



RIZOME Giant Bamboo Value Chain #2 ~ Photo Essay



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1) Nurseries

- 130,000 plants launched and grown in 7 nurseries
- One Tree Planted support to launch and plant 100,000 plants in 2020 planting season

“Mission Accomplished” = 100,000 2020 planting campaign objective met:

- Buktamaco 20,000 > Buktamaco planting (Phase 2, 3)
- Estrada Nursery 10,000 > Buktamaco planting (Phase 3)
- Germinants 5,200 > Buktamaco (Phase 1)
- 10,000 > Bukda (Phase 1, 2)
- 10,000 > Damulog (Phase 1)
- 3,750 > Bethel Baptist
- 25,000 > Misamis Oriental
- 15,000 > Luzon
- MJJ / Bob T 2,500 > Foundation Archdiocese

101,450 plants assigned, in process and/or planted

2) 2020 Planting Campaign ~ Fundamentals

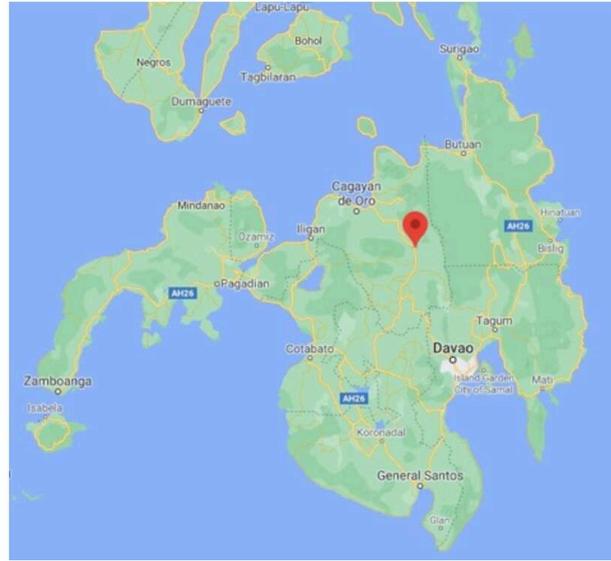
2020: Year of Planting Pilots

- 1st IP pilot (Buktamaco) > phase 0, phase 1, phase 2, phase 3
- 2st IP pilot (Bukda) > Phase 1, Phase 2, phase 3
- 1st community pilot (Damulog) > Phase 1, Phase 2
- 1st faith-based organization pilot (Bethel Baptist Church) > Phase 1
- 2nd faith based organization pilot (Foundation Archdiocese) > Phase 1
- 1st provincial government pilot (Misamis Oriental) > Phase 1
- 1st Government request pilot (Mindanao DA > Luzon) > Phase 1
- 1st Farmer Association pilot (Imbayao)
- 2nd Community pilot (Lanao de Norte)

1st IP Pilot ~ Buktamaco ~ Summary

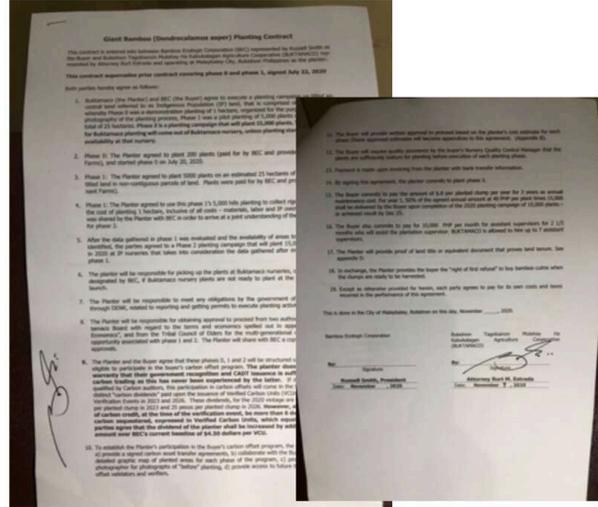
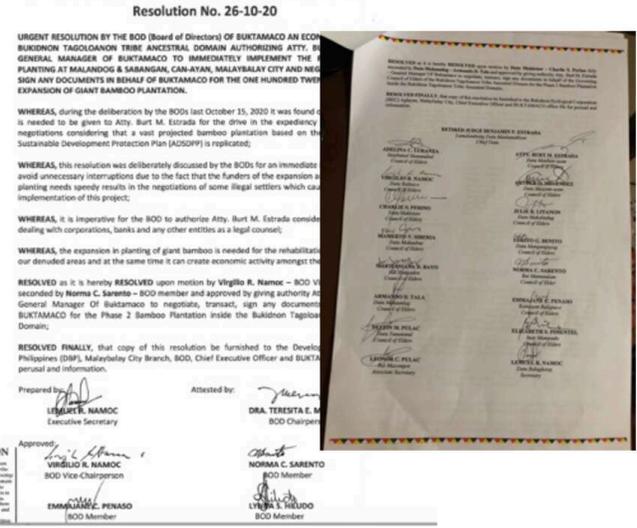
Campaign fundamentals

