

<b>Project Title</b>
ACROSS FOREST AS: Reforestation Program in the Southeastern Region of Nicaragua on degraded pastureland
<b>Gold Standard ID</b>
GS 4220
<b>Type of Certification</b>
Initial Certification <input checked="" type="checkbox"/> Performance Certification <input checked="" type="checkbox"/> New Area Certification <input type="checkbox"/> Annual Reporting <input type="checkbox"/>

For each item listed below, please provide a general description in the corresponding box. In total, this document shall not exceed 5 pages. Be aware that carbon market specific terms may not be appropriate for the readers of this summary. The formatting requirements provided in chapter 7.4 must be followed.

## 1. Key Project Information

### (a) Project activities

The reforestation program aims at establishing managed plantations of Teak (*Tectona grandis*) through shared benefit agreements signed with local landowners from five municipalities in the Southeastern region of Nicaragua. Available land, currently used for cattle grazing, is assessed following a land analysis protocol which includes technical criteria, as well as social, infrastructure and legal assessment of the land. Eligible land is divided into both, plantable and conservation areas. The latter consist of watersheds, existing secondary forest, and steep hillsides not eligible for establishing plantations, but regeneration of native forest species is allowed through managed regrowth.

The Project started on July 2011. The first plantation was planted on July 2011 and during 2012 and 2013 teak areas were planted. The Developer has been motivating the establishing of new reforested Teak areas from 2013 in the five municipalities (Villa Sandino, Muelle de los Bueyes, El Coral, El Rama and Nueva Guinea) completing the total planted area of 384.20 hectares, involving 152 cattle farmers of the five Municipalities. This reforested areas are managed following silvicultural techniques taught to the local farmers by a Technical forest unit from the Project Developer.

### (b) Organisations that are involved in the project (project participants)

ACROSS FOREST AS, an enterprise registered in TROMSO, Norway, on September 2, 2010. ACROSS FOREST AS is the owner of the reforestation program, including all carbon credits.

NICA FORESTAL S.A., was an Enterprise registered in Nicaragua, established on July 1, 2009. NICA FORESTAL S.A. provides forest plantation technical management and administrative services until 2016. It was merged by NICAFOREST PLANTATION S.A., an enterprise registered in Nicaragua on November 9, 2011. This enterprise is the owner of the biomass and holds the land lease agreement with the landowners. The land lease agreement states the shared benefit agreement between NICAFOREST PLANTATIONS S.A. and the landowner. The benefit shared come from timber sales and Carbon credits obtained from Carbon sequestration. In addition, NICAFOREST PLANTATIONS get the management and Technical of Teak Plantations

LOCAL FARMERS; Normally they are cattle farmers, owned private land in the Reforestation Area. There is not still any organization of them, but they have just created Board of Representative by Place, community or Municipality to have a better communication among them.

(c) Communities involved in the project

No indigenous communities are involved in the program of reforestation.

(d) Location of the project area and the planting area

The limits of the Program of Reforestation are comprised within six municipalities of Southeastern Nicaragua (Figure 1). The municipalities of Santo Tomás, Villa Sandino and El Coral are located in the department of Chontales, while the municipalities of Muelle de los Bueyes, El Rama and Nueva Guinea are located in the Southern Caribbean Autonomous Region.

**Figure 1.** municipalities of Santo Tomás, Villa Sandino, El Coral, Muelle de los Bueyes, Nueva Guinea and El Rama.



The Program of Reforestation of Across Forest AS, is developed in Nicaragua by NICA FOREST PLANTATIONS S.A., and all the reforested areas are planted in identified land eligible for the Clean Development Mechanism of the Kyoto Protocol. For these purposes, the land eligible is called Kyoto Land.

The land eligible for CDM in each municipality has been estimated following an official map showing land use in 1986. Below is the estimated area considered as Kyoto Land in each municipality.

**Table 1.** Kyoto Land available in each of six selected municipalities from Southeastern Nicaragua.

<b>Municipality</b>	<b>Eligible Area of Kyoto Land (ha)</b>
Santo Tomas	15,588.62 ha
Villa Sandino	33,249.56 ha
El Coral	6,462.07 ha
Muelle de los Bueyes	13,371.23 ha
Nueva Guinea	53,863.61 ha
El Rama	46,384.85 ha
<b>Total eligible for Kyoto &amp; Teak land</b>	<b>168,919.94 ha</b>

### (e) Size of the project area and the planting area

Table 2 below summarizes the original area planted under shared benefit agreements and current planting area (336.49 ha). Initially four shared benefit agreements have been signed with seven landowners. In some cases, two land owners hold the same farm. Note that areas in Table 2 have been re-assessed based on measurements based by a certified topographer. Maps of each farm and corresponding certified areas are attached in separate files entitled: "Maps of each farm drawn by a certified topographer".

Table 2. Initial area planted registered at Gold Standard as part of the Reforestation Programme in Grazing land in Southeastern Nicaragua.

