Coalition for Rainforest Nations

CfRN-Foundational platform

Curtail deforestation: how to measure progress?
REDD+ tools and methodologies

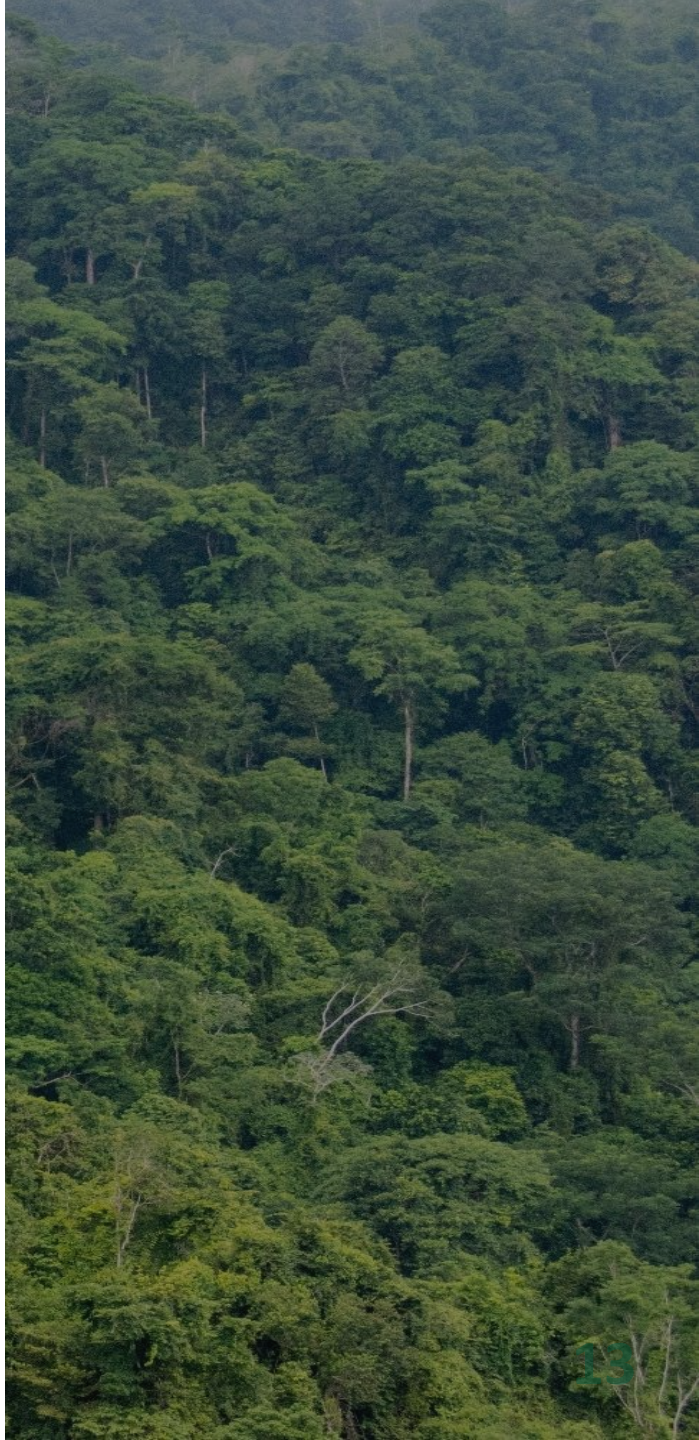
Eloïse Guidi

05 November 2021

RRR+ Project

Content

- CfRN & RRR+ project
- Assessment of the needs
- The Foundational Platform tool



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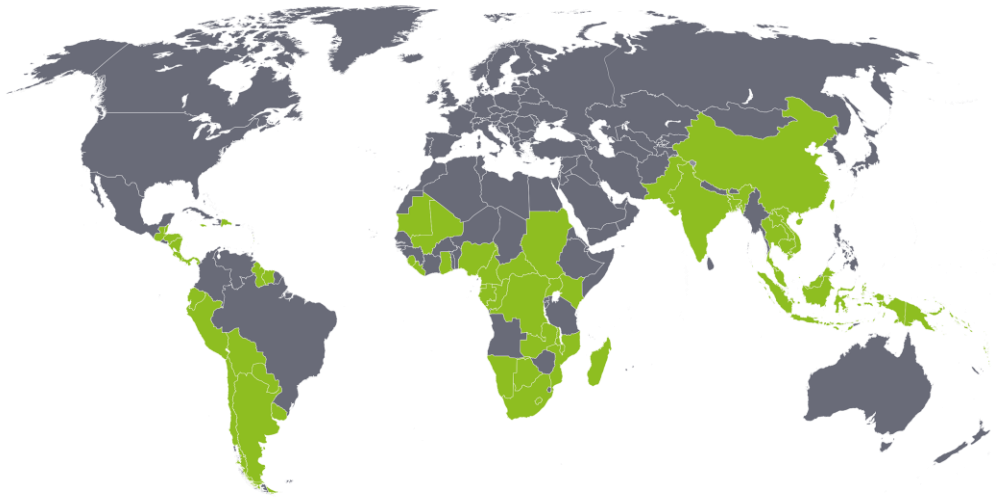
The Coalition for Rainforest Nations

Reporting for Result-based REDD+ PROJECT



