



# REFORESTATION ACTIVITIES IN BRAZIL FOR CARBON REMOVALS FROM THE ATMOSPHERE



Document Prepared by SADA Participações Ltda

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# CONTENTS

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<b>1</b>	<b>PROJECT DETAILS.....</b>	<b>4</b>
1.1	Summary Description of the Project .....	4
1.2	Sectoral Scope and Project Type .....	4
1.3	Project Eligibility .....	4
1.4	Project Design .....	6
1.5	Project Proponent .....	7
1.6	Other Entities Involved in the Project .....	7
1.7	Ownership.....	7
1.8	Project Start Date .....	7
1.9	Project Crediting Period .....	7
1.10	Project Scale and Estimated GHG Emission Reductions or Removals .....	8
1.11	Description of the Project Activity.....	10
1.12	Project Location .....	12
1.13	Conditions Prior to Project Initiation .....	14
1.14	Compliance with Laws, Statutes and Other Regulatory Frameworks.....	15
1.15	Participation under Other GHG Programs .....	16
1.16	Other Forms of Credit.....	16
1.17	Sustainable Development Contributions .....	17
1.18	Additional Information Relevant to the Project .....	17
<b>2</b>	<b>SAFEGUARDS .....</b>	<b>18</b>
2.1	No Net Harm .....	18
2.2	Local Stakeholder Consultation .....	18
2.3	Environmental Impact .....	18
2.4	Public Comments .....	18
2.5	AFOLU-Specific Safeguards .....	18
<b>3</b>	<b>APPLICATION OF METHODOLOGY.....</b>	<b>19</b>
3.1	Title and Reference of Methodology .....	19
3.2	Applicability of Methodology.....	19
3.3	Project Boundary .....	22
3.4	Baseline Scenario .....	22

3.5	Additionality .....	22
3.6	Methodology Deviations .....	22
<b>4</b>	<b>QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS .....</b>	<b>22</b>
4.1	Baseline Emissions .....	22
4.2	Project Emissions .....	22
4.3	Leakage.....	22
4.4	Net GHG Emission Reductions and Removals .....	22
<b>5</b>	<b>MONITORING .....</b>	<b>23</b>
5.1	Data and Parameters Available at Validation .....	23
5.2	Data and Parameters Monitored.....	23
5.3	Monitoring Plan .....	23
<b>APPENDIX</b>	<b>.....</b>	<b>24</b>

# 1 PROJECT DETAILS

## 1.1 Summary Description of the Project

The grouped project proposed by SADA Participações Ltda (hereinafter SADA), “Reforestation activities in Brazil for carbon removals from the atmosphere”, consists of the implementation of new plantations of African mahogany (e.g. *Khaya grandifoliola* and *Khaya senegalensis*) and Australian cedar (e.g. *Toona ciliata*) in the state of Goiás (GO), in the Midwest region of Brazil. This region is notably marked by the historical tradition in livestock activities and, more recently, by the implementation of agricultural activities. Thus, the project proposes a change in land use in the region, promoting the implementation of new and additional carbon stocks, in areas previously occupied by pasture. For this, the most modern forestry technologies will be used, ranging from the selection of seedlings, soil preparation, planting, and maintenance, to the harvest.

The first instance will be implemented in the municipality of Jussara, in Northwest Goiás, around 225 km from Goiânia, the capital city of the state. The total area of this instance will be 1,311 hectares (detailed in Section 1.12 below). It is expected a total GHG removals of 162,471.48 tCO<sub>2</sub>e.

The methodology applied is CDM’s AR-ACM0003: *Afforestation and reforestation of lands except wetlands – Version 2.0*.

In addition to contributing to climate mitigation, through net removals of greenhouse gases from reforestation activities, the proposed project will also contribute to the preservation of native forests in the region, favoring local biodiversity, especially through the recovery of areas destined to ecological corridors. SADA intend to seek forest certification for the project’s areas with some trusted certification system, such as FSC® and CERFLOR.

## 1.2 Sectoral Scope and Project Type

The proposed project is an AFOLU grouped project of the ARR – Afforestation, Reforestation and Revegetation category.