Land use category	Santa Elena	Rosario de Fatima	Sta. María	Amelia Farm	Total (Ha)
<b>Planted Area (Ha)</b>	<b>192.57</b>	<b>32.02</b>	<b>32.50</b>	<b>79.40</b>	<b>336.49</b>
Conservation (Ha)	85.85	5.03	4.73	39.88	<b>135.48</b>
Roads(Present) ha	2.00	0.00	0.00	5.44	<b>7.44</b>
Roads (future)ha	4.24	0.00	0.00	0.00	<b>4.24</b>
Non adequate soil (ha)	1.36	0.06	0.00	0.00	<b>1.42</b>
Special sites (ha)	3.08	0.42	0.12	0.00	<b>3.62</b>
Infrastructure (Ha)	0.11	0.17	0.00	0.00	<b>0.28</b>
Rinks for animals (ha)	0.53	0.00	0.00	0.00	<b>0.53</b>
<b>Total (Ha)</b>	<b>289.73</b>	<b>37.71</b>	<b>37.35</b>	<b>124.72</b>	<b>489.50</b>

Table 3 below summarizes areas under management and current planting area by local farmers of the defined CPA area. From 2013 the local farmers have planted 384.20 hectares of teak. This plots area spread in the five municipalities and the Developer is promoting assisting the silvicultural management, and training of the local farmers to create a forest culture in the area.

**Table 3.** Detail list of land reforested by local landowners in grazing land in Southeastern Nicaragua from 2013.

No.	Farmer	Community	Municipality	Teak (Ha)	X	Y
1	Lorenzo Antonio Díaz Tellez	Muhan	Villa Sandino	3.63	733757	1327090
2	Ninfa Amparo Rodríguez Murillo	La Gateada	Villa Sandino	0.43	739380	1327990
3	Alba Luz Rodríguez Amador	Gateada	Villa Sandino	0.54	739731	1327441
4	Juan Bautista Díaz Bello	Rancho Alegre	Villa Sandino	1.95	734520	1327540
7	Limardo José Leiva Ríos	Quebrada Grande	El Coral	1.00	744069	1320327
8	Donald Antonio Jaime Hurtado	Quebrada Grande	El Coral	3.34	744377	1321963
9	Yolanda del Jesús Leiva Ríos	Quebrada Grande	El Coral	0.68	744111	1320787
11	Bilmar Antonio Pauth Lazo	El Chile	El Coral	3.00	755644	1323110
12	Santiago Iriás Jiménez	Salto Grande	El Coral	1.00	756527	1314760
13	Luis Iván Chamorro Jarquín	La Garza	El Coral	2.00	759782	1319542
14	José Antonio Ruiz Díaz	La Garza	El Coral	1.00	759431	1319126
15	Marvin Antonio Ruiz Fargas	La Garza	El Coral	2.00	764748	1320628
16	Wilfredo Duarte Solano	La Garza	El Coral	1.00	762285	1320179
17	Gregoria Bernarda Lazo Moreno	El Coral	El Coral	2.14	756402	1317147

(e) Size of the project area and the planting area						
18	Juan Rene Duarte Solano	La Garza	El Coral	2.00		
19	Héctor Javier López Castellón	La Ceiba	El Coral	2.88	748764	1322431
20	Pedro José Duarte Gonzales	Tamboral	El Coral	1.51	749191	1314470
21	Gertrudis Hurtado Flores	Quebrada Grande	El Coral	1.00	744430	1322128
22	Adrián Reyes Galeano	Colonia Rio Rama	El Coral	1.66	752470	1316690
25	Simeon Duarte Lopez	La Garza	El Coral	1.00		
26	Jelmin Yarit Pauth Lazo	Salto Grande	El Coral	3.00	757257	1314001
27	Rosalino Lazo Moreno	El Coral	El Coral	1.00	751444	1320224
28	Carlos Manuel Carranza Lazo	El Coral	El Coral	2.00	754041	1318539
30	Juan Carlos Carranza Lazo	El Coral	El Coral	8.00	752663	1318018
31	Agustín Oporta Arroliga	Los Abandonos	Muelle de Los Bueyes	9.00		
32	Juan Manuel Fernández Matuz	Kisilala	El Rama	2.57	783822	1352203
33	Marlon José Díaz García	La Patriota	Muelle de Los Bueyes	5.00		
34	Justo Pastor Obando Mena	Cara de Mono	Muelle de Los Bueyes	0.39	776931	1341105
35	Idania Yasiris Obregón Medina	Cedro Macho	Muelle de Los Bueyes	1.00		
36	Juan José Pérez	Cara de Mono	Muelle de Los Bueyes	2.00		
37	Yerfir Antonio Duarte Sequeira	Saragosa	El Rama	3.29	786478	1352207
38	Nancy Obregón Medina	Cara de Mono	Muelle de Los Bueyes	2.71	776417	1341929
39	Guillermo Matuz Sequeira	Kisilala	El Rama	0.82	785499	1350947
40	Ángel Noel Fernández Matus	Kisilala	El Rama	7.39	785858	1350892
41	Ángela Antonia Rivas Miranda	Saragosa	El Rama	1.94	786809	1311006
42	Aníbal Rivas Miranda	Kisilala	El Rama	2.81	783287	1353350
43	Silvestre Álvarez Reyes	Kisilala	El Rama	5.60	779418	1357330
45	Yeldy Karolina Mejia Connolly	El Diamante	El Rama	0.61	785012	1345577
45	Kenny Concepción Gonzales Bonilla	Managuaita	El Rama	3.84	787297	1349174
46	Rene Antonio Fernández Matus	Kisilala	El Rama	3.42	783521	1351918
47	Luis Beltrán Guido Urbina	Presillas	Muelle de Los Bueyes	1.77	778720	1341819
48	Virgilio Julio Mejía Mairena	Minas de Topacio	Muelle de Los Bueyes	2.00		
51	Juan Dionisio Pineda Gonzales	Coral	El Coral	2.60		
53	Jose de la Cruz Torrez Espino	La Coneja	El Coral	4.00		
54	Luis Fernando Silva Sequeira	Coral	El Coral	2.00	754067	1320073
57	Marjorie Ninett Carranza Lazo	Laurel	Nueva Guinea	4.00		
58	Mercedes Estela Lazo Moreno	Laurel	Nueva Guinea	2.00		
60	Leonardo del Jesus Valverde	Laurel	Nueva Guinea	1.00	765656	1309280
61	Maria Azucena Gonzales Murillo	Miravalles	Nueva Guinea	1.50	766461	1312709
62	Marcial Enrique Obando Viscay	Kisilala	El Rama	2.57	786557	1355272