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Donor

Norad

Implementation Partners

Financial Accounting

KPMG

Duration

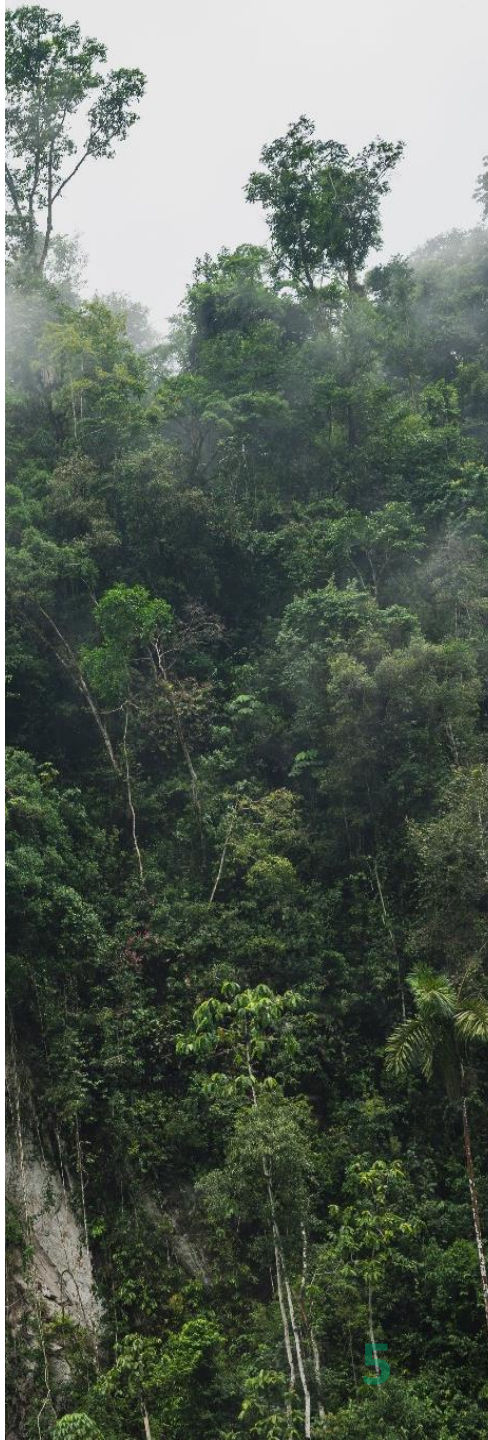
Phase 1: 2016-2019

Phase 2: 2020-2023

RRR+ PROJECT GOAL

The Reporting for Results-based REDD+ (RRR+) Project aims to:

Support rainforest countries in enhancing capacity on REDD+ MRV and fulfilment of the Paris Agreement transparency requirements (GHG inventory AFOLU, FREL, TA REDD+).