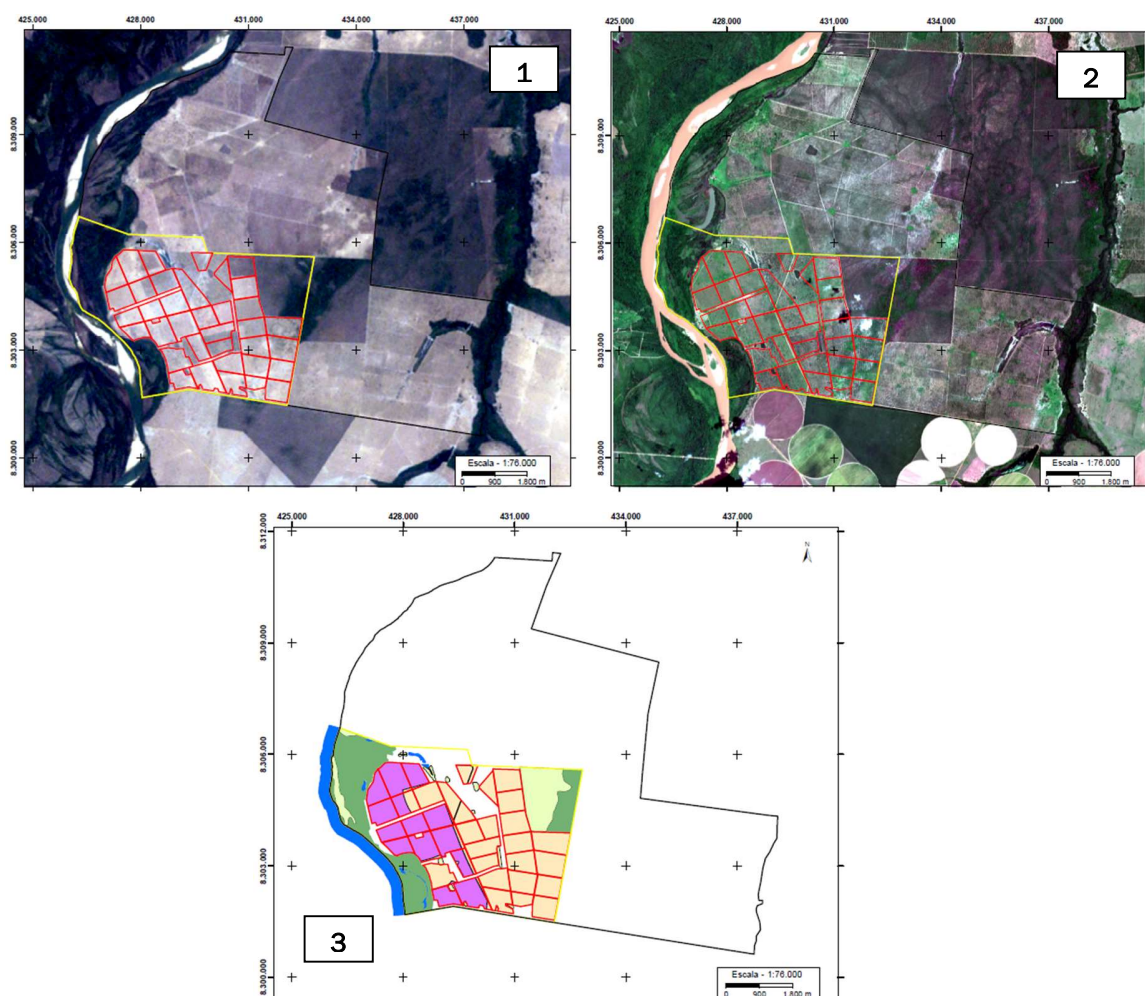
## 1.3 Project Eligibility

According to the VCS Standard v.4.4, Appendix 1’ “eligible ARR activities are those that increase carbon sequestration and/or reduce GHG emissions by establishing, increasing, or restoring vegetative cover (forest or non-forest) through the planting, sowing, or human-assisted

*natural regeneration of woody vegetation. Eligible ARR projects may include timber harvesting in their management plan. The project area shall not be cleared of native ecosystems within the 10-year period prior to the project start date.”*

This grouped project proposes the reforestation of non-forested areas with commercial species due to be harvested according to the established management plan. The project areas were not cleared of native ecosystems within 10 years prior to project implementation, as shown below.

Figures 1 to 3: project plots (in red) in **Três Meninas farm** (farm limits in yellow). Figure 1 shows the satellite image of the area in **2010**, ten years prior to the project implementation. Figure 2 shows the satellite image of the area in **2020**, prior to project implementation. Figure 3 is the analysis of the land use cover.



