

General information

Remover name	Bamboo Carbon Farm Limited		
Project code	BSW-L-002		
Project name	Bamboo Carbon Farm Limited - Uganda Kasasa		
Location	Kasasa, Uganda		
Area	100	ha	
Starting year	2025		year of planting
Duration	20	years	project duration
Holding pool	20%		freed up when measurements confirm projection pathways
Project emissions	9.20	tCO2-eq	LCA estimate, or specified when >20%

Per hectare

Baseline TEC	214	tCO2/ha	Soil Organic Carbon and Above Ground Carbon, following CDM AR-ACM0003
Reference capacity	824	tCO2/ha	Using CEDA and Soil sample data
Storage potential	609	tCO2/ha	Projection +/- baseline

Per project

Projected storage	60,906	tCO2	storage potential per ha x area
LCA emissions	9	tCO2	project related emissions
Net storage potential	60,897	tCO2	project storage +/- emissions over 20 years

Potential Carbon Removal Units

Units first 12 years	36,538	units	12/20 x net storage potential
Holding Pool	7,308	units	20% of the first 12 years
Potential units issued	29,231	units	

Field Code	Field name	Size (ha)	Owner	
BSW-L-001	Uganda 100 hect	100	Lady of Victoria Monastery	

[illegible]

Carbon Calculation for		BSW-L-002	
Surface	100 ha	Fields tab	
Capacity SOC	495 tCO ₂ /ha	References tab	
Capacity AGB	329 tCO ₂ /ha	References tab	
	2025	2028	2031
Measurement average	12.80 SOC g/kg	#DIV/0! SOC g/kg	#DIV/0! SOC g/kg
Sample depth	30 cm	#DIV/0! cm	#DIV/0! cm
Calculation depth	30 cm	30 cm	30 cm
Soil density	1.45 g/cm ³	#DIV/0! g/cm ³	#DIV/0! g/cm ³
SOC (soil carbon) / ha	204 tCO ₂ e/ha	#DIV/0! tCO ₂ e/ha	#DIV/0! tCO ₂ e/ha
AGB (above ground) / ha	10.86 tCO ₂ e/ha	#DIV/0! tCO ₂ e/ha	#DIV/0! tCO ₂ e/ha
Storage current	21,445 tCO ₂ e	#DIV/0! tCO ₂ e	#DIV/0! tCO ₂ e
Storage capacity	82,352 tCO ₂ e	#REF! tCO ₂ e	#REF! tCO ₂ e

Sources									
value	source	URL	Notes						
CEDA aboveground biomass carbon	https://climatee	https://dataceda	2018 data						
SOC	A critical review of the conventional SOC to SOM conversion factor (Geoderma, Volume 156, Issues 3–4, 15 May 2010, Pages 75-83)								
Density	Wageningen Ur	https://edepot.wu	We've added these soil density levels to the calculation factors tab						
Reference data for capacity									
SOC	495	tCO2e/ha							
SOC reference	135	tC/ha	Yuen et al. (2017), Max. based on 70 species from 184 studies [Max 200, min 70, Average 135]						
AGB	329	tCO2e/ha							

Assumptions and unit conversions:														
Conversion C to CO ₂ with 44/12 (= ratio of molecular weight)														
Carbon content in biomass 58%														
Overview of the CO₂ storage potential in above- and below-ground biomass														
	ABC carbon total (incl. Culms, branches, leaves)	BOB carbon total (incl. rhizomes)	Total stored carbon	Total stored CO ₂										
	[t C/ha]	[t C/ha]	[t C/ha]	[t CO ₂ /ha]										
Bamboo species					Source									
Dendrocalamus Asper	74.5	17.9	92.4	138.8	Niem et al. (2017)									
	86.7	20.0	106.7	155.1	Herrero et al. (2014)									
	62.8	22.1	84.9	123.1	Deynho et al. (2002)									
Average		22.0	90.6	130.4										
Bambusa vulgaris	50.84	7.52	58.36	85.9	Sahai et al. (2015)									
	61.05	11.1	72.1	104.4	Sahai et al. (2015) - Nath et al. (2008)									
	53	9.6	62.6	90.4	Nath et al. (2012) - Lichtenberg, 1978									
	58.12	16.0	74.1	107.2	Berghel et al. (2013)									
Average		16.3	62.7	90.1										
Bamboo species	Participation per area [%]		Total stored CO ₂											
			[t CO ₂ /ha]											
Dendrocalamus Asper	80%		105.4											
Bambusa vulgaris	20%		24.1											
	100%		129.5											
Estimation of carbon stored in below-ground biomass														
	Participation per area [%]	BOC		[Mg C/ha]										
		a	b											
Dendrocalamus Asper	80%	0.7367	0.7600		Fuen et al. (2017), p.123 (d) Dendrocalamus sp. & Gigantochloa sp.									
Bambusa vulgaris	20%	0.3714	0.3716		Fuen et al. (2017), p.123 (d) Bambusa sp. & C. unguiculata									
		0.6378	0.6428		Fuen et al. (2017), p.123 (d) all species/groups									