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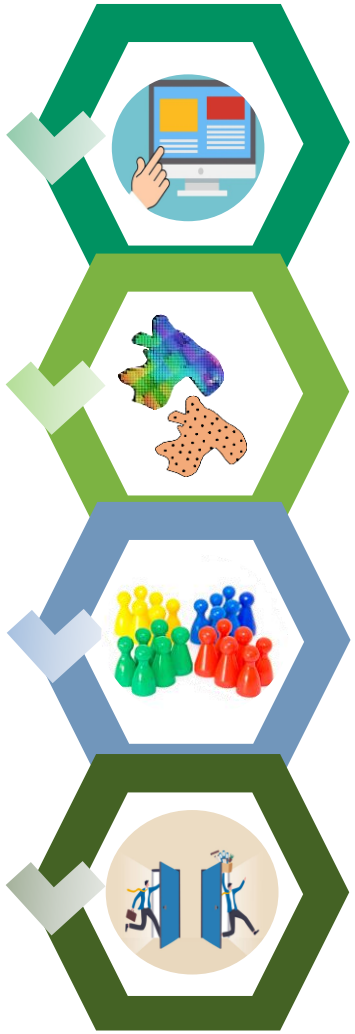
Assessment of the needs

What did we find?



Inconsistent data and reporting

Different type of data, definitions.

Same data estimated by different teams and methods

Personnel rotation, lost or non-existent archives

After visiting different countries, we found the following needs:

- Consistency in the national historical data
- Consistency among different national reports
- Friendly user GHG calculation tools
- Flexible to adapt to country needs (data, tiers, methods)
- UNFCCC and IPCC compliant

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The Result - The Foundational Platform

RRR+ APPROACH

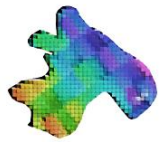
We developed a tool that could comply with the following goals:

Allows harmonization

No Internet
Excel
User friendly

Transparency
Accuracy
Consistency
Completeness
Comparability

Single National GHGI dataset following IPCC guidance



- Basis for FREL/FRL
- Basis for REDD+ Results
- Basis for NDC baselines
- Basis for measuring & understanding NDC progress

How have countries used it so far?

Country	NDC	GHG Inventory	FRL/FRL	MRV	REDD+ Results	Quality Assessment
Belize	✓	✓	✓	✓	✓	
Saint Lucia	✓	✓	✓	✓	✓	
Dominica	✓	✓	✓	✓	✓	
Dominican Republic	✓	✓	✓	✓	✓	
Panama			✓			
Ghana			✓	✓	✓	
Gabon		✓				✓
Guyana						✓
Mozambique						✓
Fiji						✓
Congo						✓

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✓ Implemented ✓ Planned

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The Foundational Platform – How it works


TRANSPARENCY

Institutional Arrangements

Agriculture, Forest and Other land use (AFOLU) Greenhouse gas (GHG) Inventory

and

REDD+ Reference Level, REDD+ Results, FOLU NDC

Date	25/08/2021
Version	5

Contact Information and Focal Points

Contact	Name	Email	Institution/Department
REDD+ TA National Coordinator	Dr. Percival Cho	ceo@environment.gov.bz	Ministry of Agriculture, Fisheries, Forestry, Sustainable Development, the Environment, Climate Change and Solid Waste Management Authority
Focal point REDD+	Lennox Gladden	policy.coord@environment.gov.bz	Office of Climate Change
Technical Lead FRL/ REDD+TA	Edgar Correa	edgarcorrea21@gmail.com	Forest Department
Technical Lead NFI	German Lopez	brh@forest.gov.bz	Forest Department
Technical Lead FRL/ REDD+TA	Florencia Guerra	frm@forest.gov.bz	Forest Department