(e) Size of the project area and the planting area						
63	Jairo Antonio Fonseca Montenegro	Presillas	Muelle de Los Bueyes	5.33	780456	1343923
65	Mercedes Escoto Leon	Maria Cristina	El Rama	3.00		
66	Julio Oporta Cerda	El Colorado	El Rama	2.00		
67	Antonia del Socorro Urbina Urbina	El Colorado	El Rama	2.00		
68	Juan Antonio Jarquin Soza	Maria Cristina	El Rama	2.00		
69	Perfecto Jose Romero	El Colorado	El Rama	6.00		
70	Maritza del Carmen Perez Gomez	El Areno	El Rama	8.00	798899	1349518
71	Norma Elizabet Morataya Valle	Chalmeca	El Rama	4.00		
73	Juliana Angelina Medina Mora	Cara deMono	Muelle de Los Bueyes	3.00		
76	Marcos Antonio Mena Hernandez	Minas de Topacio	Muelle de Los Bueyes	2.00		
80	Gregorio Magno Perez Jaime	La Estrellita	Muelle de Los Bueyes	2.00		
81	Jose Tomas Duarte Romero	Presillas	El Rama	3.00		
82	Francisco Jose Arana Soza	El Diamante	El Rama	2.09	785032	1344896
83	Gilberto Perez Matuz	Presillas	Muelle de Los Bueyes	2.00	779359	1349671
84	Juan Jorge Lopez Arroliga	Caño García	El Rama	2.00		
85	Juana Maria Fajardo Benitez	Marengo	El Rama	2.00		
86	Jose Eliseo Taleno Miranda	Tomate	El Rama	3.00		
87	Jose Maria Moreno	El Areno	El Rama	10.00		
88	Luis Alberto Rivas Lopez	El Pavon	El Rama	2.00		
89	José Gregorio Rivas Miranda	El Pavon	El Rama	10.00	786809	1311006
90	Zenayda del Carmen Castellano Amador	La Carbonera	El Rama	5.71	776060	1366060
91	Celso Fernandez Luna	El Calderon	El Rama	2.00		
92	Nerys Isaia Espinoza Martinez	La Raicilla	El Rama	7.00		
93	Carlos Manuel Enrique Siu	Kisilala	El Rama	23.10	782395	1356007
96	José Javier Olivas Jiron	Kisilala	El Rama	9.81	780866	1355636
97	Emilia Oporta Chavarria	El Colorado	El Rama	8.50		
98	Juan Francisco Escoto Leon	Maria Cristina	El Rama	1.00		
99	Isabel Alvarez Sequeira	Maria Cristina	El Rama	3.00		
100	Geysel Karina Padilla Lazo	San Pablo/ Laurel	Villa Sandino	2.00		
101	Melva Antonia Reyes Fajardo	Avances/ Laurel	Nueva Guinea	3.00		
102	Elvis Lenin Alvarez Gonzales	La Chinela	Villa Sandino	8.00		
104	Manuel del Jesus Torres Espino	La Coneja	El Coral	2.00		
105	Henry Gregorio Perez Valle	La Estrellita	Muelle de Los Bueyes	3.00		
106	Magno Gregorio Perez Jaime	La Estrellita	Muelle de Los Bueyes	3.00		
108	Timoteo Humberto Rodriguez	Guarumo	Muelle de Los Bueyes	3.00		
109	Salomon Galeano Lopez	Presillas	Muelle de Los Bueyes	3.00		

