



**Verified Carbon
Standard**

NON-PERMANENCE RISK REPORT OF BOOMITRA GRASSLAND RESTORATION THROUGH SOIL ENRICHMENT IN EAST AFRICA



boomitra

Document Prepared by Boomitra Inc.

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1 INTERNAL RISK

Project Management		
Risk Factor	Risk Factor and/or Mitigation Description	Risk Rating
a)	The proposed project does not engage in any planting activities of any non-native species or species that demonstrate to thrive in the same or similar agro-ecological zones as the project area. The project promotes sustainable grazing activities within the project area (Refer to project activity section of the PDD).	0
b)	There are no ongoing enforcement issues related to the project area. All the lands enrolled in the project are owned by individual pastoralists or a community of pastoralists (see ownership section in PD), with registered land records that can be verified with the respective government land document websites. There are no outside actors or factors which need to be protected in this project.	0
c)	Management team of the project include individuals with significant experience in all skills necessary to successfully undertake all project activities. Implementation partners on the ground have well-trained staff. During the course of the project activity, training is conducted to improve upon the implementation and monitoring capabilities of the staff. Local communities (youth) are involved in overall implementation and monitoring activities. (Refer to project management section of the PD). Our local implementation partners have been working in the region for over 10 years. Boomitra's team ¹ is also equipped with the experience and qualification to develop, implement, monitor and report on various project activities. Since 2016, Boomitra has worked with hundreds of ranchers/pastoralists communities across the globe enabling them to adopt improved land management practices, adapt to innovative technologies and gain better returns from minimum investments. Hence, the project meets all VCS criteria on required experience for overall management of the project.	0
d)	Management team 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. All our implementation partners are in Kenya and have been working around the project area for over several years. Boomitra's ground partners have been working on encouraging sustainable grazing/grassland management practices to improve soil health and create	0

¹ <https://boomitra.com/team>

	carbon sequestration for many years prior to working with Boomitra. They require less than a day to reach many of the project areas.	
e)	Boomitra brings a diverse team to help cover several different aspects of the project execution, which is central to the overall management and governance of the project. Boomitra's carbon project development team comprise individuals with 10+ years of experience, who have been successful in getting dozens of carbon projects 3rd party validated and verified, with a variety of international standards from CDM to Gold Standard. Boomitra's geospatial data science team includes individuals with more than 5 years of experience in extracting actionable information from satellite data sources throughout the electromagnetic spectrum. Boomitra's pastoralist engagement teams ensure that all the pastoralists' queries and concerns are answered and that pastoralists are efficiently recruited. This team is also supported by software innovations from the software development team that continually make it easier for the pastoralists to participate in the program. For example, advising the pastoralists on best carbon practices may be done by the pastoralist engagement team through our implementation partners. More information about Boomitra is available at https://boomitra.com/ Boomitra does not foresee any gaps in expertise. Almost all project management is in-country, through the organizations of our ground partners who have a base in Kenya since several years.	-2
f)	The adaptive management plan outlines strategies to mitigate potential risks associated with the project. The monitoring process, following VCS methodology, includes data measurement, recording, and reporting. Boomitra oversees project management and training, while ground partners monitor pastoralist and rancher activities, conduct surveys, and assist with audits. Rigorous QA/QC procedures ensure accurate and conservative GHG removal measurement. Capacity-building programs involve pastoralists and ranchers in data collection and planning, supported by advanced technologies like apps and cloud-based systems for information verification. Monitoring parameters for land and ranching activities are collected and verified, with data securely stored in encrypted cloud storage for at least two years after project completion. A diverse team of project managers, field workers, and IT professionals ensures accurate data collection and reporting. The Boomitra Plan emphasizes adaptive management practices to address environmental challenges, helping ranchers manage land amidst extreme weather and climate shifts. Key strategies include regular monitoring of soil health, pasture conditions, and weather patterns to inform grazing decisions, rotational grazing for consistent forage, efficient water management, and capacity building for improved grazing practices. It also outlines risk mitigation strategies to handle extreme weather events like drought, flooding, and heatwaves by enhancing soil health, controlling runoff, and adjusting grazing schedules. These efforts aim to sustain pasture productivity, improve livestock health, and ensure land sustainability. For further details, see section 5.3.16 of the PD (Project Management and Monitoring Plan).	-2
Total Project Management (PM) [as applicable, (a + b + c + d + e + f)]		-4

Total may be less than zero.