## 1.4 Project Design

- ☐ The project includes a single location or installation only
- ☐ The project includes multiple locations or project activity instances, but is not being developed as a grouped project
- ☒ The project is a grouped project

### Eligibility Criteria

The following set of eligibility criteria for the inclusion of new project activity instances follows the requirements established by VCS in its Standard v4.4:

- The proposed instances must be located within the grouped project boundary, that is, the state of Goiás (GO), Brazil, as per table 3 in section 1.12;
- The instances' areas must be clearly identified by their unique geographical location, in latitude and longitude.
- The instances' areas shall not be cleared of native ecosystems within the 10-year period prior to the project start date and shall comply with all the eligibility criteria for ARR category, as per Section 1.3 above.
- Each proposed instance must confirm its start date, and this date must be on and/or after the start date of the grouped project, as per Section 1.8.
- Each proposed instance must comply with the methodology's applicability conditions, as per section 3.2 below.
- Each proposed instance shall have the baseline scenario as identified in section 3.4 below.
- Each proposed instance shall be additional following the applicable methodological tool as applied in Section 3.5 below.
- Each proposed instance shall assess leakage following the applicable methodological tool as per Section 1.18 below.
- Each proposed instance must evidence the use and application of the specified technologies or measures as presented in section 1.11;
- Each proposed instance must have evidence of project ownership, held by the project proponent from the respective start date of each project activity instance.

## 1.5 Project Proponent

Organization name	SADA Participações Ltda
Contact person	Mr. Vittorio Medioli
Title	Administrator
Address	R. Gustaf Dalen, 151 - Distrito Industrial Paulo Camilo, Betim/MG, 32669-174
Telephone	+55 31 3071-0700
Email	<a href="mailto:juridico.societario@sada.com.br">juridico.societario@sada.com.br</a>

## 1.6 Other Entities Involved in the Project

There are no other entities involved in the project.

## 1.7 Ownership

According to VCS Standard v4.4, “*project proponents must demonstrate that they have the legal right to control and operate project or program activities*”. SADA will demonstrate its ownership over the proposed grouped project’s lands through the due property deeds and will present the documentation for the VVB team during validation.

## 1.8 Project Start Date

The starting date of this grouped project is 11/12/2020, which is the starting date of the first plantings in Três Meninas farm.

## 1.9 Project Crediting Period

The starting date of the crediting period for this grouped project is 11/12/2020, which is the date of the first plantings in Três Meninas farm. Project crediting period is from 11/12/2020 to

10/12/2057, that is 37 years. The grouped project may be renewed at most four times totalizing 100 years. Hence, this grouped project could continue until 10/12/2120.

## 1.10 Project Scale and Estimated GHG Emission Reductions or Removals

The estimated annual GHG emission reductions/removals of the project are:

- ☒ <20,000 tCO<sub>2</sub>e/year
- ☐ 20,000 – 100,000 tCO<sub>2</sub>e/year
- ☐ 100,001 – 1,000,000 tCO<sub>2</sub>e/year
- ☐ >1,000,000 tCO<sub>2</sub>e/year

Project Scale	
Project	X
Large project	

Year	Estimated GHG emission reductions or removals (tCO <sub>2</sub> e)
2021	34,628.14
2022	69,256.28
2023	103,884.41
2024	138,512.55
2025	110,810.04
2026	145,438.18
2027	180,066.32
2028	214,694.45
2029	249,322.59
2030	138,512.55
2031	173,140.69



Year	Estimated GHG emission reductions or removals (tCO <sub>2</sub> e)
2032	207,768.83
2033	242,396.96
2034	277,025.10
2035	311,653.24
2036	346,281.38
2037	380,909.52
2038	415,537.65
2039	34,628.14
2040	69,256.28
2041	103,884.41
2042	138,512.55
2043	110,810.04
2044	145,438.18
2045	180,066.32
2046	214,694.45
2047	249,322.59
2048	138,512.55
2049	173,140.69
2050	207,768.83
2051	242,396.96
2052	277,025.10
2053	311,653.24
2054	346,281.38
2055	380,909.52
2056	415,537.65

Year	Estimated GHG emission reductions or removals (tCO <sub>2</sub> e)
2057	34,628.14
Total estimated ERs	162,471.48
Total number of crediting years	37
Average annual ERs	4,391.12

Note: This ex ante corresponds to the expected total GHG benefit for the project scenario (LTA), with a buffer discount of 20%.

## 1.11 Description of the Project Activity

This grouped project instance is not located within a REDD+ jurisdictional program zone. According to VERRA's website, the only JNR project in Brazil is JNR Project 2264 - Jurisdictional Subnational Program for Incentives for Environmental Services of Carbon of the State of ACRE, Brazil – ACRE ISA-Carbon Program<sup>1</sup>.

Table 1: general aspects of the species initially proposed for the grouped project plus description of measures to be implemented.