- Phase 0: 200 plants
- Phase 1: 5000 plants
- Phase 2: 15000 plants
- Phase 3: 7500 plants
- Innovated with use of Satellite Imagery
- Geo-tagged
- Conflict management with squatters required
- 4 distinct areas planted (= 4 RFIDs)



Documents

- MOA
- CADT
- Nursery QC
- Satellite Imagery
- GeoTag map



GERMINANTS FARM
San Jose, Malaybalay City
MYRNA S. DECIPULO – Prop.
Val Exempt Reg. TIN 101-180-720-000

Nursery Quality Control for Bamboo Ecologic Comaration

Date of Quality Control Event: September 10, 2020

Name of Nursery: Germinants Farm

Name of Planter: BUKTAMACO OJO Burt Estrada for Phase 2

Quantity to be picked up: 5,200 pcs

Quantity picked up confirmed: 5,200 pcs

GERMINANTS FARM
San Jose, Malaybalay City
MYRNA S. DECIPULO – Prop.
Val Exempt Reg. TIN 101-180-720-000

Nursery Quality Control for Bamboo Ecologic Corporation

Date of Quality Control Event: December 05, 2020

Name of Nursery: BUKTAMACO Nursery

Name of Planter: BUKTAMACO OJO Burt Estrada for Phase 2

Quantity to be picked up: 15,000 pcs

Quantity picked up confirmed: 15,000 pcs

BUKIDNON TAGOLOANON TRIBE
BUKTAMACO
BUKIDNON TAGOLOANON TUMAHAWA KABUKALAGAN AGRICULTURE COOPERATIVE
PGB-GAD Livelihood Project for IPs
"Hulabunga hu kabukalagan hi
Datu Mansikiabo daw Datu Mampaalong."

