













## CeroCO2 Impact Indicators CommuniTree Carbon Program Nicaragua

Report generated 2015-12-29

The impact of your support for the CommuniTree Carbon Program is much greater than the carbon that it sequesters. This document provides a rigorous quantification of some of the many socio-economic and environmental benefits specific to this program. Communicating these impacts in a quantitative way is invaluable for your stakeholders to fully understand the impact of this support. Definitions for the indicators used in this document can be found at the end.

### Overview: Total CeroCO2 impact for all vintages 2010 - 2015

	Partner contribution	Vintages total
 <b>Participating smallholder families</b>	1	296
 <b>Employment created *</b>	31	2645
Women/Men employed	9/ 22	662/ 1,982
 <b>Community payments made to date</b> (Ecosystem services, advance payments, and other)	\$2,982	\$715,357
 <i>Equivalent number of local annual salaries</i>	3	650
 <b>Total funds allocated to community</b>	\$9,513	\$1,448,112
 <b>Trees Planted</b>	11,070	1,605,633
Number of unique species recorded		87
 <b>Area reforested (ha eq.)</b>	7.1	1,170.3
 <i>Equivalent number of soccer fields</i>	10.0	1,638.5
 <b>Tonnes of CO<sub>2</sub> issued</b>	2,114	346,767
 <i>Equivalent number of cars' annual CO2 emissions offset</i>	551	90,433




\*Data from the Employment Created Indicator is not available prior to 2014.

## Details: Total CeroCO2 contribution for all vintages 2010 - 2015

	Partner contribution	Vintages total
<b>Social impact: Program Participants</b>		
Participating communities	0	68
Participating smallholder families	1	296
<b>Social impact: Employment Created</b>		
Permanent positions	0	28
Nursery staff hired (seasonal)	16	1,100
Planting staff hired (seasonal)	15	1,515
Other staff hired	0	2
Seasonal employment	31	2,617
<b>Total employment created</b>	<b>31</b>	<b>2,645</b>
<b>Social impact: Employment demographics</b>		
Number of Landless farmers employed	4	422
Number of Men employed	22	1,982
Number of Women employed	9	662
<b>Social impact: Capacity development</b>		
Community Project Development Workshops		2
Total session attendance		28
<b>Financial impact: Payments and community fund contribution (USD)</b>		
Ecosystem service payments made	\$1,028	\$361,971
Advance payments made	\$1,013	\$171,488
Additional payments to the community	\$941	\$181,898
Total community payments made to date	\$2,982	\$715,357
<b>i</b> <i>Equivalent annual local salaries</i>	<b>3</b>	<b>650</b>
Future ecosystem service payments allocated	\$6,531	\$732,755
<b>Total funds allocated to community</b>	<b>\$9,513</b>	<b>\$1,448,112</b>
<b>Environmental impact: Trees planted</b>		
Mixed species forest plantation	10,491	1,407,903
Silvopastoral planting	264	85,860
Boundary planting	315	111,870
<b>Total trees planted</b>	<b>11,070</b>	<b>1,605,633</b>
<b>Environmental impact: Biodiversity</b>		
Number of unique species recorded		87
<b>Environmental impact: Area reforested</b>		
Mixed species forest plantation (ha eq)	6.4	942.1
Silvopastoral planting (ha eq)	0.4	147.7
Boundary planting (ha eq)	0.3	126.1
<b>Total area reforested (ha eq.)</b>	<b>7.1</b>	<b>1,170.3</b>
<b>i</b> <i>Equivalent number of soccer fields</i>	<b>10.0</b>	<b>1,638.5</b>
<b>Environmental impact: Tonnes of CO<sub>2</sub> issued</b>		
Mixed species forest plantation	1,886	267,600
Silvopastoral planting	127	41,191
Boundary planting	101	37,975
<b>Total tonnes of CO<sub>2</sub> issued</b>	<b>2,114</b>	<b>346,767</b>
<b>i</b> <i>Equivalent number of cars' annual CO<sub>2</sub> emissions offset</i>	<b>551</b>	<b>90,433</b>

Note: Blank cells represent no data.