(e) Size of the project area and the planting area						
110	Tereza Gonzales Oporta	Cerro Blanco	Muelle de Los Bueyes	3.00		
112	Juan Francisco Ruiz Ruiz	La Concha	Muelle de Los Bueyes	1.00		
113	Pedro Duartes Matuz	Montes de oro	Muelle de Los Bueyes	3.00	770066	1360708
114	Isabel Ramira Laguna Mendoza	El Caño	Muelle de Los Bueyes	4.00		
116	Francisco Duarte Taleno	La Santos	El Coral	2.50		
117	Feliciano Centeno Sequeira	El Calderon	El Rama	9.00		
118	Adolfo florentino medina Sequeira	Chalmeca	El Rama	8.50		
119	Remigio Sanchez Soza	Monte Rosa	El Rama	3.00		
120	Cesar Serapio Rios	Cedro Macho	El Rama	0.66	786677	1354574
121	Antonia Mendez Martinez	La Fonseca	El Rama	3.00		
123	Angel Ortega Duarte	La Coneja	El Coral	1.50		
124	Alba Alvarado	Muelle	Muelle de Los Bueyes	6.00		
126	Daniel Castellón Mejía	Diamante Rojo	El Rama	0.96	784669	1346836
127	Francisco del Rosario Sobalvarro García	La Concha	Muelle de Los Bueyes	0.34	774454	1336781
129	Victor López Arróliga	Caño García	Muelle de Los Bueyes	2.00		
131	Manuel de Jesus Lazo Castillo	Laurel	Nueva Guinea	4.00		
132	Melva Elena Bello Mejia	Laurel	Nueva Guinea	1.00		
133	Silvio José Mejia Peña	Laurel	Nueva Guinea	1.00		
134	Alejandro Jaime	Coral	El Coral	1.00		
135	Plutarco Agustin Obando Duarte	El Portón	El Coral	0.76	745383	1324737
136	Cristobal Jose Sanches Jiron	Aguas Calientes	Muelle de Los Bueyes	0.50	773970	1336542
137	Pio Berdel Gatica Garcia	Aguas Calientes	Muelle de Los Bueyes	0.57	775193	1336096
138	Emelido Sequeira Jarquin	Aguas Calientes	Muelle de Los Bueyes	0.39	775284	1336031
139	Cipriano de Jesus Acuña Sequiera	Aguas Calientes	Muelle de Los Bueyes	0.27	773669	1335088
140	Jose Thomas Acuña Sequiera	Aguas Calientes	Muelle de Los Bueyes	0.49	773551	1335177
141	Jose Francisco Amador Aragon	Presillas	Muelle de Los Bueyes	1.63	779885	1346486
142	Jose Gregorio Rivas Miranda	El Pavon	El Rama	10.00	786809	1311006
143	Digno Emerito Hernandez	La Florida	El Rama	3.50	785840	1351771
144	Ramiro Gonzalez Miranda	Buena Vista	Nueva Guinea	6.00		
145	Lesbia Sugely Casco Espinoza	Cuatro Esquinas	Nueva Guinea	3.00		
146	Alfredo Blanco Romero	El Diamante	Nueva Guinea	2.00		
147	Rigoberto Casco Martinez	Finca Restaurante	Nueva Guinea	2.00		
148	Jose Antonio Reyes Miranda	San Luis	Nueva Guinea	2.00		
149	Orlando Rodriguez Cruz	La Tuya y la Mia	Nueva Guinea	5.00		
150	Lillam del Socorro Contreras Diaz	Finca La Gloria	Nueva Guinea	2.00		
151	Panfilo Boanerge Valle Madriz	Finca El Valle	Nueva Guinea	1.50		

(e) Size of the project area and the planting area

152	Jose Filadelfo López Calero	Finca El Esfuerzo	Nueva Guinea	1.00		
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Table 4. Summary of Plantations established from 2011 to 2013, as follows:

Area/Farm name	Year planted	Area (ha)	No of Farmer
Amelia farm	2011	79.40	2
S. Elena 1+RdFatima	2012	108.84	4
S. Elena2+S.Maria	2013	148.25	4
Local Farmers El Coral	2013	57.57	28
Local Farmers Villa Sandino	2013	16.55	6
Muell de los Bueyes	2013	73.39	30
El Rama	2013	194.69	42
Nueva Guinea	2013	42.00	17
TOTAL		720.69	

The total area of the Project including original área and new areas is 720.69 ha. In the last phase 384.20 hectares were added to the Project, planted by Local land owners.

(f) Risk of change to the project area (during the crediting period)

Plantation management is ensured at least for 20 years given that the project owner has signed contracts with landowners. The law in Nicaragua allows leasing for a maximum period of 20 years + 1 year of harvesting period. Thereafter, the lease must be renewed (Article 2820 from the Civil Code, 1946). The current lease contract states that the landowner is willing to extend the contract if both parties agree. Signed contracts have been preceded by due diligence on land ownership history and legal aspects. After 20 years, it is expected that another 20 years of plantation management will be executed. Across Forest AS has provided evidence of commitment for at least 40 years of business operations (See letter of commitment and business plan in the attached files).

Other environmental risks that have been assessed are related to extreme climate events. Nicaragua is subject to hurricanes, tropical storms and droughts. These phenomena, however, have not yet affected the region where the project has been established, and continue to develop. El Niño South Oscillation (ENSO) have occurred in Nicaragua affecting annual rainfall<sup>1</sup>, but its effects are attenuated in the project area.

(g) Risk of change to the project activities (during the crediting period)

No change is envisaged at least during 20 years of the crediting period. After 20 years, it is expected that another 20 years of plantation management will be executed.

(h) Timeframe for the project activities

<sup>1</sup> [http://es.wikipedia.org/wiki/La\\_Ni%C3%B1a\\_%28clima%29#Efecto\\_en\\_el\\_clima\\_de\\_Nicaragua](http://es.wikipedia.org/wiki/La_Ni%C3%B1a_%28clima%29#Efecto_en_el_clima_de_Nicaragua)

### (h) Timeframe for the project activities

Plantations have been established since 2011 (79.40 ha), 2012 (108.84 ha) and 2013 (148.25 ha + 384.20 ha). Plantations cycles have been designed for periods of 20 years, with a total of 30 years of crediting period.

