>5. Fire Patrolling A man is always kept on duty at the plantation office, fire tower and in different sites of the plantation. The patrol team are provided with bicycles and/or motor bikes, walkie-talkie radios, back pack pumps and slashes. The fire patrol team's location and shifts are dependent on the current fire risk, and are increased in intensity if the risk increases, for example if there is a drought.</p> <p>6. Mapping The preparation of effective fire plan maps covering all firebreaks, fire towers and natural features is underway for all company plantations. Maps have strategic and tactical use in helping to locate fire occurrences so as to know the convenient route to access and the best approach to tackle them.</p> <p>7. Community involvement in fire reporting and fighting A good cooperation is maintained between the villager community around the project areas and the forest workers/staff. Chains of command have been established so as to provide quick responses to fire messages. In BFC, communication has been made easy through radio calls and walkie-talkie receivers. Villagers will be asked to report fire incidents to responsible persons.</p> <p>8. Training fire fighters Standby crews, fire tower men and any potential groups are given some training about fire prevention/fighting. Trainings are conducted before the dry season. Controlled burning is also another opportunity for training standby crew and other workers, which has been identified as a major cause of fire in plantations if poorly managed.</p> <p>9. Fire fighting tools and equipment Fire fighting tools and equipments have been put in place. These include back pack pumps, fire beaters, walkie-talkie radios, water bowsers and tractors to pull bowsers, trucks to transporter fire fighters, etc. In case of large fires, more people involved will mean more tools and equipment have to be deployed.</p> <p>10. Recording and replanting of damaged area All fire incidences are properly recorded with detailed information regarding the incidence including cause/source of fire, species affected, areas destroyed, etc. In addition, plans are immediately put in place to replant all damaged areas if 30% or more of the area is destroyed.</p>
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Pest and disease outbreak	
<b>Significance</b>	Minor (5% to less than 25% loss of carbon stocks)

	<p>At the BFP, there have been several pest and disease outbreaks; however, the significance of them in terms of loss of carbon stocks has been very low. Pest outbreaks have included the chalcid wasp and termites. The chalcid wasp has affected a large area of eucalyptus but not to the extent whereby the trees are killed. Only 8ha of the eucalyptus affected by the wasp has had to be removed, which is much less than 5% of the carbon stocks. The remaining areas of affected eucalyptus have been treated and have recovered. Since 2008, BFP has changed from planting eucalyptus camadulensis and grandis to clones, which are resistant to the chalcid wasp.</p> <p>The risk from termites is of significance for young stands of trees just after planting; however, these trees are too young to be measured to quantify how much carbon is stored. Therefore, these carbon stocks would not have had GHG credits issued based on them.</p> <p>With regards to the pine species, the BFP has experienced pine wilt; though, this has only been found on a small area and has not killed any trees. The risk from pine wilt is significant with regard to growth rates but since it hasn't killed any trees, is not a significant risk in regard to the loss of carbon stocks.</p> <p>Although the loss of carbon stocks from pest and disease outbreak has been seen to be very small, since there have been a number of different attacks, the project has conservatively assumed the project to be in the Minor category (5% to less than 25% loss of carbon stocks).</p>
<b>Likelihood</b>	Less than every 10 years
<b>Score (LS)</b>	5
<b>Mitigation</b>	<p>Mitigation score = 0.25.</p> <p>BFC is implementing a comprehensive pest and disease prevention strategy and has a proven history of effectively containing such natural risk, thus the mitigation score is 0.25.</p> <p>Forest health is being monitored constantly through the following procedure: The monitoring team that is responsible for data collection in the Permanent Sample Plots (PSPs) is also responsible for observation and detection of symptoms of pests and diseases as one of the monitoring parameters. Patrolmen are used to check the forest diseases and pests during their routine works. When diseases or pests are detected, they are reported immediately to the Project Manager and the following is the chain of response:</p> <ul style="list-style-type: none"> <li>• The Patrol Men report the incidence to Project Manager</li> <li>• The Project Manager checks the situation and reports it to the Head Office</li> <li>• From head office the head of monitoring team goes to the field to assess the situation of the infestations and informs Management of the steps to be taken</li> <li>• If the infestations are not severe, the monitoring manager informs management while more follow up of the disease is conducted</li> <li>• If the infestation is severe the Research Manager reports to Management of the effect of the infestation and external expertise is sought as remedy to the situation.</li> </ul> <p>Usually National Forestry Resources Research Institute (NAFORRI) and/or</p>