Financial Viability		
Risk Factor	Risk Factor and/or Mitigation Description	Risk Rating
a)	Project cashflow breakeven point between 4 and up to 7 years from current risk assessment hence this is not applicable.	0
b)	Project cashflow breakeven point between 4 and up to 7 years from current risk assessment hence this is not applicable.	0
c)	The break-even point of the project, determined through an analysis of the Internal Rate of Return (IRR) based on current risk assessment, indicates that the project is anticipated to achieve breakeven within a period ranging from 4 to 7 years from its initiation. For detailed information, kindly review the provided IRR sheet highlighting the projected breakeven timeline for the project.	1
d)	Project cashflow breakeven point between 4 and up to 7 years from current risk assessment hence this is not applicable.	0
e)	Project cashflow breakeven point between 4 and up to 7 years from current risk assessment hence this is not applicable.	0
f)	Project cashflow breakeven point between 4 and up to 7 years from current risk assessment hence this is not applicable.	0
g)	Project cashflow breakeven point between 4 and up to 7 years from current risk assessment hence this is not applicable.	0
h)	Project has secured 80% or more of funding needed to cover the total cash out before the project reaches breakeven. There are no activities that require Boomitra to buy any big equipment or land that requires more money. All the project activities are happening on individual grasslands. While the project acknowledges investment barriers, its primary expenditures or cash out is related to fencing the grazing land and managing paddocks. These costs are primarily covered by ranchers through credit arrangements, direct payments, or support from Implementation Partners. The project does not require the purchase of large equipment or land, as all activities take place on privately owned, individual grasslands. The only cash in of the project will be the revenue from the carbon credits. As a retroactive project with a start date of January 10, 2019, Boomitra operates as a fully funded Delaware Corporation, demonstrating a robust financial foundation. The company's financial stability is derived from a combination of strategic investor funding, positioning it for sustained long-term growth. Furthermore, Boomitra has secured significant financial	0

Financial Viability		
Risk Factor	Risk Factor and/or Mitigation Description	Risk Rating
	commitments through contractual agreements involving advance payments for forward carbon credits from this project. These multi-year contracts, established with various buyers, provide guaranteed payment streams for a substantial portion of the company's generated carbon credits. This structure of securing down payments and advance payments, contributes to the project's financial strength. The combination of investor capital and secured future revenue underscores Boomitra's strong financial position, enabling the company to execute its operational objectives and pursue its long-term strategic goals in this specific project. The project proponent has secured all finance needed for the development, implementation and verification of the project as part of the operational and strategical budget of the company. All funds required were budgeted for and covered by the project proponent company. The relevant score of 0 is thus applied.	
i)	The project activities will be funded by finances with forward funding mechanisms or MoU with carbon removal buyers after issuance. Boomitra is negotiating with other entities who can fund this project. This will be substantiated with purchase agreements between the buyer and Boomitra.	0
Total Financial Viability (FV) [as applicable, ((a, b, c or d) + (e, f, g or h) + i)] Total may not be less than zero.		1

Opportunity Cost		
Risk Factor	Risk Factor and/or Mitigation Description	Risk Rating
a)	NPV from the most profitable alternative land use activity is not 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 demonstrated in section (d) , or where the baseline activities are subsistence-driven, net positive community impacts are demonstrated. Please refer point d of this table for detailed explanation. Hence this section is not applicable.	NA
b)	NPV from the most profitable alternative land use activity is not expected to be between 50% and up to 100% more than from project activities, or where the baseline activities are subsistence-driven, net positive community impacts are demonstrated.	NA

	Please refer point d of this table for detailed explanation. Hence this section is not applicable.	
c)	NPV from the most profitable alternative land use activity is not expected to be between 20% and up to 50% more than from project activities, or where the baseline activities are subsistence-driven, net positive community impacts are demonstrated. Please refer point d of this table for detailed explanation. Hence this section is not applicable.	NA
d)	<i>NPV from the most profitable alternative land use activity is expected to be between 20% more than and up to 20% less than from project activities; or where baseline activities are subsistence-driven, net positive community impacts are demonstrated.</i> The project works with ranchers/pastoralists of Kenya grasslands to help them adopt improved/sustainable grazing practices such as rotational grazing, livestock management, water management, etc., which sequester carbon while increasing productivity. Kenya's vast grasslands, spanning regions like the Maasai Mara and Laikipia Plateau, are pivotal for both livestock and wildlife. Livestock farming, a cornerstone of the Kenyan economy, heavily relies on these grasslands, with pastoralist communities such as the Maasai and Samburu constituting about 10-15% of the population. These areas are not only crucial for cattle, goats, and sheep grazing but also support a diverse range of wildlife, including lion, leopard, rhino, elephant and cape buffalo. <u>NPV Analysis:</u> For commercial ranchers in Kenya's semi-arid and arid grasslands, various alternative land uses exist, including crop farming (maize, wheat, and horticulture), charcoal production, eco-tourism, commercial afforestation, and real estate development. Among these, crop farming, especially large-scale maize and wheat production, is the most profitable commercial alternative. A study by Njuguna (2017)² found that crop farming in Amboseli's rangelands initially provided high financial returns, but led to long-term land degradation and declining yields. This was primarily due to soil depletion, increased vulnerability to droughts, and higher input costs associated with fertilizers and irrigation. While crop farming offers short-term profits, it has significant sustainability challenges. Maize and wheat farming are attractive alternatives due to their well-established markets and government incentives. However, profitability varies based on climatic conditions, soil fertility, and input costs. Maize farming yields between 4–6 metric tons (MT) per hectare, with a price per MT ranging from KES 3,500 to 4,500 (~USD 25–35), resulting in a	0