1st IP Pilot ~ Buktamaco



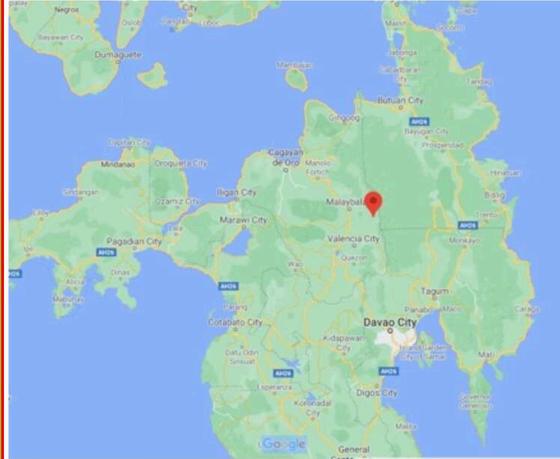
1st IP Pilot ~ Buktamaco



2nd IP Pilot ~ Bukda ~ Summary & key documents

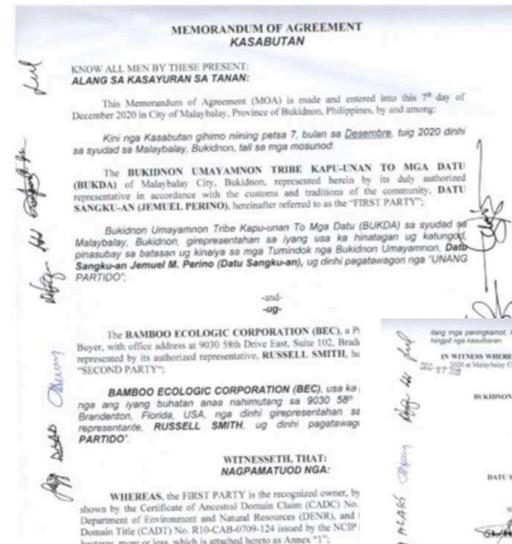
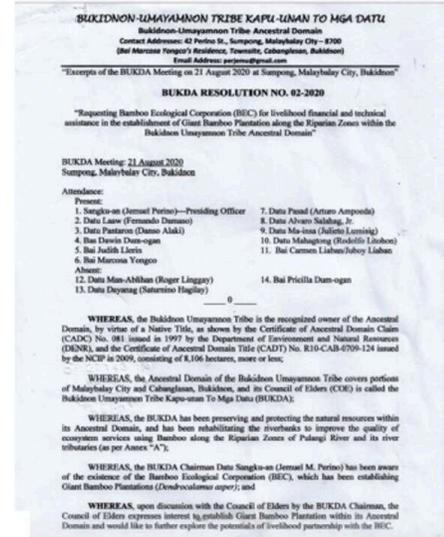
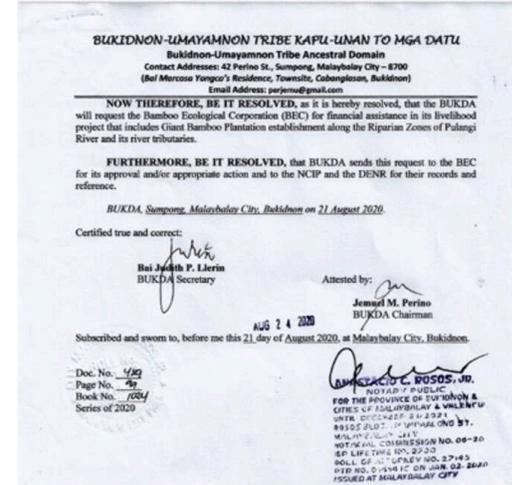
Campaign fundamentals

- Phase 0: 200 plants
- Phase 1: 4800 plants
- Phase 2: 5000 plants
- (Phase 3: 10,000 plants)
- 11,000 ha ancestral domain
- Innovated in use of Legal strategy to formalize its CADT for carbon offsets
- Key feature: Disaster Risk Management / watershed
- (will be) Geo-tagged
- 6 different planting groups within ancestral domain