Overview of assessed categories - on plant level (1/2)		Carbon Footprint assessment (ecoinvent 3.10, EF 3.1)		Overview of assessed categories - activities of 20 years (2/2)	
Starting material - Seeds		On plant level (1/2)		Land preparation and planting	
Description	Seeds growing to young	Category	CF in kg CO2-eq.	Remarks	
Weight per seed - <i>Dendrocalamus Asper</i> [gr]	0.5	Seeds (Transport)	0.001		Process - land preparation and planting
					by hand
Weight per seed - <i>Bambusa vulgaris</i> [gr]	0.1	Pots (Material, Transport)	0.004		Process - planting (drilling holes)
Average weight per seed [gr]	0.42	Transport to field	0.0001	-	
Supplier of seeds	Forestry Research Institute	Per seedling	0.01	Incl. 10% loss	
Transport - Pick-up truck [FORIG - Prempeh International	13	Per plant in field	0.007	Incl. 10% loss	
Transport - Plane [Ghana - Uganda]	3850	All plants in field	352	500 plants/ha	
Transport - Pick-up truck [Entebbe International Airport -	190				
Defined as cut-off: impact of seed itself					
Starting material - Soil and pot		Activities of 20 years (2/2)		Maintenance - soil measurement	
Description - Soil (from Monastery ground)	Common Ugandan ground (no soil conveyance)	Category	CF in kg CO2-eq.	Remarks	
Average weight of soil used per starting material [kg]	0.5	All plants in field	352	Plantation	
Description - Pot	Polypot, 100% PE, virgin	Land preparation	0.13	Tractor usage	
Average weight per pot [gr]	1.1	Maintenance - soil	1158	Forth and back	
Transport of pot (to farm) [km]	20	Land maintenance	0.40	Tractor usage	
		Maintenance - Business trips	7689	Forth and back	
Defined as cut-off: impact of soil itself, no transport of soil		Total CF of 20 years	9199	kg CO2-eq	
		Total CF of 20 years	9.20	t CO2-eq.	
Cultivation of young plants				Land maintenance	
Process - planting	by hand				
Description	Planting of 1 seedling per			Process - land maintenance, pruning	
Duration	ca. 4 months			by hand, assisted by the tractor (during the first three years)	
Growth loss	10%			Fuel usage of tractor - Diesel [Liter/ha]	
Usage of water per seedling - Rain water [Liter]	150			Tractor usage - Occurring amount (Once a	
Defined as cut-off: water usage				3	
Transport from nursery to field				Maintenance - Business trips	
Average weight of a young plant (excl. soil and pot) [kg]	0				
Transport to field - Tractor [km]	300%			Monastery officials (from the Netherlands)	
				Farm visits	
Field - Cultivation of plantation				Transport distance - Car (to farm) [km]	
Total amount of growing plants (500 plants/ha)	50000			190	
Growth loss	10%			Transport distance - Plane (Netherlands -	
Process - plantine (field)	by hand			6360	
				Occurring amount (in 20 years, initially and	
				5	