## Detailed impact indicators by vintage: 2015

	Partner contribution	Vintage total
<b>Social impact: Program Participants</b>		
New participating communities	0	7
Participating smallholder families	1	35
<b>Social impact: Employment Created</b>		
Permanent positions	0	13
Nursery staff hired (seasonal)	16	823
Planting staff hired (seasonal)	15	801
Other staff hired	0	2
Seasonal employment	31	1,626
<b>Total employment created</b>	<b>31</b>	<b>1,639</b>
<b>Social impact: Capacity development</b>		
Community Project Development Workshops		2
Total session attendance		28
<b>Social impact: Employment demographics</b>		
Number of landless farmers employed	4	187
Number of men employed	22	1,184
Number of women employed	9	455
<b>Financial impact: Payments and community fund contribution (USD)</b>		
Ecosystem service payments made	\$685	\$36,304
Advance payments made	\$834	\$44,249
Additional payments to the community	\$707	\$37,482
Total community payments made to date	\$2,226	\$118,035
 <i>Equivalent annual local salaries</i>	2	107
Future ecosystem service payments allocated	\$5,424	\$309,977
<b>Total funds allocated to community</b>	<b>\$7,650</b>	<b>\$428,013</b>
<b>Environmental impact: Trees planted</b>		
Mixed species forest plantation	8,994	473,881
Silvopastoral planting	98	4,148
Boundary planting	113	4,777
<b>Total trees planted</b>	<b>9,205</b>	<b>482,806</b>
<b>Environmental impact: Area reforested</b>		
Mixed species forest plantation (ha eq)	5.46	287.53
Silvopastoral planting (ha eq)	0.16	6.72
Boundary planting (ha eq)	0.12	5.17
<b>Total area reforested (ha eq.)</b>	<b>5.74</b>	<b>299.42</b>
 <i>Equivalent number of soccer fields</i>	8.0	419.2
<b>Environmental impact: Tonnes of CO<sub>2</sub> issued</b>		
Mixed species forest plantation	1,617	86,640
Silvopastoral planting	47	1,990
Boundary planting	36	1,532
<b>Total tonnes of CO<sub>2</sub> issued</b>	<b>1,700</b>	<b>90,162</b>
 <i>Equivalent number of cars' annual CO2 emissions offset</i>	443	23,513

Notes: 1) Blank cells represent no data.

2) In the current year, some of the indicators will change as new sales are made. This will occur until all offsets are retired and the land area is finalized for the Plan Vivo Annual Report.

## Detailed impact indicators by vintage: 2013

	Partner contribution	Vintage total
<b>Social impact: Program Participants</b>		
New participating communities	0	19
Participating smallholder families	1	104
<b>Social impact: Employment Created</b>		
Permanent positions		
Nursery staff hired (seasonal)		
Planting staff hired (seasonal)		
Other staff hired	0	
Seasonal employment		
<b>Total employment created</b>		
<b>Social impact: Capacity development</b>		
Community Project Development Workshops		
Total session attendance		
<b>Social impact: Employment demographics</b>		
Number of landless farmers employed		
Number of men employed		
Number of women employed		
<b>Financial impact: Payments and community fund contribution (USD)</b>		
Ecosystem service payments made	\$344	\$65,084
Advance payments made	\$179	\$33,838
Additional payments to the community	\$234	\$44,291
Total community payments made to date	\$756	\$143,213
 <i>Equivalent annual local salaries</i>	1	130
Future ecosystem service payments allocated	\$1,107	\$165,837
<b>Total funds allocated to community</b>	\$1,863	\$309,050
<b>Environmental impact: Trees planted</b>		
Mixed species forest plantation	1,496	294,007
Silvopastoral planting	167	24,582
Boundary planting	203	27,854
<b>Total trees planted</b>	1,866	346,443
<b>Environmental impact: Area reforested</b>		
Mixed species forest plantation (ha eq)	0.91	178.39
Silvopastoral planting (ha eq)	0.27	39.80
Boundary planting (ha eq)	0.22	30.14
<b>Total area reforested (ha eq.)</b>	1.40	248.33
 <i>Equivalent number of soccer fields</i>	2.0	347.7
<b>Environmental impact: Tonnes of CO<sub>2</sub> issued</b>		
Mixed species forest plantation	269	57,055
Silvopastoral planting	80	11,793
Boundary planting	65	9,583
<b>Total tonnes of CO<sub>2</sub> issued</b>	414	78,430
 <i>Equivalent number of cars' annual CO2 emissions offset</i>	108	20,454

Notes: 1) Blank cells represent no data.

2) In the current year, some of the indicators will change as new sales are made. This will occur until all offsets are retired and the land area is finalized for the Plan Vivo Annual Report.