<i>Toona spp.</i> "Australian cedar" <sup>2</sup>	<i>Khaya spp.</i> (trade names: African mahogany, acajou d'Afrique)	
General aspects of the species		
<i>Toona ciliata</i> <sup>3</sup>	<i>Khaya grandifoliola</i> <sup>4</sup>	<i>Khaya senegalensis</i> <sup>5</sup>
<u>Origin</u> : originates from tropical Asia and tropical Australia.	<u>Origin</u> : occurs from Guinea east to Sudan and Uganda.	<u>Origin</u> : occurs from Mauritania and Senegal east to northern Uganda.
<u>Uses</u> : In South-East Asia the wood is considered of high value and used in house	<u>Uses</u> : its wood is traditionally used for furniture, household implements and canoes. It is	<u>Uses</u> : carpentry, furniture, cabinet work, ship building and decorative veneer;

<sup>1</sup> Searched at <https://registry.verra.org/app/search/JNR/All%20Projects>.

<sup>2</sup> <https://www.wood-database.com/>

<sup>3</sup> See [https://uses.plantnet-project.org/en/Toona\\_ciliata](https://uses.plantnet-project.org/en/Toona_ciliata) (PROTA)

<sup>4</sup> See [https://uses.plantnet-project.org/en/Khaya\\_grandifoliola](https://uses.plantnet-project.org/en/Khaya_grandifoliola) (PROTA)

<sup>5</sup> See [https://uses.plantnet-project.org/en/Khaya\\_senegalensis](https://uses.plantnet-project.org/en/Khaya_senegalensis) (PROTA)

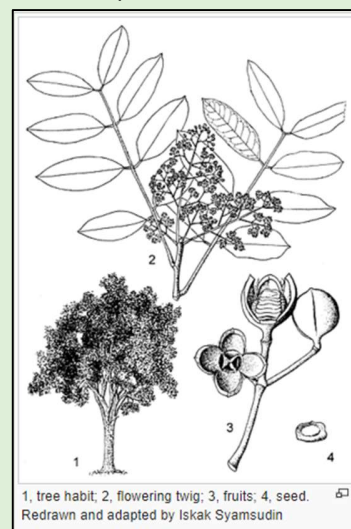
and ship building, high-end furniture, tea chests and boxes, musical instruments, toys and novelties, carvings, veneer, plywood, and pencils.



also used as fuelwood and for charcoal production. The bark is used in traditional medicine.



construction, flooring, vehicle bodies, toys, railway sleepers, turnery, and pulpwood. Traditionally, the wood is used for canoes and household implements (e.g. mortars and spoons); fuelwood and charcoal production.



#### Characteristics<sup>4</sup>:

- tolerates some drought if the tree is well established;
- capable of regeneration in full sunlight;
- excellent growth rate;
- does not grow well in sandy localities;
- does not accept flooded soils and little resistance to frost.

#### Characteristics<sup>6</sup>:

- low resistance to drought (needs irrigation);
- thinner bark (more susceptible to cancer);
- faster growth (10% faster);
- low development in sandy soil;
- seeds lose germination faster when stored;
- straight stem, with few branches;
- does not accept flooded soils and little resistance to frost.
- drought resistant;
- thicker bark (more resistant to cancer);
- slower growth;
- develops in sandy soil;
- seeds with little loss of germination, when stored
- most cultivated in the world; Australia's biggest project
- many branches (dense spacing limits the branches);
- does not accept flooded soils and little resistance to frost.

#### Planting details:

Spacing: approximately 5m x 5m

#### Planting details:

Spacing: approximately 7m x 3.5m

<sup>6</sup> See <https://selvaforestal.com/diferenca-entre-mogno-africano/>.

Plants/ha: approximately 400 units	Plants/ha: approximately 400 units
<b>Planting and Maintenance -1<sup>st</sup> year Toona spp. and Khaya spp.</b>	
Soil analysis	
Ant control / <i>Trigona spinipes</i> bee control (locally “abelha Arapoá” / <i>Isoptera</i> control	
Preparation of the area: removal of bushes and low vegetation; enable the mechanized planting. <u>Note</u> : SADA <i>does not</i> use fire as a land cleaning technique.	
Soil correction: liming	
Tillage/Fertilization: definition of planting lines; use of minimum cultivation technique.	
Irrigation	
Weed control on the planting lines	
Ant control	
Planting: distribution of seedlings into the soil; can be with or without fertilization.	
Replanting: replacement of dead seedlings; occurs whenever the survival rate is below 95%. The expected potential for survival is of more than 90%.	
(For Toona spp. only) Sunscreen application: prevents damages from sun burn, especially in places with intense solar radiation.	
Mechanized weeding	
(For Toona spp. only) “Escaldadura”	
<b>Planting and Maintenance -2<sup>nd</sup> to 8<sup>th</sup> year Toona spp. and Khaya spp.</b>	
Ant control	
Second fertilization	
Weed control	
Pruning	
Thinning	
Mechanized weeding	
Irrigation for maintenance	
“Escaldadura”	
<b>Planting and Maintenance -9<sup>th</sup> to 18<sup>th</sup> year Toona spp. and Khaya spp.</b>	
Ant control	
Rural road maintenance	
Thinning + Transport	
Harvesting	