COMPLETNESS

Gases and carbon pools included

Land use categories & GHGi coverage in terms of C pools and gases

FOREST LANDS

CARBON POOLS INCLUDED	ABG	BGB	Litter	DW	SOC
	x	x	NE	NE	NE

GASES INCLUDED	CO2	CH4	N2O	HFC	PFC	SF6	NF3	NOx	SO2	COVNM	CO
	x	x	x	NA	NA	NA	NA	NA	NA	NA	NA

Notation Key
NA NOT APLICABLE
NE NO ESTIMATED
NO NOT OCCUR
IE INCLUDED ELSEWHERE

CROPLANDS

CARBON POOLS INCLUDED	ABG	BGB	Litter	DW	SOC
	x	x	NE	NE	NE

GASES INCLUDED	CO2	CH4	N2O	HFC	PFC	SF6	NF3	NOx	SO2	COVNM	CO
	x	x	x	NA	NA	NA	NA	NA	NA	NA	NA

Notation Key
NA NOT APLICABLE
NE NO ESTIMATED
NO NOT OCCUR
IE INCLUDED ELSEWHERE

GRASSLANDS

CARBON POOLS INCLUDED	ABG	BGB	Litter	DW	SOC
	x	x	NE	NE	NE

GASES INCLUDED	CO2	CH4	N2O	HFC	PFC	SF6	NF3	NOx	SO2	COVNM	CO
	x	x	x	NA	NA	NA	NA	NA	NA	NA	NA

Notation Key
NA NOT APLICABLE
NE NO ESTIMATED
NO NOT OCCUR
IE INCLUDED ELSEWHERE


ACCURACY

Emissions Factors, Uncertainties

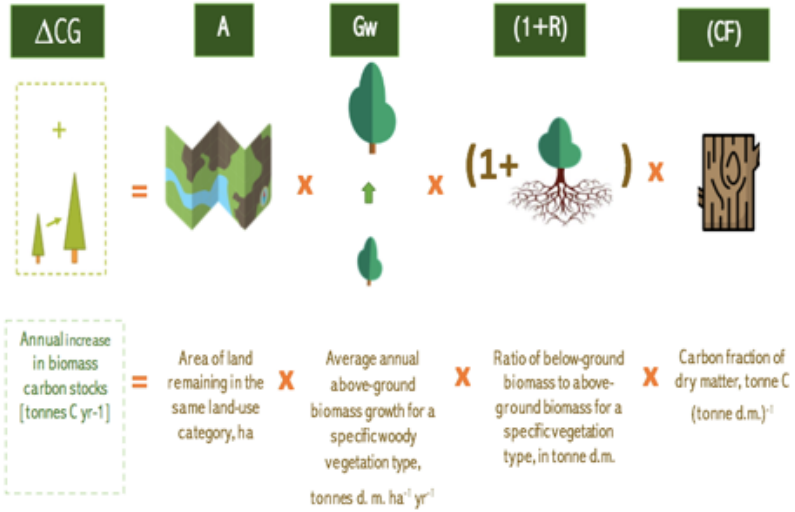
Parameter in the IPCC equations	Notation	Units according to the IPCC	Category		Value	Data and parameters: National Value (tier 3)	National Value (tier 2)	Default Value. (tier 1)	SD	CI 95% Lower	CI 95% Upper	Range Lower	Range Upper
Forest Land										1.96	2.365		
Wood carbon fraction of dry matter	Cf	[t C (t d.m.)$^{-1}$]	Elfin and Cloud forest	FCLOUD	0.47			X	-	0.44	0.49	-	-
			Montane Forest	FRAIN	0.47			X	-	0.44	0.49	-	-
			Semi-evergreen Forest	FEVER	0.47			X	-	0.44	0.49	-	-
			Deciduous - Coastal Forest	FDEC, FDRYS, FLIT	0.47			X	-	0.44	0.49	-	-
			Mangrove	FMAN	0.45			X	-	0.429	0.471	-	-
			Plantations	FPLANT	0.47			X	-	0.44	0.49	-	-
Average annual ABG growth for a specific woody vegetation type	Gw	[t d.m. ha-1 yr-1]	Elfin and Cloud forest	Undisturbed	0.00			X	-	0	0	-	-
				Disturbed (Hurricane, fire, logging, Shift.Cult)	NO			-	-	0	0	-	-
			Montane Forest	Undisturbed	0.00			X	-	0	0	-	-
				Disturbed (Hurricane, fire, logging, Shift.Cult)	5.90			X	2.3	-	-	-	-
			Semi-evergreen Forest	Undisturbed	2.70			X	1.1	-	-	-	-
				Disturbed (Hurricane, fire, logging, Shift.Cult)	5.20			X	2.3	-	-	-	-
			[illegible]	Undisturbed	1.60			X	1.1	-	-	-	-