Documents

- CADT
- Council of Elders
- MOA
- Nursery QC
- Planting QC
- Satellite Imagery



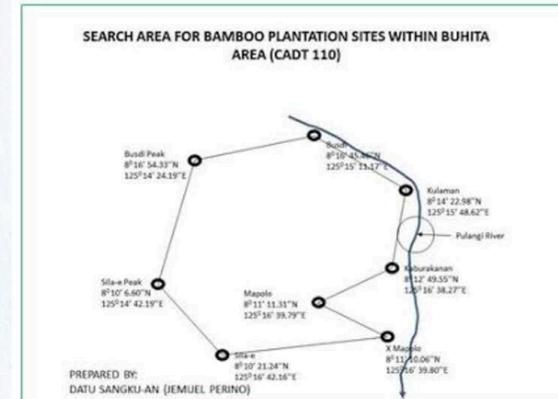
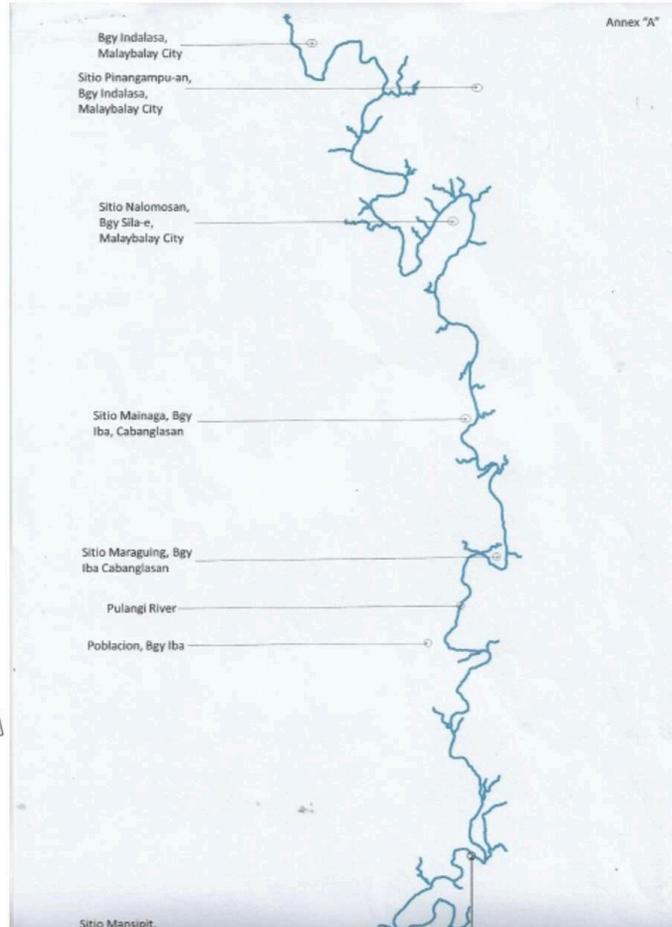
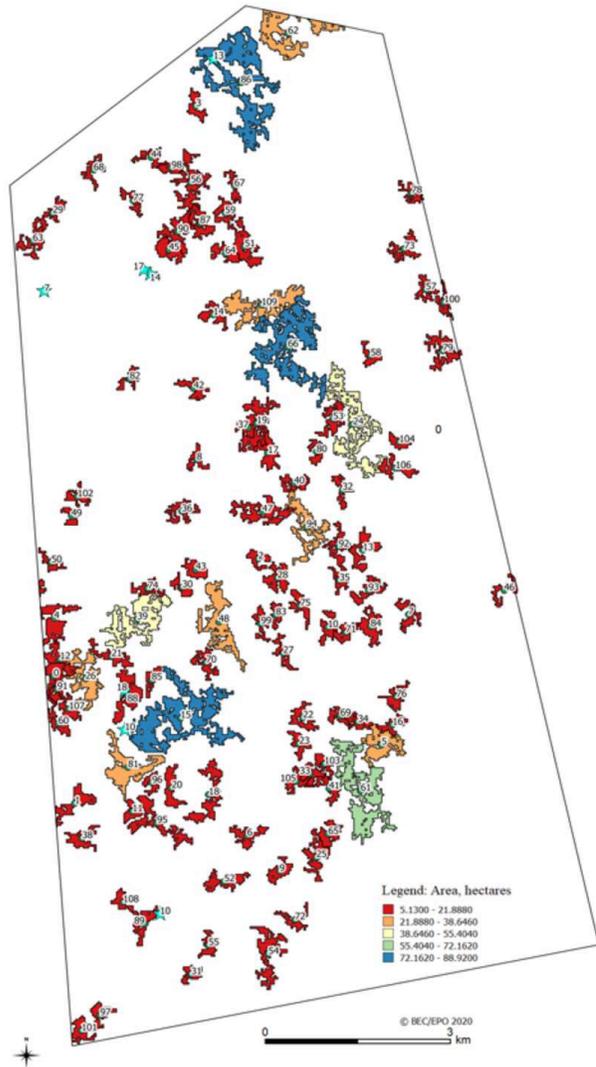
GERMINANTS FARM

Nursery Quality Control for Bamboo Ecologic Corporation	
Date of Quality Control Event	17 December 2020
Name of Nursery, Germinants Farm	
Name of Planter, BUKDA, COO Datu Jim	
Quantity to be picked up	10,000 pcs
Quantity picked up confirmed	2,400 pcs as of 24 December 2020

GERMINANTS FARM

Nursery Quality Control for Bamboo Ecologic Corporation	
Date of Quality Control Event	24 December 2020
Name of Nursery, Germinants Farm	
Name of Planter, BUKDA, COO Datu Jim	
Quantity to be picked up	10,000 pcs
Quantity picked up confirmed	2,400 pcs as of 24 December 2020

2nd IP Pilot ~ Bukda Planting locations ~ Use of Satellite Imagery



2nd IP Pilot ~ Bukda access to BEC-funded IP Legal Hub

to render Indigenous Populations' Certificates of Ancestral Domain Titles eligible for carbon offsets