² Njuguna, E. W. (2017). Economic Evaluation Of Competing Land-Use Options And Their Drivers In Amboseli Ecosystem, Kenya.

net profit of KES 7,000–13,000 (USD 50–100) per hectare. Wheat farming, on the other hand, produces 2.5–3.5 MT per hectare, with a price per MT of KES 5,000–6,500 (~USD 40–50), leading to a net profit of approximately KES 15,000 (~USD 120) per hectare. Despite these figures, the profitability of crop farming decreases over time due to soil degradation, high input costs, and erratic rainfall patterns. Studies³ indicate that within 10–15 years, maize and wheat yields decline by 20–35% due to soil nutrient depletion and over-reliance on chemical inputs.

Multiple studies have analyzed the long-term financial viability of rotational grazing compared to crop farming. Over a 20-year period, sustainable grazing generates higher returns due to reduced input costs, improved soil fertility, and diversified revenue streams. According to a study⁴, the net revenue per hectare for rotational grazing ranges from KES 18,000 to 25,000 (USD 140–200), with a net present value (NPV) over 20 years, discounted at 10%, estimated at KES 120,000–160,000 per hectare. The breakeven period for rotational grazing is typically 5–6 years. In contrast, maize and wheat farming have an NPV of KES 90,000–140,000 per hectare over the same period, with a shorter breakeven period of 2–3 years. However, declining yields after 10 years due to soil degradation reduce long-term profitability. Studies⁵ highlight that sustainable rangeland management offers more stable financial returns in the long run.

Sustainable grazing offers several long-term economic and ecological benefits that make it superior to large-scale crop farming. First, rotational grazing preserves soil quality, reduces erosion, and enhances forage regrowth, leading to better cattle productivity over time. A study by Mureithi et al. (2016)⁶ found that grassland regeneration under rotational grazing increased pasture availability by 35%, reducing the need for expensive animal feed supplements.

Second, sustainable grazing enhances climate resilience by reducing water consumption compared to crop farming. Given Kenya's increasing climate variability, livestock systems that require less irrigation and

³ Nkonya, E., Mirzabaev, A., & Von Braun, J. (2016). Economics of land degradation and improvement—a global assessment for sustainable development (p. 686). Springer Nature.

⁴ Lutta, A. I., Robinson, L. W., Ruto, E., Wasonga, O. V., Sircely, J., & Nyangito, M. M. (2022, February). Economic Valuation of Grazing Management Practices: Discrete Choice Modeling in Pastoral Systems of Kenya. In JOURNAL OF PLANNING LITERATURE (Vol. 37, No. 1, pp. 172-173). 2455 TELLER RD, THOUSAND OAKS, CA 91320 USA: SAGE PUBLICATIONS INC.

⁵ Reed, M. S., Stringer, L. C., Dougill, A. J., Perkins, J. S., Athlapheng, J. R., Mulale, K., & Favretto, N. (2015). Reorienting land degradation towards sustainable land management: Linking sustainable livelihoods with ecosystem services in rangeland systems. *Journal of environmental management*, 151, 472-485.

⁶ Mureithi, S. M., Verdoodt, A., Njoka, J. T., Gachene, C. K., & Van Ranst, E. (2016). Benefits derived from rehabilitating a degraded semi-arid rangeland in communal enclosures, Kenya. *Land Degradation & Development*, 27(8), 1853-1862.