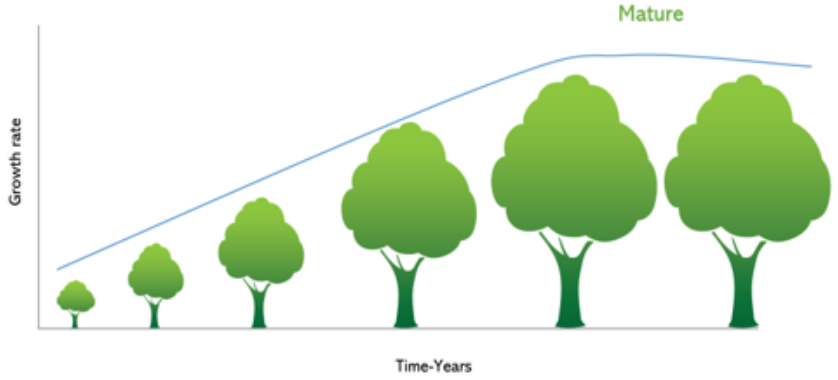
Step 4a. AD-PlotSum Feb_17 | Step 4b. AD- LULUC matrices | Step 5. NFI Biomass | Step 6. EF-Values | Forest land | Cropland | [illegible]sland | Wetlands | Settlements | Other Lands | RE


COMPARABILITY

IPCC Methodologies

Annual Biomass Increase **2.9 ΔCG[tC/ha] =∑(A [ha] • GTOTAL [t.d.m. / ha]• CF)**





Land Us	Parameter	Plot Code	Plot Count	Pool / Item	Not	Unit		2000	2001	2002
FF_Gains	ΔCG_1	Wet Evergreen Forest	ABG + BGB	IPCC 2006, Eq. 2.9		t C / yr		237.052	237.052	237.052
FF_Gains	ΔCG_2	Moist Evergreen Forest	ABG + BGB	IPCC 2006, Eq. 2.9		t C / yr		1.308.253	1.308.253	1.308.253
FF_Gains	ΔCG_3	Moist Semi-deciduous SE Forest	ABG + BGB	IPCC 2006, Eq. 2.9		t C / yr		884.770	884.770	884.770
FF_Gains	ΔCG_4	Moist Semi-deciduous NW Forest	ABG + BGB	IPCC 2006, Eq. 2.9		t C / yr		373.128	373.128	373.128
FF_Gains	ΔCG_5	Upland Evergreen Forest	ABG + BGB	IPCC 2006, Eq. 2.9		t C / yr		7.849	7.849	7.849
FF_Gains	ΔCG_6	Dry Semidecidouos (Fire Zone) Fore	ABG + BGB	IPCC 2006, Eq. 2.9		t C / yr		32.285	32.285	32.285
FF_Gains	ΔCG_7	Dry Semidecidouos (Inner Zone) Fo	ABG + BGB	IPCC 2006, Eq. 2.9		t C / yr		10.833	10.833	10.833
FF_Gains	ΔCG_8	Savannah Forest	ABG + BGB	IPCC 2006, Eq. 2.9		t C / yr		100.659	100.659	100.659
FF_Gains	ΔCG_9	Southern Marginal Forest	ABG + BGB	IPCC 2006, Eq. 2.9		t C / yr		758	758	758
FF_Gains	ACG_1	FC/FDRYfire>CANN_2008/_/FDRYfire	ABG + BGB	IPCC 2006, Eq. 2.9	C / yr			171,7	171,7	171,7