Legal Discussion

Conduct of legal and technical discussion with Council of Elders



NET MEETING

Zoom meeting with Bamboo Ecologic Corporation key personnel

2nd IP Pilot ~ Bukda



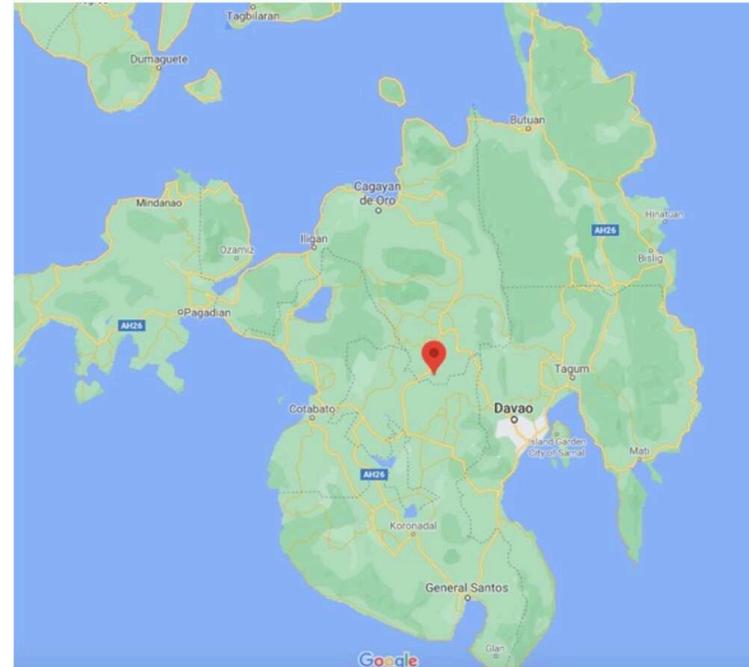
2nd IP Pilot ~ Bukda



1st Community pilot ~ Damulog ~ Summary

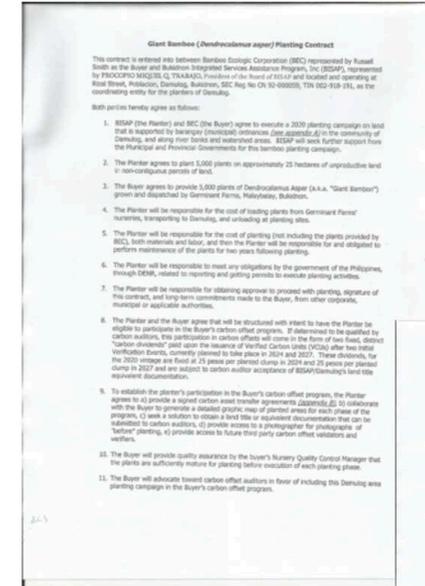
Campaign fundamentals

- Phase 1: 5000 plants
- Phase 2: 5000 plants
- Community-orchestration by local impact NGO (BISAP)
- (will be) Geo-tagged
- 5 distinct areas planted (= 5 RFIDs)



Documents

- MOA
- Nursery QC
- Planting QC



14 August 2020

Dear Mym,

I am very pleased that we can help search for farmers who want to plant bamboo for the carbon sequestration project. 1) But I wonder if some of the priority cooperators we want to target can be included. 2) What are the terms and conditions to be accepted into the progra

On #1.

- BISAP wants to protect the watershed areas of water systems built by a Korean NGO thru our intervention. There are seven sites we have identified with one-half hectares each. (2,100 culms)
- We want to protect Turunan Creek which is the boundary between Bukidnon and North Cotabato. (1,900)
- If the lands are unutilized or the villagers have no legal papers, I hope that a community resolution to protect the bamboo groves protecting the creeks banks and the watersheds will be sufficient for these communities to receive free seedling to plant on these climatically vulnerable areas.



MERINANTS FARM

San Jose, Malaybalay City
MYRNA S. DECPULO - Prop.
Val Exempt Reg. TIN 191-169-720-000

Nursery Quality Control for Bamboo Ecologic Corporation	
Date of Quality Control (over):	December 11, 2020
Name of Nursery:	Merinants Farm
Name of Planter:	BISAP of Damulog CDO Romo (except for)
Quantity to be picked up:	1,000 pcs
Quantity picked up confirmed:	1,000 pcs
QC visual confirmation of plants at time of shipment	

MERINANTS FARM

San Jose, Malaybalay City
MYRNA S. DECPULO - Prop.
Val Exempt Reg. TIN 191-169-720-000

Nursery Quality Control for Bamboo Ecologic Corporation	
Date of Quality Control (over):	
Name of Nursery:	Merinants Farm
Name of Planter:	BISAP of Damulog CDO Romo (except for Phase 2)
Quantity to be picked up:	1,000 pcs
Quantity picked up confirmed:	1,000 pcs