	fewer chemical inputs have a lower risk of economic losses. Studies⁷ in Laikipia and Narok counties show that farms relying on rotational grazing suffer fewer losses during drought years compared to maize and wheat farms, which are heavily dependent on rainfall. Third, sustainable grazing allows for land-use diversification through eco-tourism and wildlife conservation. Many ranchers in Kenya's Laikipia region have successfully combined rotational grazing with wildlife conservancies, creating additional revenue streams from eco-tourism, conservation grants, and carbon credits. Hence, the assumption that the sustainable grazing's NPV is within $\pm 20\%$ of the most profitable alternative land use (crop farming) is well-supported by secondary literature. While maize and wheat farming offer higher short-term profits, they become less viable over time due to soil degradation, high production costs, and climate risks. Sustainable grazing, on the other hand, maintains long-term productivity, enhances resilience, and allows for diversified income sources, making it the superior economic option for Kenya's commercial ranchers. Hence, nevertheless, to be conservative, it is assumed that NPV of the most profitable alternative land use activity is expected to be 20 percent or less than that of project activities. Hence, the risk rating is 0.	
e)	NPV from project activities is not expected to be between 20% and up to 50% more profitable than the most profitable alternative land use activity, or where the baseline activities are subsistence-driven, net positive community impacts are demonstrated. Please refer point d of this table for detailed explanation. Hence this section is not applicable.	NA
f)	NPV from project activities is expected to be at least 50% more profitable than the most profitable alternative land use activity, or where the baseline activities are subsistence-driven, net positive community impacts are demonstrated. Please refer point d of this table for detailed explanation. Hence this section is not applicable.	NA
g)	Boomitra is a for-profit organization, whereas its ground partners are nonprofit organizations. The carbon money generated under this project will be shared among the ranchers and implementation partners. With carbon finance, the ranchers and their communities are able to get direct cash payments through the carbon credits, and these enable them to adopt and maintain regenerative grazing practices. Sustainable grazing requires more concerted work than regular grazing because the lands have to be carefully divided into paddocks and the status of the paddocks has to be monitored as the livestock are carefully cycled.	0

⁷ Mwangi, V., Owuor, S., Kiteme, B., & Giger, M. (2020). Beef production in the rangelands: A comparative assessment between pastoralism and large-scale ranching in Laikipia county, Kenya. *Agriculture*, 10(9), 399.

	Carbon finance provides the monetary incentives to make it happen at scale. Since, Boomitra is not a non-profit organisation, the risk rating for this section is 0.	
h)	Boomitra is the only project proponent. Legal agreements initiated with the individuals and entities ensure that management practices that protect the credited carbon stocks are maintained throughout the enrollment period. Though we work closely with our ground implementation partner, individual agreements will be made with the owner of the land. The individuals or entities enrolling their lands irrevocably assign the right, title, and interest in the greenhouse gas reductions and removals thus generated on their lands during the project to Boomitra. The individuals or entities enrolling their lands disclaim all rights, titles, and interests in any carbon credits that may arise from the land. This is covered by legal agreements with the individuals and/or entities enrolling their lands. The ranchers have agreed upon implementing improved agricultural practices through these agreements. On ground implementation partners also play a vital role in monitoring and guiding farmers to continue practicing the improved practices. Boomitra has established a 40-year agreement (renewable) with the Implementation Partners, who are key in engaging ranchers. They motivate and reassure ranchers to renew their agreements, ensuring they complete the crediting period. The Rancher level agreements, called as Carbon agreements, are signed between Boomitra and the landowners. These agreements have an initial term of Ten Years, from the project start date of 2019 and will automatically renew for ten (10) year terms thereafter for a period of Thirty Years (30). Hence the total term of this agreement is 30 years, which is greater than the project's crediting period of twenty years. Implementation partners train and build the capacity of ranchers to implement project activities during the crediting period, ensuring they are equipped and motivated to continue improved grazing practices beyond the project. As per the VCS methodology, the baseline needs to be reassessed every 10 years, and PD shall have a plan for the same. Hence, Boomitra will revisit its management plan and revise it if necessary to meet the requirements as when required. The initial period of the rancher Agreement, 10 years is necessary for the agreement, because the project's baseline must be reassessed every ten years, following the reassessment the carbon agreements will be automatically renewed. In line with Section 2.2.4(3) of NPRT v4.0, Boomitra has demonstrated its intent to continue the land management practices long-term through the combination of implementation partner agreements and rancher-level contracts, as well as supporting management plans. Furthermore, per Section 2.2.4(6), the tool requires a minimum project longevity of 30 years. The current agreement structure meets this requirement through legally renewable terms up to 30 years, and not less than that, hence meeting the minimum requirement. Although the rancher	0