Year 0 – 3: Plantation establishment and initial growth

Year 4 and 5: 1<sup>st</sup> and 2<sup>nd</sup> sanitary thinning

Year 7,8, and 9: thinning activities continue

Year 11: 1<sup>st</sup> semi-commercial timber extraction

Year 13 and 14: 2<sup>nd</sup> and 3<sup>rd</sup> semi-commercial timber extraction

Year 16: 4<sup>th</sup> semi-commercial timber extraction

Years 19 & 20: commercial timber extraction

Year 21: Harvest year and preparation for a new cycle of another 21 years of new plantations

### (i) Number of (predicted) CO<sub>2</sub>-certificates

165 TCO<sub>2</sub>-e/ha/yr for one period, and another 165 TCO<sub>2</sub>-e/ha/yr for a 2nd period. Crediting period: 40 yrs.

### (j) Land-use history and current situation of the project area

Historical land-use in the project area has been extensive cattle breeding, with predominant use of traditional pastures. Coincidentally, pastureland in 1986 was considered Kyoto Land, given its eligibility for the Clean Development Mechanism. The official map of Nicaragua of “Kyoto Land” was elaborated from aerial photomaps from 1986<sup>1</sup>. In Figure 2 (below) it is shown the Kyoto land maps for Nicaragua and specifically for three municipalities where NICA FORESTAL’s reforestation program will be developed and possibly expanded.

More recent land use studies performed by government institutions show a relevant increase in pastureland. Considering that Kyoto land is derived from land use aerial photos from 1986, mainly land converted to pasture, the increase in pastureland went from 168,920 ha (18.18% of total municipal area) in 1986 to 733,875 ha in 2015 (79% of total municipal area).

**Table 3.** Current land use in project area taken from a study performed jointly by INETER-INAFOR-MARENA in 2015

MUNICIPALITY	TOTAL AREA (ha) (2015)	Pasture (Ha) (2015)	Pasture %	Forest (ha) (2015)	Forest %	Kyoto Land (Ha) (1986)	1986 Kyoto (%)
El Coral	30,330	22,374	73.77	90	0.30	6,462	21.31
Santo Tomás	49,576	33,471	67.51	82	0.17	15,589	31.44
Villa Sandino	68,504	47,237	68.95	515	0.75	33,250	48.54
El Rama	373,873	304,314	81.40	54,714	14.63	46,385	12.41
Muelle de los Bueyes	139,519	96,824	69.40	11,234	8.05	13,371	9.58
Nueva Guinea	267,599	229,654	85.82	12,346	4.61	53,864	20.13
<b>Totals</b>	<b>929,402</b>	<b>733,875</b>	<b>78.96</b>	<b>78,981</b>	<b>8.50</b>	<b>168,920</b>	<b>18.18</b>

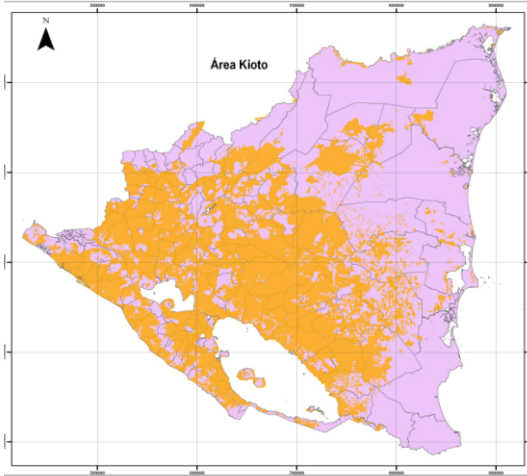
Source: Land Use study conducted jointly by INETER-INAFOR-MARENA, 2015

**Figure 2.** Kyoto land eligible for the Clean Development Mechanism elaborated from aerial photomaps taken in 1986. Official source of photomaps is INETER (National Institute for Territorial Studies in Nicaragua).

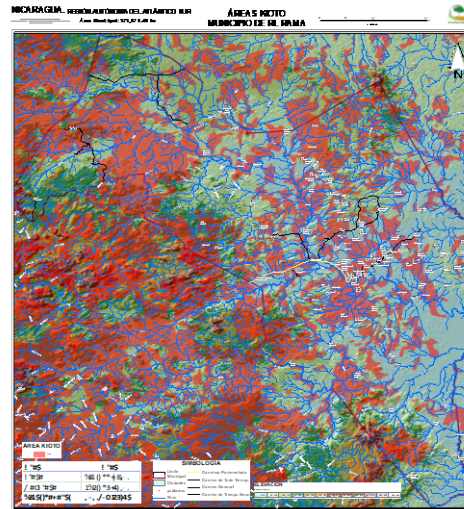
<sup>1</sup> FAO. 2003. Nicaragua frente al cambio climático. Proyecto Bosques y Cambio Climático en América Central. Serie Centroamericana de Bosques y Cambio Climático. FAO-CCAD. 69 p. (Document placed in “Supporting files” folder)

**(j) Land-use history and current situation of the project area**

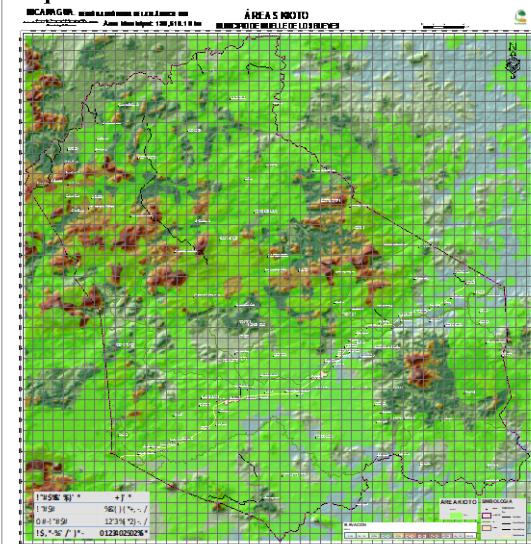
**Map of land eligible for the Clean Development Mechanism of the Kyoto Protocol. Map based on official land use study from aerial pictures taken in 1986**