1st Community pilot ~ Damulog



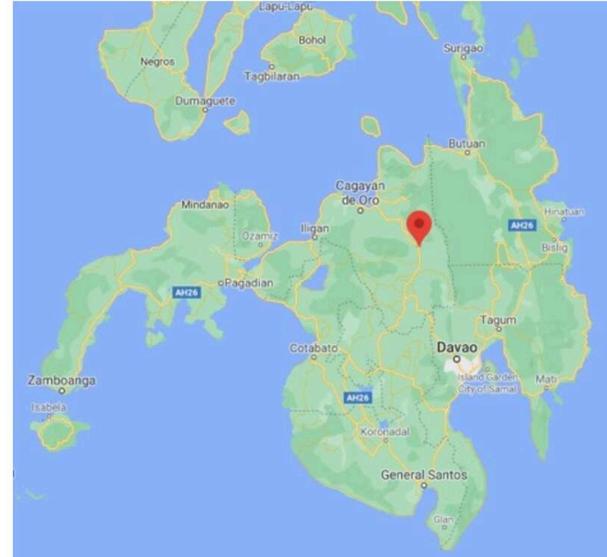
1st Community pilot ~ Damulog



1st Faith Based organization pilot ~ Bethel Baptist Church ~ Summary

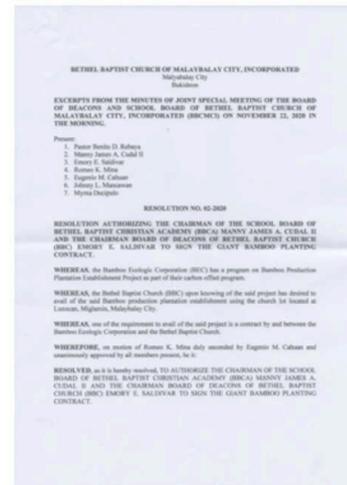
Campaign fundamentals

- Phase 1: 3750 plants
- Land identification, long term commitment, documentation by Church
- (will be) Geo-tagged
- 2 distinct areas planted (= 2 RFIDs)

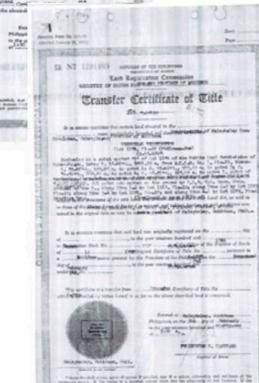


Documents

- MOA
- Titles of 2 lands
- Nursery QC
- Planting QC



- Giant Bamboo (*Dendrocalamus asper*) Planting Contract**
- This contract is entered into between Bamboo Ecologic Corporation (BEC) represented by Russell Smith as the Buyer and Bethel Baptist Church (BBC) of Malaybalay City, Incorporated, represented by Manny James A. Cudal II and operating at Malaybalay, Mindanao, Philippines as the Planter.
- Both parties hereby agree as follows:
1. BBC, the Planter, and BEC, the Buyer, agree to execute a 2020 planting campaign on two titled land, of approximately 15 hectares located at Lunocan, Miglamin, Malaybalay City.
 2. The Buyer agrees to provide 3,750 plants of *Dendrocalamus Asper* (a.k.a. "Giant Bamboo") grown and dispatched by Germianat Farms, Malaybalay, Bukidnon.
 3. The Planter will be responsible for the cost of loading plants from Germianat Farms' nurseries, transporting to Damulog, and unloading at planting sites.
 4. The Planter will be responsible for 20% the cost of planting, both materials and labor, BEC will be responsible for 80% of the cost of planting, consisting of a) the plant and b) a per plant fee of 34 PHP for land prep and planting; and then the planter will be responsible for and obligated to perform maintenance of the plants for two years following planting, estimated to cost approximately \$0.50 per plant for maintenance material and labor.
 5. The Planter will be responsible to meet any obligations by the government of the Philippines, through DENR, related to reporting or getting permits to execute planting activities.
 6. The Planter will be community or appl
 7. The Planter and th eligible to participa carbon auditors, th



Bamboo Ecologic Corporation
Russell Smith

Signed by
Signature
Manny James A. Cudal II
Chairman, Board of Trustees
Bethel Baptist Christian Academy
Date: 24 November 2020

Signed by
Signature
Enory E. Solis
Chairman, Board of Deacons
Bethel Baptist Church
Date: 24 November 2020

GERMINANTS FARM
San Jose, Malaybalay City
MYRNA S. DECIPULO - Prop.
Val Exempt Reg. TIN 101-180-720-000

Nursery Quality Control for Bamboo Ecologic Corporation	
Date of Quality Control Event:	21 December 2020
Name of Nursery:	Germianat Farms
Name of Planter:	BBC COO Manny Cudal
Quantity to be picked up:	3,750 pcs
Quantity picked up confirmed:	3,750 pcs