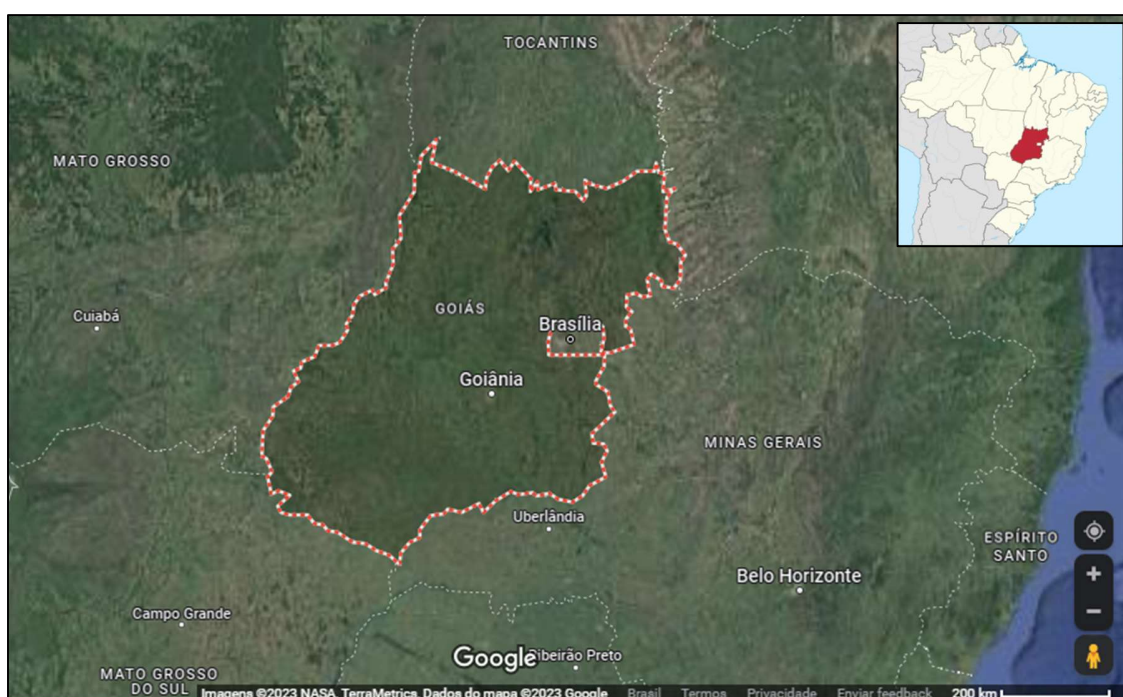
## 1.12 Project Location

The state of Goiás is the limit of this grouped project, within which the instances will be implemented.

Table 2: grouped project's geographical information.

BRAZILIAN STATE	LATITUDE	LONGITUDE
Goiás	16° 00' 00"	49° 00' 00"

Figure 4: Geographical boundary of the state of Goiás



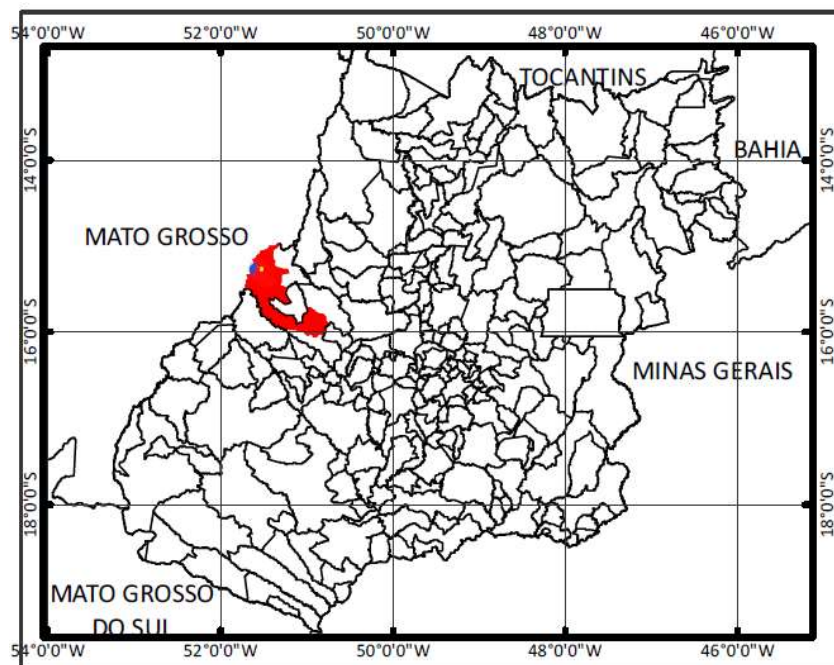
Source: GoogleMaps

The first project instance is located in the municipality of Jussara, Goiás, Brazil.