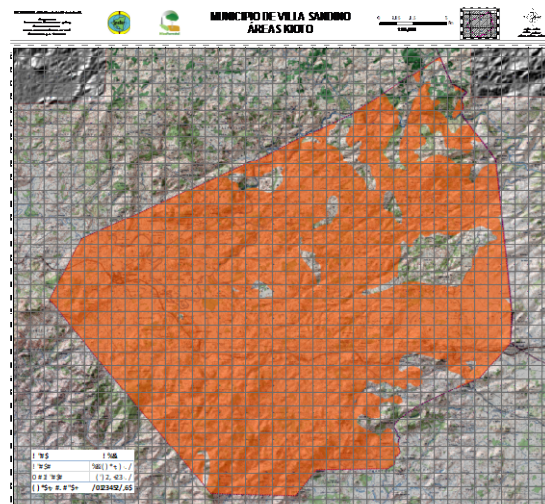
**Kyoto land specific for the municipality of El Rama (areas in red), derived from official land use map in 1986**



**Kyoto land specific for the municipality of Muelle de los Bueyes (areas in green), derived from official land use map in 1986**



**Kyoto land specific for the municipality of Villa Sandino (areas in orange), derived from official land use map in 1986**



**(k) Socio-economic history and current situation**

During the national census in 2005, poverty was estimated at municipal level and a map of Extreme, High, Medium and Low Poverty was generated (INIDE, 2005). Municipalities where the Reforestation Program under GS4220 will be developed were either classified as Severe or High Poverty (see map of p. 5, INIDE, 2005)<sup>1</sup>. These results show that consumption of goods on annual basis was lowest in rural areas of the Caribbean Coast. Other studies conducted more recently, show that poverty in rural areas has gone from

<sup>1</sup> INIDE. 2005. Mapa de pobreza extrema municipal por el método de necesidades básicas insatisfechas (NBI). 5 p. (See document in GoogleDrive GS4220; sub-folder "Supportind documents")

### (k) Socio-economic history and current situation

67.96% to 61.54% from 2009 to 2013 (FIDEG, 2014), and extreme poverty in rural areas reduced from 18.23% to 17.10% (FIDEG, 2014; p. 42)<sup>1</sup>. Other studies more applicable to agriculture and agro-industries describe structural barriers preventing the development of rural areas in the project area, and also hindering the development of agro-industries (IDR, 2011)<sup>2</sup>:

1. Limited access to financing for production and collection, in particular because of the high rate of informality of the agricultural sector.
2. Weaknesses in the supply of products in terms of quantity and quality mainly due to fragmented production, weak associativity and significant postharvest losses.
3. Limited capacity of innovation at the speed required by the markets.
4. Restricted access to knowledge and information on markets, particularly in the more isolated areas of the country.
5. There is an increase of the initiatives for technical assistance and training; however, there is a gap in terms of the quality of the services provided.
6. Need for greater education and technical training for human resources, conditioning the competitiveness of the rural agro-industries.
7. Need to promote the chaining of productive processes undertaken by the institutions of the State.
8. Innovation and technology trends are toward modernization, but the gaps in respect to the "state of the art" are still very broad.

One of the conclusions of this study is that "... an important number of small agro-industries cannot effectively access markets, at least in the short term".

Additionally, the lack of know-how and technical barriers prevents the forestry sector in Nicaragua from developing to its optimal potential (MAGFOR, 2005)<sup>3</sup>.

### (l) Forest management applied (past and future)

The areas to be reforested under this program are all classified as pastureland with dispersed trees. This land use has been in place at least since year 1986, when the aerial photographs were registered by INETER. Current and future forest management applied to plantations within the project area consist of establishment of forest plantations from certified seed or from seedling stumps of selected clones. The initial plan was to plant 85% to 90% of plantations will be established with teak (*Tectona grandis* L.f.), using provenances or clones provided by BARCA S.A., and 10 to 15% with endangered tropical forest species such as *Cedrela odorata* L. and *Swietenia macrophylla* King). Seeds from the latter two species will be obtained from seed banks and or commercial seed providers, as well as other high value tropical timber species. Tractors and trucks may be used for transportation of plants, consumables and workers. Technologies and measures for the establishment and management of species will be provided by Brinkman & Associates Reforestation Central America (BARCA)<sup>4</sup>, which will provide plantation material and will be in charge of training local workers and supervise forest establishment and management activities. The file "Plan de Reforestacion Finca Amelia 03.05.2012.pdf" is an example of the establishment plans that are developed for each farm to be planted.

In Table 2 above is the schedule of plantation establishment from 2011 to 2013. All plantations were planted with 100% teak stands. Teak plantations maturity will go up to 21 years from planting, while the two native species need a maturity period beyond that of teak. In the meantime, as stated in Table 2, approximately 30% of project area will be devoted to conservation of native forest or forest regeneration along the watersheds being protected.

<sup>1</sup> FIDEG. 2014. Informe de resultados de la encuesta de hogares para medir la pobreza en Nicaragua, FIDEG, 2013. 48 p. (Document posted in the "Supporting Documents Folder", in GoogleDrive of GS4220)

<sup>2</sup> See document "IDR - Diagnóstico Agroindustria Rural Nicaragua.pdf", página 29) (Document posted in the "Supporting Documents Folder", in GoogleDrive of GS4220).