1st Faith Based organization pilot ~ Bethel Baptist Church



2nd Faith-Based organization pilot ~ Foundation of the Archdioceses ~ Summary

Campaign fundamentals

- Phase 1: 2500 plants
- (Phase 2: 17500 plants – 2021)
- Parish orchestration by Foundation of the Archdiocese
- Grassroot lobbying required to motivate Parish Priests to support
- (will be) Geo-tagged
- Key attribute: multiple small land parcels (1.4 ha)



1st Province level campaign pilot ~ Misamis Oriental ~ Summary

Campaign fundamentals

- Phase 1: 25000 plants
- Governor-level initiative
- Focus on watershed protection
- Coordination by Provincial Horticulturist
- (will be) Geo-tagged



1st National Government level campaign pilot ~ Luzon ~ Summary

Campaign fundamentals

- Phase 1: 15000 plants
- Initiated by Mindanao Dept Agriculture
- Focus on post hurricane disaster risk management
- Transport plants to Luzon



2nd Community pilot ~ Lanao del Norte ~ Summary

Campaign fundamentals

- Phase 1: 5000 plants
- Community-orchestration by local impact NGO
- (will be) Geo-tagged



1st University Pilot ~ USTP

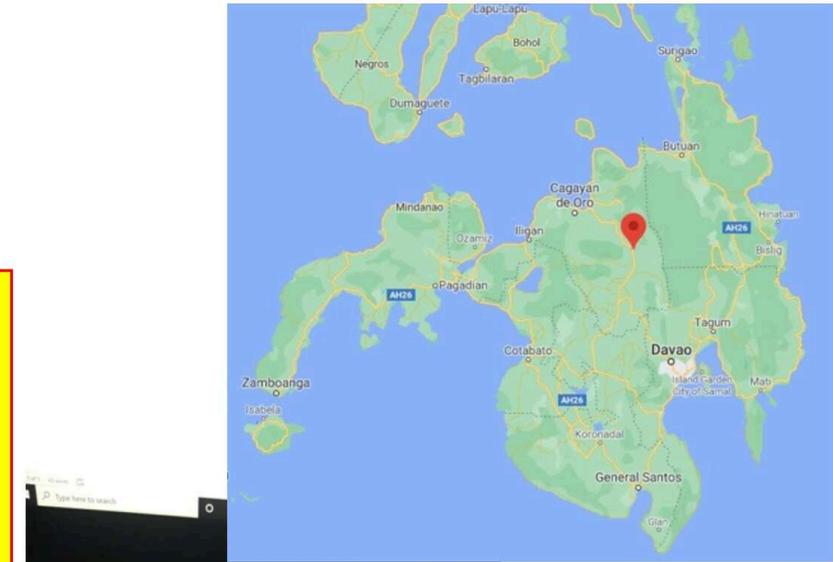
Campaign fundamentals

- (Phase 1: 250 plants)
- Long term research focus to measure harvested vs not harvested biomass
- (will be) Geo-tagged
- 1 distinct areas planted (= 1 RFID)

1st Farmer Association ~ Imbayao

Campaign fundamentals

- (Phase 1: 5000 plants)
- Coordination by Farmer Association
- 114 Hectares identified
- 31 farmers
- (will be) Geo-tagged
- 31 distinct areas planted (= 31 RFIDs)



Imbayao CBFM Farmers Association Imbayao, Malaybalay City, Bukidnon, 8700 Philippines		
List of Interested Farmers		
Name	Area (hectares)	
1. Estelito Torreson	-	5
2. Paquito Saborda	-	5
3. Benzo Villaresa	-	2.5
4. Neldo Abello	-	5
5. Willie Siazay	-	5
6. Gina Tic Tic	-	5
7. Edwin Gatula	-	2
8. Luis Gumabadi	-	2
9. Emerito Talason Jr.	-	1
10. Babito Harapan	-	5
11. Norisada Gumabadi	-	2.5
12. Deric Borac	-	2.5
13. Lillano Siazay	-	5
14. Gomer Lindoman	-	5
15. Alejandro Arezta	-	2.5
16. Isidro Siazay	-	2.5
17. Wernicos Siazay	-	2.5
18. Alexan Caballero	-	2.5
19. Pablo Layen	-	0.5
20. Mirna Apilac	-	2.5
21. Ben Maputi	-	5
22. Arnes Maputi	-	5
23. Jeffrey Mahinay	-	1.5
24. Kim Mahinay	-	1.5
25. Richard Mahinay	-	1.5
26. Paquito Siazay	-	1.5
27. Elmer Guayath	-	2.5
28. Leonora Bartolina	-	5
29. Madeline Nato	-	5
30. Rando Lengcob	-	5
31. Adenda Lumao	-	5
TOTAL		114