Table 3: grouped project's geographical information.

PROJECT INSTANCE	LATITUDE	LONGITUDE
Três Meninas farm, Jussara/GO	-15° 20' 26,70241 "S	-51° 40' 44,09396 "w

Figure 5: location of Jussara municipality (in red) and the first instance (in blue) within Goiás state.



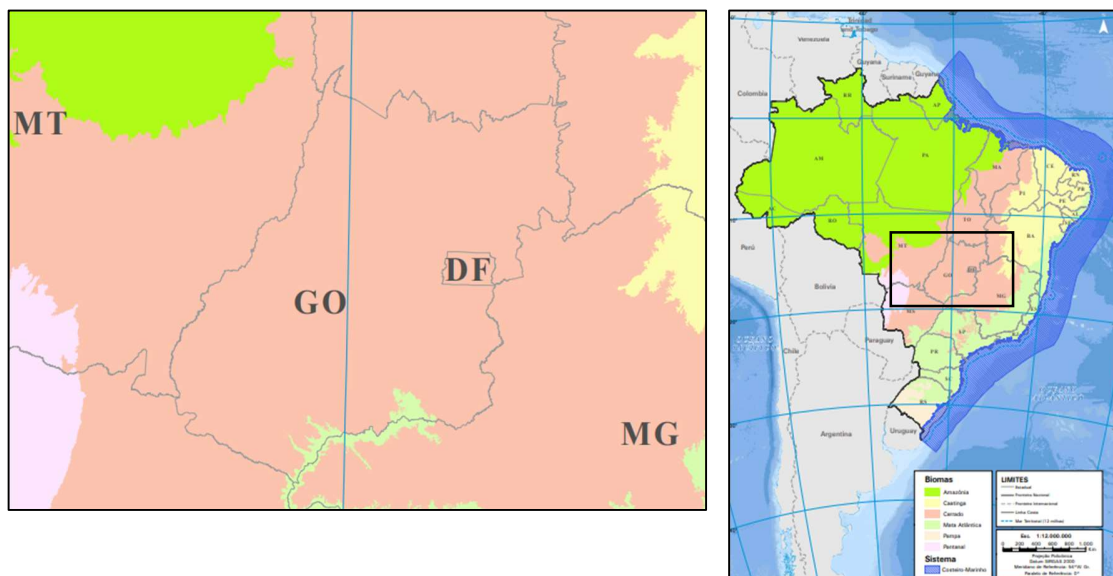
Source: Sada

### 1.13 Conditions Prior to Project Initiation

- **Ecosystem type:**

The state of Goiás is almost entirely located within the Cerrado biome; 98% of it. Only 1.6% of the territory is occupied by the Atlantic Forest.

Figure 6: biomes of Goiás: Cerrado, in pink and Atlantic Forest, in light green



Source: IBGE, 2019

- **Current and historical land-use:**

The project's area was pastureland, previously used for cattle raising purposes.

- **Has the land been cleared of native ecosystems within 10 years of the project start date?**

☐ Yes

☒ No

## 1.14 Compliance with Laws, Statutes and Other Regulatory Frameworks

This grouped project duly complies with all national and state laws and regulations, such as:

National level:	State level:
Law 12 651, 25 May 2012 <sup>7</sup> , the "Brazilian Forestry Code".	Goiás state Law n.18 104/2013 <sup>8</sup> : it provides for the protection of native vegetation, establishes the new Forest Policy of the State of Goiás and

<sup>7</sup> See [http://www.planalto.gov.br/ccivil\\_03/\\_ato2011-2014/2012/lei/l12651.htm](http://www.planalto.gov.br/ccivil_03/_ato2011-2014/2012/lei/l12651.htm).

<sup>8</sup> See <https://legisla.casacivil.go.gov.br/api/v2/pesquisa/legislacoes/90203/pdf>



	provides other measures). It is regulated by Normative Instruction No.002/2014 of the Ministry of the Environment.
IBAMA Normative Instruction n.13/2021: Regulates the obligation to register in the Federal Technical Register of Potentially Polluting and User of Environmental Resources Activities.	Goiás state Law n.20 694/2019, regulated by Decree n.9 710/2020: provides for the general rules for environmental licensing in the State of Goiás.
	Goiás state Decree n.10 054/2022: It provides for the protection of native vegetation; establishes the new Forest Policy of the State of Goiás.
	Goiás state Law n. 13.123/1997: establishes standards for guidance to the state's water resources policy, as well as to the integrated water resource management system.