<sup>3</sup> MAGFOR. 2005. Plan Estratégico para el Desarrollo de Plantaciones y Reforestación en el Trópico Seco de Nicaragua. Ministerio Agropecuario y Forestal – MAGFOR- Document posted in the "Supporting Documents Folder", in GoogleDrive of GS4220).

<sup>4</sup> <http://brinkmanforest.com/barca/>. See also files in GoogleDrive showing Training Program and Training Plan By BARCA

### (l) Forest management applied (past and future)

The Reforestation Program will seek FSC certification for Forest Management. In 2014, NICAFORESTAL S.A. has received certification for forest management following FSC standards from Rainforest Alliance for two of the farms. The FSC Certification process will cover all 5 farms: Santa Elena, La Estrella, Amelia Farm, Santa María and Rosario de Fátima. Rainforest Alliance was in charge of performing the FSC audit for year 2015. The field mission was realized during the period of 14 to 19 of March 2016. The draft report entitled “Informe de Auditoria Annual 2015 del Manejo Forestal de: NICAFORESTAL S.A. en Chontales y RACCS” has been uploaded to the GS4220 GoogleDrive, and can be observed within the folder entitled “Supporting Documents”. The final report should be delivered by Rainforest Alliance by the end of July 2016. The name of the file is: “NICAFORESTAL FSC FM audit 15 SPA DRAFT April 2016”.

### (m) Forest characteristics (including main tree species planted)

Since June 2011 through 2013 The Developer (Across Forest AS) completed a total of 340.39 ha of forest plantations, in a total of 489.42 ha of leased land under shared benefit agreements with landowners. Of the total area, 133.67 ha (27.31%) of the land is under conservation, including steep slopes, remaining native forest and water streams. Teak (*Tectona grandis*) is the leading species for planted forests. A land selection protocol has been utilized which integrates several land attributes: i) non-existence of forest and consistent with the definition of eligible land for Clean Development Mechanism; ii) Soil fertility analysis prior to decision making; iii) legal property rights of the landowners; iv) No conflicts with communities and legal recognition by the local municipality’s authorities.

Teak seedlings are planted during the months of July – September, particularly during the rainy season, and at least four cycles of weed control are practiced during the first 12 to 16 months of plantation development. Teak plants’ density is set at 833/ha. No plantations are established in land with native or regenerated forest, steep slopes, or along water streams.

Teak (*Tectona grandis*) is the main specie planted. Since June 2013 to August 2014 the farmers completed a total of 384.20 ha of forest plantations. The Farmers from El Rama planted 194.69 ha; in El Coral 57.57 ha, Villa Sandino 16.55 ha, Muelle de los Bueyes 73.39 and Nueva Guinea 42.00 ha.

Teak seedlings are planted during the months of July – September, particularly during the rainy season, and at least four cycles of weed control are practiced during the first 12 to 16 months of plantation development. Teak plants’ density is set at 833/ha. At the first sanitary thinning the density is reduced to 670 to 550 trees per ha.

### (n) Main social impacts (risks and benefits)

The main social impacts identified are: i) creation of employment, both permanent and temporary; ii) contribution to social security system; iii) provision of a platform to build knowledge on forestry for local university students; iv) increasing and diversification of revenues for participating landowners thus improving risk management and enhancing livelihoods.

Regarding landowners participating in the Reforestation Program, land reduction is not expected to have a negative impact since three of the landowners are currently living from other activities, and one of them has enough land to spare for reforestation. Regarding neighbouring communities that may perceive that there is less land available for food production, the Reforestation Program allows workers (that come from

### (n) Main social impacts (risks and benefits)

neighbouring communities) to plant beans in the plantation plots during the first two years of growth, while trees canopies allow sunlight to reach the ground.

### (o) Main environmental impacts (risks and benefits)

The following list shows main environmental impacts applicable to forest plantations:

#### Positive impacts on soils:

- Improvement of soil conditions due to improved water absorption, improved microbial activity.
- Enrichment of ecosystem's nutrients due to the recycling produced from organic matter.
- Erosion prevention.

#### Positive impacts on water:

- Reduction of floods during rainy seasons and maintenance of water supplies during dry seasons.
- Improvement of local microclimate through evaporative cooling and humidification.
- Improved water flow in the watersheds due to decreased water run-off.
- Improved water quality due to decreased soil erosion.

#### Positive impacts on wildlife and biodiversity:

- Decrease in the loss or destruction of wildlife habitat (for monkeys, birds and small mammals) through a fire surveillance and control plan and prohibition of hunting inside farms.
- Improved landscape connectivity between fragmented corridors of forest remnants and plantations, which benefits wildlife in general.
- Increase of ecological niches for birds, armadillos, reptiles, monkeys and other local fauna.
- Protection of contiguous ecosystems.

#### Positive impacts on climate and others:

- Reduction of fire danger.
- Increased carbon sequestration rates.
- Farms' added value due to the attractiveness and improved variety of the landscape.

Since February 2014, Across Forest AS has supported the realization of environmental assessment in all the farms. One study concludes that areas under conservation are important habitats to birds, reptiles and mammals. From over 11 species of birds observed, the tucan (*Pteglossus torquatus*) and the querque falcon (*Caracara cheeiway*) are among the most emblematic. Within the group of mammals, at least six relevant species have been observed, of which the whitetail deer (*Odocoileus virginianus*) and the perezoso bear (*Choloepus hoffmanni*). From the list of reptiles observed, snakes such as *Boa constrictor* and the viper *Bothrops asper* are among the most relevant. From the list of over 12 vulnerable native tree species, the tree *Platymiscium pleiostachyum*, is within the endangered species published by IUCN.