# CeroCO2 Purchase Summary

Contract	Vintage of Purchase	Tonnes CO <sub>2</sub>	Trees Purchased	Land reforested (hectares equivalent)
CCO2_01_2013	2013	414		1.40
CCO2_01_15	2015	1,700		5.74

Note: You may request the invoices for these purchases from [info@takingroot.org](mailto:info@takingroot.org)

## Appendix I: Tree Species Present in Project

Latin Name	Local Name
<i>Acacia collinsii</i>	cornizuelo
<i>Acacia pennatula</i>	carbon
<i>Albizia adinocephala</i>	chaperno
<i>Albizia guachapale</i>	gavilan
<i>Albizia niopoides</i>	guanacaste blanco
<i>Albizia saman</i>	genizaro
<i>Alvaradoa amorphoides</i>	caratillo
<i>Apoplania paniculata</i>	palo de arco
<i>Asclepias curassavica</i>	quebra muela
<i>Astronium graveolens</i>	guachipilin
<i>Astronium graveolens</i>	ron ron, guacamaya
<i>Azadirachta indica</i>	neem
<i>Bombacopsis quinata</i>	pochote
<i>Bruñera simaruba</i>	jiñocuabo
<i>Caesalpinia eriostachys</i>	pintadillo
<i>Caesalpinia velutina</i>	mandagual
<i>Caesalpinia vesicaria</i>	flor amarilla
<i>Calycophyllum candidissimum</i>	madroño
<i>Carapa nicaraguensis</i>	cedro
<i>Casearia ilicifolia</i>	chicharon
<i>Cedrela odorata</i>	cedro real
<i>Ceiba pentandra</i>	ceiba
<i>Chlorofora tinctoria</i>	mora
<i>Chloroleucon mangense</i>	cacho novio
<i>Chrysobalanus icaco</i>	icaco
<i>Citrofortunella mitis</i>	naranja
<i>Cnidoculus aconitifolius</i>	quelite
<i>Cochlospermum vitifolium</i>	berberilla
<i>Cordia alliodora</i>	laurel
<i>Cordia dentada</i>	tiguilote
<i>Cordia gerascanthus</i>	laurel macho
<i>Crataegus monogyna</i>	espino blanco
<i>Crescentia cujete</i>	jicaro
<i>Croton niveus</i>	copalchi
<i>Desmodium nicaraguense</i>	mozote
<i>Diphysa americana</i>	guachipilin
<i>Dipteryx panamensis</i>	almendro
<i>Enterolobium cyclocarpum</i>	guanacaste
<i>Eucalyptus</i>	eucalipto
<i>Eugenia hondurensis</i>	guacuco
<i>Ficus spp</i>	unknown
<i>Furcraea longueva</i>	pescadillo
<i>Gliricidia sepium</i>	madero negro
<i>Guazuma ulmifolia</i>	guacimo
<i>Gyrocarpus americanus</i>	gallito, talalate
<i>Gyrocarpus americanus</i>	talalate
<i>Hippomane mancinella</i>	manzanillo
<i>Hyeronima alchorneoides</i>	nancite
<i>Hymenaea courbaril</i>	copal, guapinol
<i>Hymenaea courbaril</i>	guapinol



## Definitions of impact indicators

**Additional Payments to the Community:** The sum of money in USD that has been invested in Participating Communities for community benefits that are not Ecosystem Service Payments or Advance Payments. This includes nursery setup and materials, as well as other community benefits. The nature of these benefits varies but past examples included grafted fruit trees, fuel-efficient cookstoves, forest seedlings, etc.

**Advance Payments Made:** The sum of money in USD given to Participating Smallholder Families in advance of their Ecosystem Service Payments so as to enable the family to meet the program's participation eligibility requirements. The Advance Payments are then deducted from future Ecosystem Service Payments over time. The most common use of Advance Payments is to buy fencing to protect the reforested parcels from cattle.

**Area Reforested:** The number of hectares reforested and under management by Participating Smallholder Families through the CommuniTree Carbon Program according to the three technical specifications (i.e. Mixed Species Forest Plantations, Silvopastoral Planting, or Boundary Planting). This is represented in Equivalent Hectares (ha eq.).

**Cars' Annual CO<sub>2</sub> Emissions Offset:** The equivalent number of cars' annual CO<sub>2</sub> emissions that would be offset by the tonnes of CO<sub>2</sub> absorbed through the CommuniTree Carbon Program. This is calculated assuming that the average fuel-efficient economy-class car is driven 15,000 km a year, producing 3.83 tonnes of CO<sub>2</sub>.

**Community Project Development Workshops:** Community Project Development Workshops are meetings with project participants and members of the community. These workshops consist of informal learning and exchange sessions, community consultations, and technical trainings in silviculture.

**Community Payments Made:** The sum of money in USD from all Ecosystem Service Payments, Advance Payments and Additional Payments already paid to Participating Smallholder Families.

**Ecosystem Service Payments Made:** The sum of money in USD paid to Participating Smallholder Families in exchange for meeting established tree planting and tree growth related targets, as defined in each technical specification (i.e. Mixed Species Forest Plantations, Silvopastoral Planting, or Boundary Planting).