	<p>Makerere University, Kampala experts (Department of Entomologists or pathologists) are contracted to check the diseases or pests attacks. To report and document disease outbreak, a special form called “Forest Health and Safety Monitoring” designed for that purpose is used.</p> <p>Overall the risk category is considered to be low, and the probability of incidents to be 5%. Following 15 years of implementation of the forest project at BFP there have been no incidences of pest and disease outbreak which has destroyed, or negatively impacted the growth of the forest stands. And even those we know, none of these have a severe effect on forest stands, rather they might affect the growth of the forest stand in the short term, until they are identified and treated.</p>
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Extreme weather	
<b>Significance</b>	<p>Insignificant (less than 5% loss of carbon stocks)</p> <p>Extreme climatic conditions such as drought have been experienced in the region and thus affected the project. In 2009 and 2010 there were two droughts in which significant areas of early planting were affected, to the extent which they needed to be replanted (200 ha in 2009 and 100 ha in 2010). Although there is a significant risk to the project in regard to this natural risk, the extent of the risk to the actual carbon stocks is less so. This is because the main areas that have been affected have been the new established areas, which have not been included in carbon stock measurement due to them being too young. The areas that had to be replanted were initially planted the pervious planting season. Stands which were older than one year were able to survive through the droughts and no areas were lost. The growth rates in the drought period would be impacted, but the risk in regard to the loss of carbon stocks is not so significant.</p>
<b>Likelihood</b>	Less than every 10 years
<b>Score (LS)</b>	2
<b>Mitigation</b>	<p>Mitigation score = 0.5.</p> <p>Planting begins when the rainy season commences, or if before, with the use of aquasoil. In addition, the project is planting species which are robust in terms of adaptability and will be tolerant to changes in temperature and precipitation. These implemented prevention measures applicable to the risk factor , and thus the mitigation score is 0.5.</p>

Geological risk	
<b>Significance</b>	<p>No loss</p> <p>The African Plate is a tectonic plate which includes the continent of Africa, as well as oceanic crust which lies between the continent and various surrounding ocean ridges. This plate is rifting in the eastern interior along the East African Rift. This rift is a part of the larger Great Rift Valley – extending from Lebanon in the north to Mozambique in the southeast.</p>

	The East African Rift zone includes a number of active as well as dormant volcanoes. Uganda has experienced a number of small earthquake tremors, but the epicentre of the earthquakes have been outside of the country. No significant damage from earthquakes has been experienced in the Busoga region and thus no risk to carbon stocks from geological events is expected.
<b>Likelihood</b>	Less than every 10 years
<b>Score (LS)</b>	0
<b>Mitigation</b>	Not applicable

Other natural risk	
<b>Significance</b>	Not applicable
<b>Likelihood</b>	Not applicable
<b>Score (LS)</b>	Not applicable
<b>Mitigation</b>	Not applicable

Score for each natural risk applicable to the project (Determined by (LS x M))	
Fire (F)	5 x 0.5 = 2.5
Pest and Disease Outbreaks (PD)	5 x 0.25 = 1.25
Extreme Weather (W)	2 x 0.5 = 1
Geological Risk (G)	0
Other natural risk (ON)	0
<b>Total Natural Risk (as applicable, F + PD + W + G + ON)</b>	<b>4.75</b>

## 4 OVERALL NON-PERMANENCE RISK RATING AND BUFFER DETERMINATION

### 4.1 Overall Risk Rating

Risk Category	Rating
a) Internal Risk	17
b) External Risk	7
c) Natural Risk	4.75
<b>Overall Risk Rating (a + b + c)</b>	<b>29 %</b>



**4.2 Calculation of Total VCUs**

	<b>Component</b>	<b>tCO<sub>2</sub>e</b>
I	Total Emission Reductions from Project	36,041
II	Baseline Emissions	0
III	Emissions from Leakage	239
IV	Net Emission Reductions (I – II – III)	35,802
V	Emission Reductions to Buffer Pool (29%)	10,452
<b>VI</b>	<b>Net total emission reductions (VCUs)</b>	<b>25,350</b>