CONSISTENCY

Time series consistency for AFOLU - GHG Inventory

IPCC Code	Source Category	Gases	GHG Emissions (t CO_2-eq)					
			1994	1997	2000	2001	2002	2003
3	Agriculture, Forestry, and Other Land Use		**-14,332,451**	**-13,922,055**	**-13,400,846**	**5,941,566**	**-10,083,709**	**-11,755,29**
3.A	Livestock	CH_4 & N_2O			72,360.73			75,329.1
3.A.1	Enteric Fermentation	CH_4			66,438.67			72,359.3
3.A.2	Manure Management	CH_4 & N_2O			5,922.06			2,969.8
3.B	Land	CO_2	-14,345,261	-13,929,455	**-13,513,649**	**5,763,351**	**-10,115,069**	**-11,885,20**
3.B.1	Forest Land	CO_2	*	*	-12,355,614	2,129,767	-14,388,329	-14,575,30
3.B.2	Cropland	CO_2	*	*	-85,934	1,035,303	1,438,011	1,549,97
3.B.3	Grassland	CO_2	*	*	-1,074,237	2,810,020	3,262,636	1,137,98
3.B.4	Wetlands	CO_2	*	*	0	-198,339	-396,678	
3.B.5	Settlements	CO_2	*	*	2,136	-13,399	-30,709	2,13
3.B.6	Other Land	CO_2	*	*	0	0	0	
3.C	Aggregate Sources and Non-CO_2 Emissions Sources or	CO_2, CH_4 & N_2O	12810	7400	**79,622**	**178,214**	**31,360**	**65,53**
3.C.1	Emissions from Biomass Burning (Land F,G)	CH_4 + N_2O in CO2e	*	*	43,142	178,214	31,360	15,54
3.C.1	Emissions from Biomass Burning (Agriculture)	CH_4 + N_2O in CO2e	NE	NE	1,210.08			1,210.0
3.C.2	Liming	CO_2	2540	3670	4,390			5,31
3.C.3	Urea Application	CO_2	9370	1400	1,263.80			15,175.6
3.C.4	Direct N_2O Emissions from Managed Soils	N_2O	NE	NE	22,937.47	NE	NE	22,612.2
3.C.5	Indirect N_2O Emissions from Managed Soils	N_2O	NE	NE	NE	NE	NE	N
3.C.6	Indirect N_2O Emissions from Manure Management	N_2O	NE	NE	NE	NE	NE	N
3.C.7	Rice Cultivations	CH_4	900	2330	4,418.56	NE	NE	611.0
3.C.8	Other		NE	NE	2,260.47			5,072.8
3.D	Other		0	0	-39,181			-10,94
3.D.1	Harvested Wood Products	CO_2	NE	NE	-39,180.66			-10,944.1
3.D.2	Other							

Consistency GHG Inventory / REDD+ / NDC

REDD+ activity

Emissions and removals

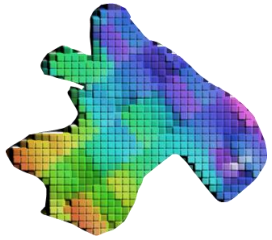
REDD+ Activity	GHG EMISSIONS (tCO2e)						
	Category	Sub-category	Carbon Pool	Gas	Units	Equation	2001
				CO2, CH4, N2O	t CO2e / yr		29,265,622
Degradation	Forest land	Forest land remaining Forest land (AGB+BGB)	Biomass (AGB+BGB)	CO2	t CO2e / yr	Equation 2.7	26,407,180
		Logging	Bi				
		Fuelwood	Bi				
		Fires	Bi				
		Forest land remaining Forest land (DOM)					
		Forest land remaining Forest land (SOC)					
		Forest land remaining Forest land (CH4)	emissio				
		Forest land remaining Forest land (N2O)	emissio				
Enhacement of Carbon Stocks	Land Converted to Forest Lands	Lands Converted to Forest Lands (AGB+BGB)	Bi				
		Lands Converted to Forest Lands (Gains)	Bi				
		Lands Converted to Forest Lands (Losses)	Bi				
		Lands Converted to Forest Lands (Conversion)	Bi				
		Lands Converted to Forest Lands (DOM)					
		Lands Converted to Forest Lands (SOC)					
		Lands converted to Forestlands (CH4)	emissio				
		Lands converted to Forestlands (N2O)	emissio				
Deforestation	Forest Converted to Other Lands	Forest Lands converted to other lands (AGB+BGB)	Bi				
		Forest Lands converted to other lands (DOM)					
		Forest Lands converted to other lands (SOC)					