## 1.15 Participation under Other GHG Programs

### 1.15.1 Projects Registered (or seeking registration) under Other GHG Program(s)

This grouped project has never been registered or is seeking registration under any other GHG programs.

### 1.15.2 Projects Rejected by Other GHG Programs

This grouped project has never been rejected by any other GHG Programs.

## 1.16 Other Forms of Credit

### 1.16.1 Emissions Trading Programs and Other Binding Limits

Does the project reduce GHG emissions from activities that are included in an emissions trading program or any other mechanism that includes GHG allowance trading?

☐ Yes

☒ No

### 1.16.2 Other Forms of Environmental Credit

Has the project sought or received another form of GHG-related credit, including renewable energy certificates?



☐ Yes

☒ No

### Supply Chain (Scope 3) Emissions

N/A. This project does not impact emissions associated with a good or service.

## 1.17 Sustainable Development Contributions

The project proposes the sustainable planting of trees in anthropized non-forested lands generating removals of greenhouse gases from the atmosphere. It will apply sustainable forestry techniques, such as minimum cultivation and mosaic planting, will contribute to soil nutrition cycle, optimize water use, keep strict control of chemical products storage and use, among other.

The project is also expected to generate and maintain direct and indirect jobs for a variety of activities, such as: seedling production, planting and forestry activities, machinery maintenance, harvesting, as well as technical and administrative assistance, supply of materials and provision of specialized services.

These are some of the project's expected contributions:

- Ecological corridors
- Nursery of native seedlings
- Renewable energy sources
- Regional development
- Professional training
- Social responsibility



## 1.18 Additional Information Relevant to the Project

### Leakage Management

According to the methodology *AR-ACM0003, version 02.0*, the methodological tool “*Estimation of the increase in GHG emissions attributable to displacement of pre-project agricultural activities in A/R CDM project activity*” in its latest version should be applied. As set out in section 1.4 Eligibility Criteria, one of the eligibility criteria for inclusion of PAIs under this grouped project is the assessment of the proposed area to determine whether there has been/will be displacement of agricultural activities to a new area. In order to do so, during the due diligence phase, a questionnaire should be applied to the partner in order to register the displacement conditions and destination of cattle, if any.

### Commercially Sensitive Information

N/A. No commercially sensitive information has been excluded from the public version of the project description.

### Further Information

N/A. There is no other relevant information about the Project.

## 2 SAFEGUARDS

### 2.1 No Net Harm

To be completed for validation.

### 2.2 Local Stakeholder Consultation

To be completed for validation.

### 2.3 Environmental Impact

To be completed for validation.

### 2.4 Public Comments

To be completed for validation.

### 2.5 AFOLU-Specific Safeguards

To be completed for validation.

## 3 APPLICATION OF METHODOLOGY

### 3.1 Title and Reference of Methodology

The methodology applied by this grouped project is AR-ACM0003 – Afforestation and reforestation of lands except wetlands, version 02.0<sup>9</sup>.

Methodological tools applied by this methodology<sup>10</sup>:

- Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities, version 01
- Estimation of non-CO2 GHG emissions resulting from burning of biomass attributable to an A/R CDM project activity, version 04.0.0
- Estimation of carbon stocks and change in carbon stocks in dead wood and litter in A/R CDM project activities, version 03.1<sup>11</sup>
- Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/RCDM project activities, version 04.2
- Estimation of the increase in GHG emissions attributable to displacement of pre-project agricultural activities in A/R CDM project activity, version 2.0

Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities, version 01.1.0<sup>12</sup>

### 3.2 Applicability of Methodology

This methodology is applicable, as the programme meets the following applicability conditions.

#### 3.2.1. Applicability conditions of the “AR-ACM003” methodology, version 02.0

The verification of the methodology’s applicability will be done as described below:

- a) *The project activity does not fall into the category of wetlands:*

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<sup>9</sup> See <https://cdm.unfccc.int/methodologies/ARmethodologies/approved>.

<sup>10</sup> See <https://cdm.unfccc.int/Reference/tools/index.html>.

<sup>11</sup> Not applicable to this grouped project approach.

<sup>12</sup> Not applicable to this grouped project approach.