	contracts are not yet structured as irrevocable 40-year commitments, the contracts shall be updated before verification. Since, the project is not protected by legally binding commitment to continue management practices that protect the credited carbon stocks over the length of the project crediting period, the risk rating for this section is 0.	
i)	There are no legally binding agreements that mandate practices which protect carbon stocks over a 100-year period. However, soil organic carbon will be measured using satellites across the lifetime of the project. The only quantifiable parameter the project considers is Soil Organic Carbon (SOC). The proposed project activity promotes a variety of improved grazing practices (Ex: Rotational grazing, water management, etc.) in the project area, and does not involve any activity which degrades the soil properties during the project lifetime. Rotational grazing of livestock provides time for the vegetation to re-grow following a grazing event and for the vegetation itself to reproduce and propagate further. Herds of livestock are generally less selective in their foraging patterns than those moving in smaller groups. As a result, herds have a uniform impact on foraging across different plant species, reducing the possibility of promoting potentially invasive plant species that increase in the presence of grazing. Due to this practice, SOC content in the soil improves gradually over time, which reduces the rate of decomposition of organic matter. Boomitra tries to guarantee a longevity term of 100 years (and Verra requires at least 40 years of monitoring for their minimum project longevity). This is accomplished through a variety of means, the most important of which is ranchers' maintaining consistent practices and adopting new ones while avoiding reversals. We significantly mitigate durability risk by working with trusted and highly regarded local ground partners who truly understand their communities and can ensure best practices are maintained. With our projects, it is the ground partners who are directly involved in helping ranchers transition to and maintain regenerative practices and working with trusted partners ensures the impact can continue long-term. Furthermore, to ensure ranchers' interests are aligned, we vest carbon credit payments to them over a 5-year period to ensure ranchers maintain their practices. Furthermore, we are able to continuously monitor soil carbon levels at a very low cost with our technology; more data equates to a better ability for us to ensure soil carbon is safely stored through targeted interventions as needed. Despite these tools being put in place, there is still some residual permanence risk that exists (which can never truly reach 0), and we keep a buffer pool based on conservatively estimating that risk and using accepted VCS tools. Since, there is no legally binding commitment to continue management practices that protect the credited carbon stocks over at least 100 years, the risk rating for this section is 0.	0
Total Opportunity Cost (OC) [as applicable, (a, b, c, d, e or f) + (g + h or i)] Total may be less than 0.		0

Project Longevity		
a)	There is no legal agreement or requirement is in place to continue the management practice for the entire crediting period. As per the AFOLU NPR tool v4, Section 2.2.4.1, project longevity which may be longer than the project crediting period where project can demonstrate that activities that maintain carbon stocks on which GHG credits have previously been issued will continue beyond the project crediting period. Boomitra has a legal agreement (Partner Level Agreements) in place with Implementation Partners (IPs) for a period of 40 years with an intent to maintain and continue the longevity of the project, which is longer than the project crediting period. Hence, the project longevity is 40 years which is exceeding the Project crediting period, which is 20 years, hence establishing the permanence. The rancher agrees to follow the sustainable grazing practices that will lead to removal or reduction of GHG emissions. The credits generated through this process will be provided to the ranchers through vesting and multi-year obligation. Hence this would motivate the ranchers to continue the good practices. Evidence has been provided for the project ownership (in line with section 3.7.1 (5) of VCS standard v4.5), this agreement will be maintained for the entire project longevity i.e., 40 years. While the Rancher level agreements, also called as Carbon agreements are Boomitra and the landowners, are of 10 years automatically renewable for 30 years and the control is secured through a concession that is shorter than the project longevity, and these concessions are renewable for the full longevity period. Through Carbon agreements, the ranchers enrolling their lands disclaim all rights, title and interest to any Carbon credits that may arise from the land. These agreements include revenue sharing processes and terms with ranchers. The initial period of 10 years is necessary because, the project's baseline must be reassessed every ten years, following the reassessment the carbon agreements will be automatically renewed. These above-mentioned legally binding agreements are in place to ensure the project longevity, financial viability and the benefit permanence of the project activities. In line with Section 2.2.4(3) of NPRT v4.0, Boomitra has demonstrated its intent to continue the land management practices long-term through the combination of implementation partner agreements and rancher-level contracts, as well as	16

	supporting management plans. Furthermore, per Section 2.2.4(6), the tool requires a minimum project longevity of 30 years. The current agreement structure meets this requirement through legally renewable terms up to 30 years, and not less than that, hence meeting the minimum requirement. Although the rancher contracts are not yet structured as irrevocable 40-year commitments, the contracts shall be updated before verification. Until those updated contracts are in place, the project is evaluated under Option (a) of Table 4 of section 2.2.4 of NPRT v4.0 (“without legal agreement or requirement to continue the management practice”).	
b)	There is no legal agreement or requirement is in place to continue the management practice for the entire crediting period, hence this does not apply.	0
Total Project Longevity (PL) May not be less than zero		16

Internal Risk	
Total Internal Risk (PM + FV + OC + PL) Total may not be less than zero.	13