REDD+ Activity	GHG REMOVALS (tCO2eq)							
	Category	Sub-category	Carbon Pool	Gas	Units	Equation	2001	2002
				CO2, CH4, N2O	t CO2e / yr		-1,857,057	-1,850,227
Degradation	Forest land	Forest land remaining Forest land (AGB+BGB)	Biomass (AGB+BGB)	CO2	t CO2e / yr	Equation 2.7	-1,857,057	-1,850,227
		Logging	Biomass (AGB+BGB)	CO2	t CO2e / yr	Equation 2.12		
		Fuelwood	Biomass (AGB+BGB)	CO2	t CO2e / yr	Equation 2.13		
		Fire_Wet Evergreen Forest	Biomass (AGB+BGB)	CO2	t CO2e / yr	Equation 2.14		
		Forest land remaining Forest land (DOM)	DOM	CO2	t CO2e / yr	Equation 2.23	0	0
		Forest land remaining Forest land (SOC)	SOC	CO2	t CO2e / yr	Equation 2.24	0	0
		Forest land remaining Forest land (CH4)	missions due to biomass bur	CH4	t CO2e / yr	Equation 2.27		
		Forest land remaining Forest land (N2O)	missions due to biomass bur	N2O	t CO2e / yr	Equation 2.27		
Enhacement of Carbon Stocks	Land Converted to Forest Lands	Lands Converted to Forest Lands (AGB+BGB)	Biomass (AGB+BGB)	CO2	t CO2e / yr	Equation 2.15	0	0
		Lands Converted to Forest Lands (Gains)	Biomass (AGB+BGB)	CO2	t CO2e / yr	Equation 2.9	0	0
		Lands Converted to Forest Lands (Losses)	Biomass (AGB+BGB)	CO2	t CO2e / yr	Equation 2.11	0	0
		Lands Converted to Forest Lands (Conversion)	Biomass (AGB+BGB)	CO2	t CO2e / yr	Equation 2.16	0	0
		Lands Converted to Forest Lands (DOM)	DOM	CO2	t CO2e / yr	Equation 2.23	0	0
		Lands Converted to Forest Lands (SOC)	SOC	CO2	t CO2e / yr	Equation 2.24	0	0
		Lands converted to Forestlands (CH4)	missions due to biomass bur	CH4	t CO2e / yr	Equation 2.27	0	0
		Lands converted to Forestlands (N2O)	missions due to biomass bur	N2O	t CO2e / yr	Equation 2.27	0	0
Deforestation	Forest Converted to Other Lands	Forest Lands converted to other lands ((AGB+BGB)	Biomass (AGB+BGB)	CO2	t CO2e / yr	Equation 2.16	0	0
		Forest Lands converted to other lands (DOM)	DOM	CO2	t CO2e / yr	Equation 2.23	0	0
		Forest Lands converted to other lands (SOC)	SOC	CO2	t CO2e / yr	Equation 2.24	0	0


FLEXIBILITY

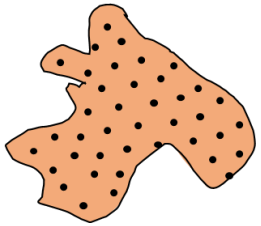
Land Representation - Country Specific

Map



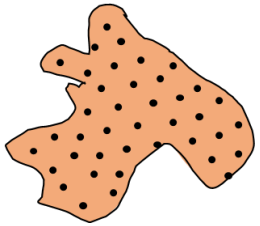
	Forest land	Cropland	Grassland	Wetlands
Forest land				
Cropland				
Grassland				
Wetlands				