**Equivalent hectares (ha eq.):** A way of relativizing the areas planted under the three planting technical specifications, each with unique planting densities. All areas are weighed proportionally to the number of tonnes of carbon dioxide (tCO<sub>2</sub>) issued for the different technical specifications, with the Mixed Species Forest Plantation serving as the base unit. For example, the Boundary Planting technical specification is a linear planting design planted at 670 trees per kilometer, forecasted to sequester 215 tCO<sub>2</sub> over the project period. The Mixed Species Forest Plantations are forecasted to sequester 296.3 tCO<sub>2</sub> per hectare over the project period. Therefore  $(296.3/215)$  1.39 km of the Barrier Planting intervention is equivalent to 1 ha eq.

**Funds Allocated to Community:** The sum of money in USD of all past and future payments to Participating Smallholder Families, including Ecosystem Service Payments, Advance Payments, Additional Payments, and Future Ecosystem Service Payments.

**Future Ecosystem Service Payments Allocated:** The sum of money in USD that is earmarked for future Ecosystem Service Payments to Participating Smallholder Families over 10 years from the planting date. This is provided the Participating Smallholder Family meets established tree planting and tree growth related targets as defined in each technical specification (i.e. Mixed Species Forest Plantations, Silvopastoral Planting, or Boundary Planting).

**Landless Farmers Employed:** The number of people employed through the CommuniTree Carbon program, either seasonally or permanently, whose livelihood is primarily dependent on agriculture, but who do not own land. They either work as labourers on other people's farms or rent land from other farmers to grow food. Landless farmers are usually the poorest demographic in agricultural communities. Since they are not landholders they are ineligible to become a Participating Smallholder Family in the CommuniTree Carbon Program. However, by gaining employment through the program, they still derive benefits.



**Local Annual Salaries Earned:** This represents the equivalent number of average local annual salaries earned by those employed through the program. The average annual salary of a rural Nicaraguan is calculated at 100 Cordobas per day. At current exchange rates this is approximately \$1,100 USD a year.

**Men Employed:** The number of people employed, either seasonally or permanently, who are of the male gender.

**Native Tree Species Recorded:** The number of different tree species recorded on land being managed by Participating Smallholder Families as a part of the CommuniTree Carbon Program. The program plants five different native tree species, however, other trees species that are seeded without human intervention are integrated into the parcel and managed as an important part of the program. Their presence increases overall tree species diversity and provides additional wildlife habitat.

**Nursery staff:** The number of people hired, directly through the program or indirectly through another participating smallholder, for a defined period of time within the calendar year to perform tasks related to the CommuniTree Carbon Program's nurseries.

**Other staff:** The number of people hired, directly through the program or indirectly through another participating smallholder, for a defined period of time within the calendar year to perform tasks related to the CommuniTree Carbon Program's activities other than the tasks already outlined in this document. Examples include contracted staff to perform one-off activities such as doing a carbon baseline for the project's expansion.

**Participating Communities:** The number of communities with at least one Participating Smallholder Family as part of the CommuniTree Carbon Program.

**Participating Smallholder Families:** Smallholder families with at least one parcel of land reforested as a part of the CommuniTree Carbon Program.

**Planting staff:** The number of people hired, directly through the program or indirectly through another participating smallholder, for a defined period of time within the calendar year to perform tasks related to the CommuniTree Carbon Program's tree planting activities.

**Permanent Positions:** The number of people hired on continuous basis through the CommuniTree Carbon Program.

**Seasonal Positions:** The number of people hired, directly through the program or indirectly through another participating smallholder, for a defined period of time within the calendar year to perform seasonally related tasks through the CommuniTree Carbon Program. For example, a person who works for one month within a given calendar year would count as one Seasonal Position.

**Soccer Fields:** The equivalent number of soccer fields (or European football pitches) reforested through the CommuniTree Carbon Program. This been calculated using the average soccer field size as found optimal by FIFA, which is 105 meters by 68 meters, representing 7140 m<sup>2</sup>. As a hectare is 10,000 m<sup>2</sup>, a hectare represents 1.40 football pitches.

**Tonnes of CO<sub>2</sub> Issued:** The number of Plan Vivo certificates issued or expected to be issued after the upcoming issuance cycle, represented in tonnes of carbon dioxide (tCO<sub>2</sub>).

**Trees Planted:** The number of trees planted by Participating Smallholder Families as part the three technical specification (i.e. Mixed Species Forest Plantations, Silvopastoral Planting, or Boundary Planting).

**Women Employed:** The number of people employed, either seasonally or permanently, who are of the female gender.