2 EXTERNAL RISKS

Land Tenure and Resource Access/Impacts		
Risk Factor	Risk Factor and/or Mitigation Description	Risk Rating
a)	Ownership and resource access/use rights are held by different entity(s). Land is owned by pastoralists/rancher and carbon credit is owned by Boomitra by valid agreements. This has been supported by valid agreements.	0
b)	Ownership and resource access/use rights are held by different entity(s). Land is owned by the individual signing up for the program, and there is minimal risk of land tenure and policy changes affecting the project activity.	2

c)	Currently there are no issues related to land tenure in the project area and no potential for related issues arising during the project lifetime.	0
d)	There is no existing dispute over access/use rights (or overlapping rights), hence this is not applicable.	0
e)	None of the project are under the WRC project. This is an ALM project. Hence, criteria concerning demonstration of potential upstream and sea impacts, outlined for WRC projects is not directly applicable. Hence this is not applicable.	0
f)	There are no laws in place that prevent or mandate the adoption of new sustainable grazing practices. Thus, pastoralists in the region involved with the project do not face any regulation in the implementation of better land management practices. The project will continue to implement improved management practices which will protect the carbon stocks over the length of the crediting period.	0
g)	There are no disputes over land tenure, ownership or access/use rights exist, hence this is not applicable.	0
Total Land Tenure (LT) [as applicable, ((a or b) + c + d + e + f + g)]		2
Total may not be less than zero.		

Community Engagement		
Risk Factor	Risk Factor and/or Mitigation Description	Risk Rating
a)	All pastoralists/ranchers participating in the project reside either at the project area or in its vicinity. That is where since ages they have been living. However, as part of the local stakeholder consultation process, all pastoralists living in the vicinity of the project area are informed through emails, invitation letter, telephonic conversations and newspaper advertisement for the people living in the vicinity of the project. More than 50 percent of the ranchers in the project area have been consulted and their views are documented in the form of feedback and minutes of the meeting. No negative feedback has been received from the pastoralists/ranchers. Please refer the Appendix 2 of PD for more details. Hence, the risk rating is selected to be 0.	0
b)	As a part of the local stakeholder consultation, more than 20 percent of the ranchers within 20 km of the project boundary outside the project area, and who are reliant on the project area, have been consulted and their views are documented. They were invited to the local stakeholder	0

	consultation meeting. No negative feedback has been received from the farmers. Please refer the Appendix 2 of PD for more details. Hence, the risk rating is selected to be 0.	
c)	Local communities are involved in the overall management of the project which includes implementation, monitoring and reporting. Hence, there are several positive impacts and benefits associated with the project for local communities, which improves the economic well-being of those who derive livelihoods from the project area. (Refer to the SDG section of the PD for more details on how the project contributes to various SDG goals.)	-5
Total Community Engagement (CE) [where applicable, (a + b + c)] Total may be less than zero.		-5

Political Risk		
Risk Factor	Risk Factor and/or Mitigation Description	Risk Rating
a)	The Governance score is -0.53. Hence, this point is not applicable.	0
b)	According to a report by World Bank ⁸ , the current economic and political reforms in Kenya have made a great impact on the country's overall economic growth, social development and political stability. While issues pertaining to poverty, unemployment etc., are widely prevalent, the government has also prioritized the development of several sectors, including the Savanna grasslands. The governance score of the country is -0.53 based on the World Bank Institute's Worldwide Governance Indicators (WGI) ⁹ . Reference the <u>VCS-Risk-Report-Calculation-Tool-v4.0-Kenya Grasslands</u> report for more details. Governance score of -0.53 (-0.79 to less than -0.32). Data from World Bank Institute and calculations on table below.	4
c)	The Governance score is -0.53. Hence, this point is not applicable.	0
d)	The Governance score is -0.53. Hence, this point is not applicable.	0
e)	The Governance score is -0.53. Hence, this point is not applicable.	0

⁸ The World Bank in Kenya. (2023). <https://www.worldbank.org/en/country/kenya/overview#1>

⁹ The World Bank Institute Worldwide Governance Indicators are available at: <http://info.worldbank.org/governance/wgi/index.asp>

f)	In line with Kenya's initiative to promote climate resilient economic growth, REDD+ projects have been initiated and are ongoing in the country ¹⁰ . The UNDP is also involved with Kenya's Ministry of Environment and Forestry, in developing mechanisms ¹¹ to enable the country to achieve its REDD+ objectives. The country is participating in the CCBA/CARE REDD+ Social and Environmental Standards initiative ¹² .	-2
Total Political (PC) [as applicable ((a, b, c, d or e) + f)]		2
Total may not be less than zero.		