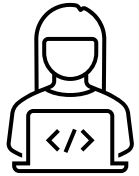
Sampling

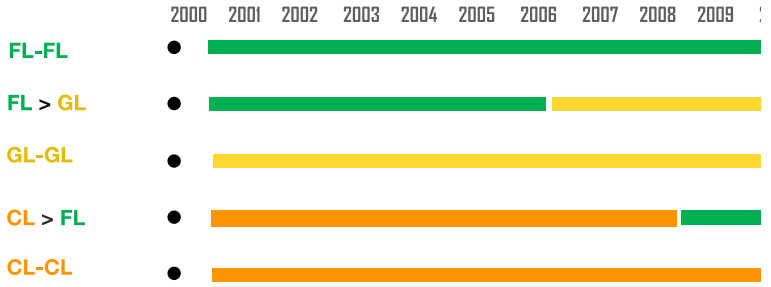


	Forest land	Cropland	Grassland	Wetlands
Forest land				
Cropland				
Grassland				
Wetlands				

Sampling + code

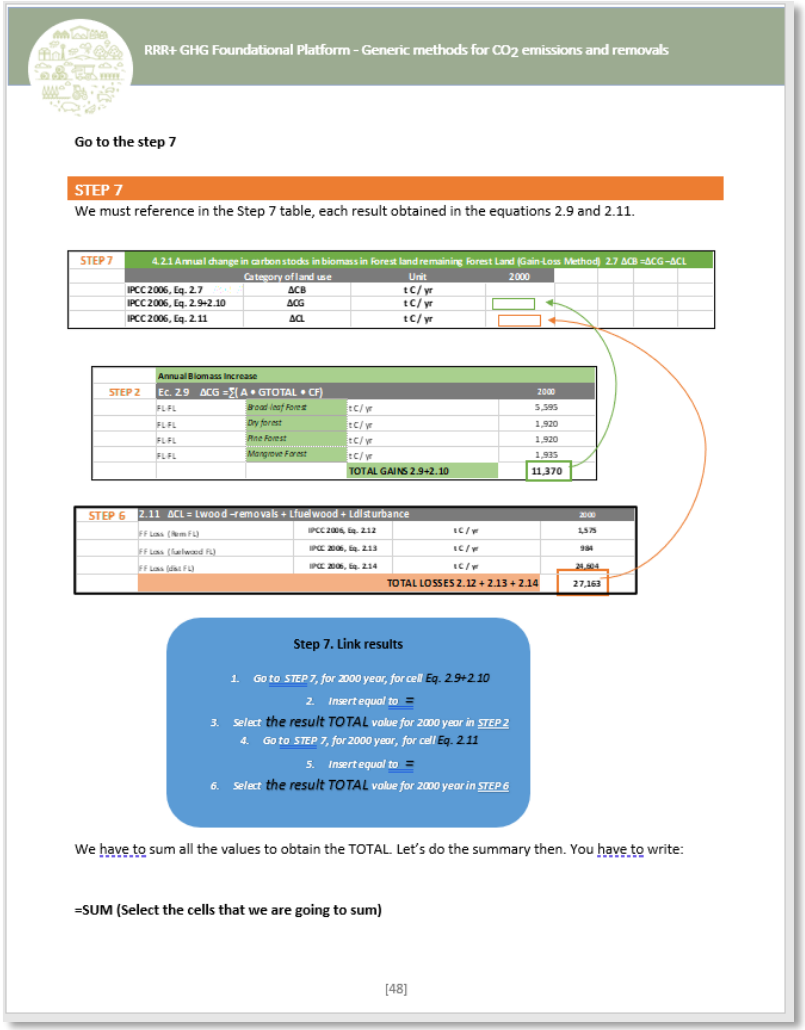







CAPACITY BUILDING

Users Manual

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Thank You!

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