The PP will check the type of land on which proposed instances will be implemented using, for example, the IBGE Map of Brazilian Soils<sup>13</sup> in order to ensure that they are not established on wetlands, e.g. through information on geographical location and type of soil. Therefore, project activities will not fall into the wetland category.

*b) Soil disturbances attributed to the proposed project activity do not cover more than 10 per cent of the project area that:*

- i. Contain organic soils:* the PP will verify the type of land on which the proposed Instances will be deployed using, for example, the Soil Map of Brazil - IBGE, in order to ensure that they are not established in organic soils, e.g. by information of the geographical location of the area and type of soil. Therefore, project activities will not fall into the organic soil category.
- ii. Are subject – in the baseline – to land-use management conditions that receive inputs listed in Appendices 1 and 2 of the AR-ACM003 methodology, version 02.0:* if the land use at baseline falls within one of the conditions listed in Appendices 1 and 2 of the AR-ACM003 methodology, the PP will verify that tillage do not disturb more than 10 per cent of the project area, e.g. evaluation of the proportion of tilled area (width x length of the tillage line x number of tilled lines or dug area x number of pits) in relation to the total area of the project.

In general, the PP adopts minimum tillage, i.e. soil tilling is restricted to the planting line, resulting in very low impact on the level of soil cover.

### 3.2.2. Applicability conditions of the “Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities”, version 01

*a) Reforestation activities in the area within the proposed boundary, conducted with or without registration as a CDM A/R activity, should not lead to the violation of any applicable laws, even if these laws are not currently being enforced.*

Reforestation activities of the area within the proposed boundary do not violate any local or national laws.

*b) This tool is not applicable to small-scale A/R project activities.*

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<sup>13</sup> See [http://geoftp.ibge.gov.br/informacoes\\_ambientais/pedologia/mapas/brasil/solos.pdf](http://geoftp.ibge.gov.br/informacoes_ambientais/pedologia/mapas/brasil/solos.pdf).

All Instances under this grouped project will be large-scale, considering the current criteria adopted by the VCS (which is the same as of the CDM's) and the Designated National Authority of Brazil.

3.2.3) Conditions of applicability of the tool “Estimation of non-CO<sub>2</sub> GHG emissions resulting from burning of biomass attributable to an A/R CDM project activity, version 04.0.0.”

- a) *The tool is applicable to all occurrence of fire within the project boundary.*

This PoA-DD takes into consideration the emissions occurring due to accidental fires.

- b) *Non-CO<sub>2</sub> GHG emissions resulting from any occurrence of fire within the project boundary shall be accounted for each incidence of fire which affects an area greater than the minimum threshold area reported by the host Party for the purpose of defining forest, provided that the accumulated area affected by such fires in a given year is  $\geq 5\%$  of the project area.*

This applicability condition will be assessed during the monitoring of each instance. The PP would verify if the area affected by fire in a given year exceeds the limit of 5% of the project area. If the burnt area exceeds 5% of the project area, the area affected will be delimited

according to parameter  $A_{BURN,i,t}$  and the calculation of non-CO<sub>2</sub> GHG emissions will be done according to calculation methods still under development.

3.2.4) Conditions of applicability of the tool “Estimation of carbon stocks and change in carbon stocks in dead wood and litter in A/R CDM project activities, version 03.1”

N/A. This tool has no internal applicability conditions.

3.2.5) Conditions of applicability of the tool “Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities, version 04.2”

N/A. This tool has no internal applicability conditions.

3.2.6) Conditions of applicability of the tool “Estimation of the increase in GHG emissions attributable to displacement of pre-project agricultural activities in A/R CDM project activity, version 2.0”

*This tool is not applicable if the displacement of agricultural activities is expected to cause, directly or indirectly, any drainage of wetlands or peat lands.*

No instance under this grouped project will be implemented in areas containing wetlands, nor peat lands.

3.2.7) Conditions of applicability of the “Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities, version 01.1.0”

*N/A. This tool is not applicable as soil organic carbon is not accounted under this project.*

### 3.3 Project Boundary

To be completed for validation.

### 3.4 Baseline Scenario

To be completed for validation.

### 3.5 Additionality

To be completed for validation.

### 3.6 Methodology Deviations

To be completed for validation.

## 4 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

### 4.1 Baseline Emissions

To be completed for validation.

### 4.2 Project Emissions

To be completed for validation.

### 4.3 Leakage

To be completed for validation.

### 4.4 Net GHG Emission Reductions and Removals

To be completed for validation.

## 5 MONITORING

### 5.1 Data and Parameters Available at Validation

To be completed for validation.

### 5.2 Data and Parameters Monitored

To be completed for validation.

### 5.3 Monitoring Plan

To be completed for validation.

# APPENDIX

To be completed for validation.