	Country / Territory	Code	2019	2020	2021	2022	2023	Average
Voice and accountability	Kenya	KEN	-0.31	-0.35	-0.37	-0.15	-0.12	-0.26
Political Stability	Kenya	KEN	-1.1	-1	-1.09	-0.95	-0.94	-1.016
GOVT effectiveness	Kenya	KEN	-0.44	-0.4	-0.33	-0.33	-0.3	-0.36
Regulatory Quality	Kenya	KEN	-0.33	-0.5	-0.45	-0.38	-0.39	-0.41
Rule of Law	Kenya	KEN	-0.44	-0.55	-0.39	-0.32	-0.33	-0.406
Corruption Control	Kenya	KEN	-0.79	-0.86	-0.71	-0.76	-0.77	-0.778
						Overall Score	-0.53833	

External Risk	
Total External Risk (LT + CE + PC)	0
Total may not be less than zero.	

¹⁰ International Database on REDD+ projects and programmes. (n.d.-a). <https://www.reddprojectsdatabase.org/view/projects.php?id=404&name=Kenya&type=project>

¹¹ UNDP . (2023). KENYA FOREST CARBON PARTNERSHIP FACILITY (REDD+ READINESS PROJECT). <https://www.undp.org/kenya/projects/kenya-forest-carbon-partnership-facility-redd-readiness-project>

¹² Climate, Community and Biodiversity Alliance . (n.d.-a). <https://www.climate-standards.org/?s=kenya>

3 NATURAL RISKS

Natural Risk - Fire	
Significance	No loss
Likelihood	Risk is not applicable to project area
Score (LS)	According to the World Bank report¹³, fire is not considered a significant or recurring hazard to the project. Under the Country Risk Profile report¹⁴, fire is not mentioned as a risk in the Savannah grasslands of Kenya, and controlled fires can have a positive impact on grazing activities. The fire on grasslands can be useful in maintaining the health and vigor of grassland ecosystems. (Natural Risk Score (LS) – 0)
Mitigation	Not applicable Natural Risk Mitigation (M) – 0.25 Risk rating for Fire – (LS x M) $0 \times 0.25 = 0$

Natural Risk - Pest and Disease outbreaks (PD)	
Significance	Minor (5% to less than 25% loss of carbon stocks)
Likelihood	Every 10 to less than 25 years
Score (LS)	It is observed that pest and disease outbreak in Grasslands is mainly noticed in livestock herd due to intervention of wildlife and domestic animals of the Kenya grassland region¹⁵. According to the World Bank Report on Country Climate Risk Profile¹⁴, the occurrence of epidemic is 26% which basically refers to the disease outbreak in livestock and human population in the country. Instances of pest and diseases with the grasslands have seen upward trend owing to climate change and

¹³ Risk- Historical Hazards. Climate Knowledge Portal by World Bank. (n.d.). <https://climateknowledgeportal.worldbank.org/country/kenya/vulnerability>

¹⁴ Climate Risk Country Profile. Climate Knowledge Portal by World Bank. (n.d.). https://climateknowledgeportal.worldbank.org/sites/default/files/2021-05/15724-WB_Kenya%20Country%20Profile-WEB.pdf

¹⁵ The Journal of African History, Vol. 45, No. 1 (2004), pp. 45-80. (2014). "CLEAN" AND "DIRTY": CATTLE DISEASE AND CONTROL POLICY IN COLONIAL KENYA, 1900-40. <https://www.jstor.org/stable/4100332>

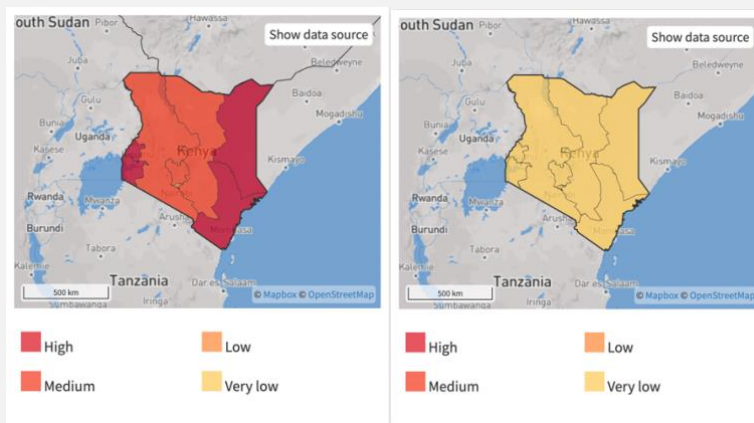
	increased temperatures during the post monsoon period and winter season. There is no infestation of pest to the grass species of the rangelands. (Natural Risk Score (LS) - 2)
Mitigation	To effectively manage pest and disease risks in grasslands, it is important to implement integrated pest management strategies such as reducing the wildlife and domestic livestock interaction and proper management of multi-species grazing grounds. Additionally, promoting biodiversity, maintaining proper grazing practices, and implementing quarantine measures can help reduce the risk of pests and diseases in grassland ecosystems. As mentioned above are part of the project activities promoted in this project where pests and diseases are controlled using improved practices promoting the co-living and required trainings are provided to the pastoralists to adopt new sustainable way of pest and disease control mechanisms in their ranch. Natural Risk Mitigation (M) – 0.25 Risk rating for PD – (LS x M) $2 \times 0.25 = 0.50$