3 656666967			
sol density	% organic	% organic	sol density
1.59	0.5	0.25	1.59
1.583	0.6	0.3	1.583
1.576	0.7	0.35	1.576
1.569	0.8	0.4	1.569
1.562	0.9	0.45	1.562
1.555	1	0.5	1.555
1.548	1.1	0.55	1.548
1.541	1.2	0.6	1.541
1.534	1.3	0.65	1.534
1.527	1.4	0.7	1.527
1.52	1.5	0.75	1.52
1.513	1.6	0.8	1.513
1.506	1.7	0.85	1.506
1.499	1.8	0.9	1.499
1.492	1.9	0.95	1.492
1.485	2	1	1.485
1.478	2.1	1.05	1.478
1.471	2.2	1.1	1.471
1.464	2.3	1.15	1.464
1.457	2.4	1.2	1.457
1.45	2.5	1.25	1.45
1.444	2.6	1.3	1.444
1.438	2.7	1.35	1.438
1.432	2.8	1.4	1.432
1.426	2.9	1.45	1.426
1.42	3	1.5	1.42
1.414	3.1	1.55	1.414
1.408	3.2	1.6	1.408
1.402	3.3	1.65	1.402
1.396	3.4	1.7	1.396
1.39	3.5	1.75	1.39
1.385	3.6	1.8	1.385
1.38	3.7	1.85	1.38
1.375	3.8	1.9	1.375
1.37	3.9	1.95	1.37
1.365	4	2	1.365
1.36	4.1	2.05	1.36
1.355	4.2	2.1	1.355
1.35	4.3	2.15	1.35
1.345	4.4	2.2	1.345
1.34	4.5	2.25	1.34
1.335	4.6	2.3	1.335
1.33	4.7	2.35	1.33
1.325	4.8	2.4	1.325
1.32	4.9	2.45	1.32
1.315	5	2.5	1.315
1.31	5.1	2.55	1.31
1.305	5.2	2.6	1.305
1.3	5.3	2.65	1.3
1.295	5.4	2.7	1.295
1.29	5.5	2.75	1.29
1.285	5.6	2.8	1.285
1.28	5.7	2.85	1.28
1.275	5.8	2.9	1.275
1.27	5.9	2.95	1.27
1.265	6	3	1.265
1.26	6.1	3.05	1.26
1.255	6.2	3.1	1.255
1.25	6.3	3.15	1.25
1.245	6.4	3.2	1.245
1.24	6.5	3.25	1.24
1.234	6.6	3.3	1.234
1.228	6.7	3.35	1.228
1.222	6.8	3.4	1.222
1.216	6.9	3.45	1.216
1.21	7	3.5	1.21
1.204	7.1	3.55	1.204
1.198	7.2	3.6	1.198
1.192	7.3	3.65	1.192
1.186	7.4	3.7	1.186
1.18	7.5	3.75	1.18
1.175	7.6	3.8	1.175
1.17	7.7	3.85	1.17
1.165	7.8	3.9	1.165
1.16	7.9	3.95	1.16
1.155	8	4	1.155
1.15	8.1	4.05	1.15
1.145	8.2	4.1	1.145
1.14	8.3	4.15	1.14
1.135	8.4	4.2	1.135
1.13	8.5	4.25	1.13
1.126	8.6	4.3	1.126
1.122	8.7	4.35	1.122
1.118	8.8	4.4	1.118
1.114	8.9	4.45	1.114
1.11	9	4.5	1.11
1.106	9.1	4.55	1.106
1.102	9.2	4.6	1.102
1.098	9.3	4.65	1.098
1.094	9.4	4.7	1.094
1.09	9.5	4.75	1.09
1.086	9.6	4.8	1.086
1.082	9.7	4.85	1.082
1.078	9.8	4.9	1.078
1.074	9.9	4.95	1.074
1.07	10	5	1.07
1.066	10.1	5.05	1.066
1.062	10.2	5.1	1.062
1.058	10.3	5.15	1.058
1.054	10.4	5.2	1.054
1.05	10.5	5.25	1.05
1.046	10.6	5.3	1.046

0.498	41.4	20.7	0.498
0.497	41.6	20.8	0.497
0.496	41.8	20.9	0.496
0.495	42	21	0.495
0.494	42.2	21.1	0.494
0.493	42.4	21.2	0.493
0.492	42.6	21.3	0.492
0.491	42.8	21.4	0.491
0.49	43	21.5	0.49
0.488	43.2	21.6	0.488
0.486	43.4	21.7	0.486
0.484	43.6	21.8	0.484
0.482	43.8	21.9	0.482
0.48	44	22	0.48
0.478	44.2	22.1	0.478
0.476	44.4	22.2	0.476
0.474	44.6	22.3	0.474
0.472	44.8	22.4	0.472
0.47	45	22.5	0.47
0.469	45.2	22.6	0.469
0.468	45.4	22.7	0.468
0.467	45.6	22.8	0.467
0.466	45.8	22.9	0.466
0.465	46	23	0.465
0.464	46.2	23.1	0.464
0.463	46.4	23.2	0.463
0.462	46.6	23.3	0.462
0.461	46.8	23.4	0.461
0.46	47	23.5	0.46
0.458	47.2	23.6	0.458
0.456	47.4	23.7	0.456
0.454	47.6	23.8	0.454
0.452	47.8	23.9	0.452
0.45	48	24	0.45
0.448	48.2	24.1	0.448
0.446	48.4	24.2	0.446
0.444	48.6	24.3	0.444
0.442	48.8	24.4	0.442
0.44	49	24.5	0.44