Innovation 1: Use of Technology

Satellite Imagery, Geo-tagging, RFID inventory Mgt



Geo-tagged photo of newly validated bamboo

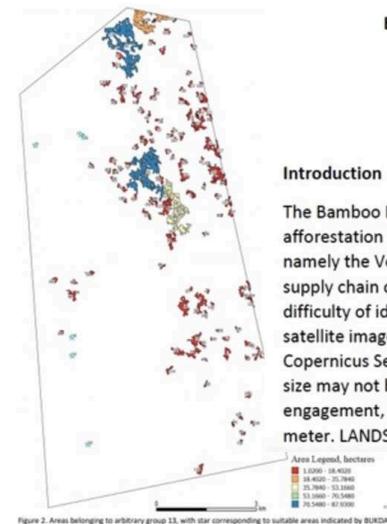


Figure 2. Areas belonging to arbitrary group 13, with star corresponding to suitable areas indicated by BUKDA.

Use of Satellite Imagery to Identify Areas for Bamboo Plantation: Bukidnon Umayamnon Tribe Kapoonan To Mga Datu (BUKDA) CADT Area

Edgar Allan Po, Ph.D.
Head, Precision Agriculture Smart Farming Center
University of Science and Technology of Southern Philippines

Introduction

The Bamboo Ecologic Corporation (BEC) is aggressively pursuing a program of re-forestation and afforestation using bamboo in the province of Bukidnon. This effort is geared up towards two fronts, namely the Voluntary Carbon Standard in support of its Climate Change initiative, and as part of its supply chain of value-added bamboo products. A huge hurdle encountered by the initiative is the difficulty of identifying areas where bamboo can be planted. A possible solution could be the use of satellite imageries collected on a 10-day interval at a spatial resolution of 10m provided by the Copernicus Sentinel program of the European Union. However, a 100 square meter minimum pixel size may not be practical in terms of identifying possible areas for bamboo production. For this engagement, LANDSAT 8 from the U.S. was used instead with a minimum pixel size of 900 square meter. LANDSAT 8 repeats its orbit every 16 days. Due to the elevation of Bukidnon, specifically

Table 1. Suitable areas for bamboo production as provided by BUKDA.

Spectral Signature*	ID	Area Supervisor	Location	Area, hectares	Latitude	Longitude
10	1	Datu Alvaro Salahag, Jr.	From Mansipit, Anlugan to Minsablayan, Iba	7	8.064213889	125.3323139
10	2	Datu Arturo Ampoeda	From Minsablayan, Iba to Alikaka, Iba	5	8.092813889	125.3273139
14	3	Bai Pricilla Aagsab Bai	From Alikaka, Iba to Bawang, Mainaga	15	8.163536111	125.331425
18	4	Fernando Damaso	From Alikaka, Iba to Tagbakan River	25	8.098961111	125.3273139
17	5	Datu Pabling Pensahan	From Bawang, Mainaga to Minsab-a, Nalomosan	18	8.164205556	125.3305167
7	6	Datu Saturnino Haguilay	From Minsab-a, Nalomo san to Indalasa	10	8.160938889	125.3158944
13	7	Datu Danso Alaki	From Lopok-lopok, Indalasa to Pinangampu-an	20	8.196869444	125.3409083

* Refers to portions of 20 arbitrary groups (numbered 0 through 19) identified through unsupervised classification as shown in Figures 1 through 5 in the

Table 2. Spectral signatures of areas identified by BUKDA as suitable to bamboo production

Spectral Signature	Area, hectares	% of Total BUKDA CADT*	# of "Parcels"
7	768.14	6.64	236
13	580.27	5.01	122
14	441.68	3.82	194
17	760.02	6.57	191
18	360.20	3.11	84
Grand Total	2,910.31	25.15	827

* BUKDA CADT has ~11571 hectares



Innovation 2: Establishment of BEC-funded Legal Hub to address all IP legal questions re land titles



- Indigenous Populations control over 40% of Mindanao land
- **Certificates of Ancestral Domain Titles** are equivalent to private land titles, but require further formalization before long term commitments can be formalized
- BEC teamed with Attorney Burt Estrada, foremost legal authority on IP matters, to establish a fast track government-approved process
- IP Self Governance is core concept