Natural Risk - Extreme Weather (W)	
Significance	Minor (5% to less than 25% loss of carbon stocks)
Likelihood	Less than every 10 years
Score (LS)	According to GFDRR and the World Bank Report¹⁶, the frequency and intensity of extreme weather events like floods and droughts are increasing¹⁷ due to climate change. The incidence of flooding poses a threat to lowlands, highlands and urban areas. In Kenya, some of the grasslands are part of the larger East African savanna ecosystem, which includes both dry savannas and wet savannas. Wet savannas are more likely to be found in flood-prone areas due to the presence of water sources such as rivers and lakes and erratic rains due to climate change.

¹⁶ *Disaster Risk Profile - Kenya*. Global Facility for Disaster Reduction and Recovery (GFDRR) https://www.gfdr.org/sites/default/files/publication/kenya_low.pdf. (2019, July).

¹⁷ Trisos, C.H., I.O. Adelekan, E. Totin, A. Ayanlade, J. Efitre, A. Gameda, K. Kalaba, C. Lennard, C. Masao, Y. Mgaya, G. Ngaruiya, D. Olago, N.P. Simpson, and S. Zakieldein, 2022: Africa. In: *Climate Change 2022: Impacts, Adaptation and Vulnerability*. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 1285–1455, doi:10.1017/9781009325844.011. https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_Chapter09.pdf

On the other hand, our project mainly has dry savanna grasslands. Hence the incidence of flood is very less the project area.



Top-left: Flood; Top-right: Cyclone

Hence, minor loss of carbon might be observed.

(Natural Risk Score (LS) – 5)

Mitigation

The project proponent is equipped to combat losses incurred (if any). As per the guidelines implemented by NDMA¹⁸, we can mitigate the major impact of drought and flood situations. Within the scope of the project activities, measures will be taken to minimize damages, and prevent loss of carbon stocks – for instance, water management activities and rotational grazing will be adopted as a measure to minimize damages incurred in instances of flooding and drought scenarios as this will promote regeneration of grasses (both major and minor grass species) in the paddocks. This will reduce the runoff of the topsoil of the grasslands.

Capacity building and trainings programs are planned for ranchers on how to adapt to the changes and build and implement a climate resilient sustainable grazing and grassland management plans across the grasslands.

Natural Risk Mitigation (M) – 0.25

Risk rating for W – (LS x M)

$$5 \times 0.25 = 1.25$$

Natural Risk - Geologic Risk (G)

Significance

No loss

¹⁸ ANNUAL REPORT AND FINANCIAL STATEMENTS FOR FINANCIAL YEAR ENDING 30th JUNE 2020. National Drought Management Authority. (2020). <https://www.ndma.go.ke/index.php/resource-center/send/62-annual-report/6076-ndma-annual-report-fy-2019-20>

Likelihood	Every 25 to less than 50 years
Score (LS)	Under the Country Risk Profile report¹⁴, the occurrence of earthquakes is infrequent in Kenya. Additionally, according to the natural hazard statistics¹³ reported by the World Bank, Kenya faces a relatively low earthquake hazard. Hence, the project area is not subject to significant risks or carbon loss arising from earthquake activity. (Natural Risk Score (LS) – 0)
Mitigation	Not applicable Natural Risk Mitigation (M) – 0.50 Risk rating for G – (LS x M) $0 \times 0.50 = 0$

Score for each natural risk applicable to the project (Determined by (LS × M))	
Fire (F)	0
Pest and Disease Outbreaks (PD)	0.50
Extreme Weather (W)	1.25
Geological Risk (G)	0
Other natural risk (ON)	0
Total Natural Risk (as applicable, F + PD + W + G + ON)	1.75

4 OVERALL NON-PERMANENCE RISK RATING AND BUFFER DETERMINATION

4.1 Overall Risk Rating

Risk Category	Rating
Internal Risk	13.00

External Risk	0.00
Natural Risk	1.75
Overall Risk Rating (a + b + c)	15

4.2 Calculation of Total VCUs

The AFOLU Non-Permanence Risk Tool estimates risk rating for this project is at 15%. The calculation of total VCUs is therefore:

Verified Reductions x (100%-10%) = VCUs

Please refer the ER Emission Sheet for detailed calculation.