Across Forest AS has supported the Certification of NICA FORESTAL S.A. upon RainForest Alliance since October 2014. The Certificate has been achieved.

Among major environmental risks are: i) forest fires coming from neighboring cattle ranchers; and ii) potential hurricanes or strong wind from tropical storms. The last hurricane registered in the area occurred in October 1988 (Hurricane Joan).

One potential environmental risk is teak becoming an invasive species. However, teak was introduced in the project area at least 20 years ago, and there is no evidence of teak spreading wild in the region or project area. The fact that the most common land use is pastureland (Table 3), the wild propagation of teak is less likely since cattle ranchers would most likely treat the species as a weed. It appears that *Tectona grandis* is not in the IUCN Global Invasive Species Database<sup>1</sup>, as search results were null on 30.05.16.

<sup>1</sup> <http://www.iucngisd.org/gisd/search.php>

## (p) Financial structure

100% of funding comes from private sources. For the original areas major investors are organized in the Norwegian company Across Forest AS which provides over 90% of investments for project development.

The second phase planted 384.20 hectares area financed by local farmers. The farmers source their own plantations and the Developer Provides seedlings, Technical assistance and; the monitoring growth database analysis.

## 2. Shapefiles

Please provide *shapefiles* in the *supporting documents* and provide a reference to these *supporting documents* in this template.

### (a) Project area

See image in jpg format for project area below. Corresponding shape file is in the folder titled "Shapefiles project area Across Forest"

### (b) Planting areas

See below Planting Areas for each of four forest plantations. Each plantation is supported by a specific lease contract between NICAFOREST PLANTATIONS S.A. and the landowners. Shapefiles are in the folder "Shapefiles Planting Areas Across Forest". Names of the forest plantations are: Finca Amelia located in the municipality of El Rama; Rosario de Fatima, located in the municipality of Villa Sandino; Santa Elena, located also in Villa Sandino; and Santa Rosa (Santa María), located in the municipality Muelle de los Bueyes.

Specific farm maps (5) are provided in PDF file entitled "Map of plantations of the Reforestation Program of Across Forest AS".

Rest of the areas are supported by internal management agreement between the Developer and the farmer. This document

### (c) Eligible planting areas

For eligible planting area, Across Forest AS used the Clean Development Mechanism of land eligibility. Main criteria is land use on or before December 31, 1989. We used the map of official Kyoto land developed by FAO and adopted by the Ministry of Agriculture and Forest (MAGFOR) in Nicaragua. Kyoto land map was drawn from aerial photographs in year 1983. See folder titled "Shapefiles of eligible planting areas".

### (d) Modelling Units

Shapefiles showing teak plantation areas have been added to the "Supporting Documents" sub-folder, within a folder entitled "Uso del suelo finca nicaforest".

Google KMZ file showing teak plantation areas have been added to the "Supporting Documents" sub-folder, within a folder entitled "Cluster productores teca".

(d) Modelling Units

(e) Infrastructure (roads, houses, etc.)

All farms have access to roads, either because they are located next to a road, or access to the plantation through a signed binding agreement with middle landowners. The plantations do not cause any harm or disruption to public or private property. Amelia farm is only 4 km East from the main paved road (Km 267) that leads to city of El Rama. In the farm there is one storage house for inputs and one house for the watchman. Santa Elena farm is located 18 km East from Muhan community. Muhan is just off the main paved road (Km 210) that leads to city of El Rama. In Santa Elena there are three wood houses for workers and one storage house for agricultural inputs. The farm Rosario De Fatima is just off the main paved road from Villa Sandino to El Rama (Km 224). The farm has direct access from the main paved road. There is one small storage house for agricultural inputs. Santa María Farm is 2.7 Km East of Km 226 main paved road leading to el Rama from Villa Sandino. It's located in the municipality of Muelle de los Bueyes.

For roads and infrastructure within each farm, please check the shape and pdf files showing teak plantation areas, roads, houses, which have been placed in the Folder "Supporting Documents", within a sub-folder entitled "Uso del suelo finca nicaforest".

(f) Water bodies

No water bodies in the project area, except small rivers or creeks.

For small creeks or rivers in each farm please check the shape and pdf files showing teak plantations in each farm and microwatersheds. These shapefiles have been placed in the Folder entitled "Supporting Documents", and within the latter, a sub-folder was added entitled "Uso del suelo finca nicaforest".

(g) Sites with special significance for indigenous people and local communities - resulting from the Local Stakeholder Consultation (LSC)

No sites with special significance

(h) Where indigenous people and local communities are situated

No indigenous communities are located in the project area

(i) Where indigenous people and local communities have legal rights, customary rights or sites with special cultural, ecological, economic, religious or spiritual significance

All forest plantations are established in private property owned by local landowners. The titles of leasing contracts between landowners and NICAFOREST PLANTATIONS S.A. are located within the Folder entitled "Titles" of the sub-folder entitled "Supporting Files" of the GoogleDrive GS4220.

**3. Boundaries**

Please provide evidence that boundaries of the project area and the planting area are clearly distinguishable in the field.

See project area below. Plantations are in red color.

