

THE VOLUNTARY

SCALING

CAR

BON

MARKET

IN BRAZIL



NBS BRAZIL ALLIANCE
NATURE BASED SOLUTIONS

WHO WE ARE

Founded in 2021, **Nature-Based Solutions Brazil Alliance** aims to promote and encourage an agenda to combat deforestation and environmental degradation by strengthening nature-based solutions and the carbon credits market in Brazil. The institution unites project development companies, non-governmental organizations, and impact investors who, together, are responsible for more than 70% of Brazilian carbon credits issued since 2022, related to NBS and **Agriculture, Forestry, and Other Land Use (AFOLU)**. The creation of guidelines and good practices to promote integrity in the sector are at the heart of the organization's work.

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NBS BRAZIL ALLIANCE
NATURE BASED SOLUTIONS

THE MEMBERS OF NBS BRAZIL ALLIANCE



INTRODUCTION

In the context of climate change, nature-based solutions (NBS) are a set of actions that reduce or remove greenhouse gas emissions, protecting and restoring natural and modified ecosystems, simultaneously benefitting people and nature.

NBS projects support the socioeconomic development of the regions where they are located, creating jobs and promoting protection areas, by preventing deforestation, fire, and mining, in addition to monitoring and preserving biodiversity. A study by McKinsey indicated that Brazil has the potential to represent 15% of global carbon capture opportunities by means of NBS¹. The same study estimated that the credit market will jump from USD 1 billion today to 50 billion by 2030.

These solutions include REDD+ (Reducing Emissions from Deforestation and Forest Degradation) projects, which currently represent 84%² of NBS projects. These projects are predominantly implemented in areas where, based on a counterfactual scenario, there is a high risk of deforestation, as is the case of regions of Brazil's Legal Amazon. Also in this biome, IFM (Improved Forest Management) projects compete to protect against forest degradation, which is, not rarely, the beginning of total conversion of the forest.

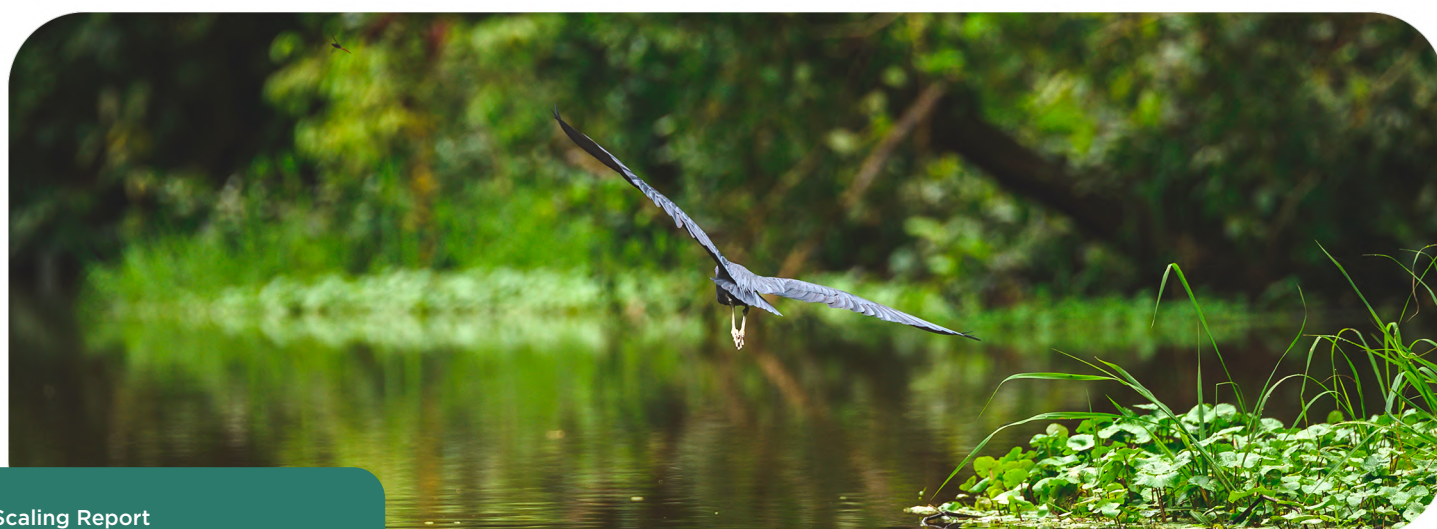
In other Brazilian biomes, such as the Cerrado, projects incorporate the concepts of "grasslands" and "shrublands" to account for non-forest typologies, known as ACoGS (Avoided Conversion of Grasslands and Shrublands) projects. These projects are of paramount importance in the current context, where the encroachment of agricultural borders into the biome has grown at an alarming rate.

ARR (Afforestation, Reforestation, and Revegetation) projects, in turn, have expanded in number. In addition to removing tonnes of CO₂ from the atmosphere, they are capable of promoting ecological recovery, biodiversity, and ecosystem services, also based on a clear counterfactual scenario.

NBS projects focusing on agricultural land management can also influence the way agriculture is currently practiced in Brazil, thus promoting improvements in agriculture. They contribute to reducing emissions or increasing soil carbon stocks, by encouraging, for example, novel practices of crop rotation and groundcover, making the use of water and fertilizers more efficient. This context includes regenerative agriculture projects, focusing on organic carbon in the soil, but they may eventually incorporate carbon from vegetation in the same manner as ARR projects, depending on the biodiversity strategies applied in the project design.

Finally, the integrity of carbon credits has become an increasingly discussed topic, especially given the rapid increase in NBS projects in Brazil. In this context, initiatives have emerged that aim to establish standards and ensure high integrity of carbon credits, in addition to promoting good practices in related projects. Initiatives that stand out include Core Carbon Principles (CCP), the Integrity Council for the Voluntary Carbon Market (ICVCM), the Voluntary Carbon Markets Integrity Initiative (VCMI), and, in Brazil, **NBS Brazil Alliance**.

¹Source: <https://www.mckinsey.com.br/our-insights/all-insights/mercado-voluntario-de-carbono-tem-potencial-gigantesco-no-brasil>
²Source: VCS, Gold Standard





OBJECTIVE AND RELEVANCE

The information and studies that quantify the voluntary carbon market in Brazil are still scarce, due to its smaller scale and more recent expansion. Data that quantify carbon projects are necessary in order to better understand the social and economic benefits they promote, as well as to scale the carbon credits offered by projects based in Brazil. Therefore, this study, carried out with the organizations that compose **NBS Brazil Alliance**, aims to present a panoramic overview of the voluntary market and the main results of its projects, both registered and in development.

OVERVIEW

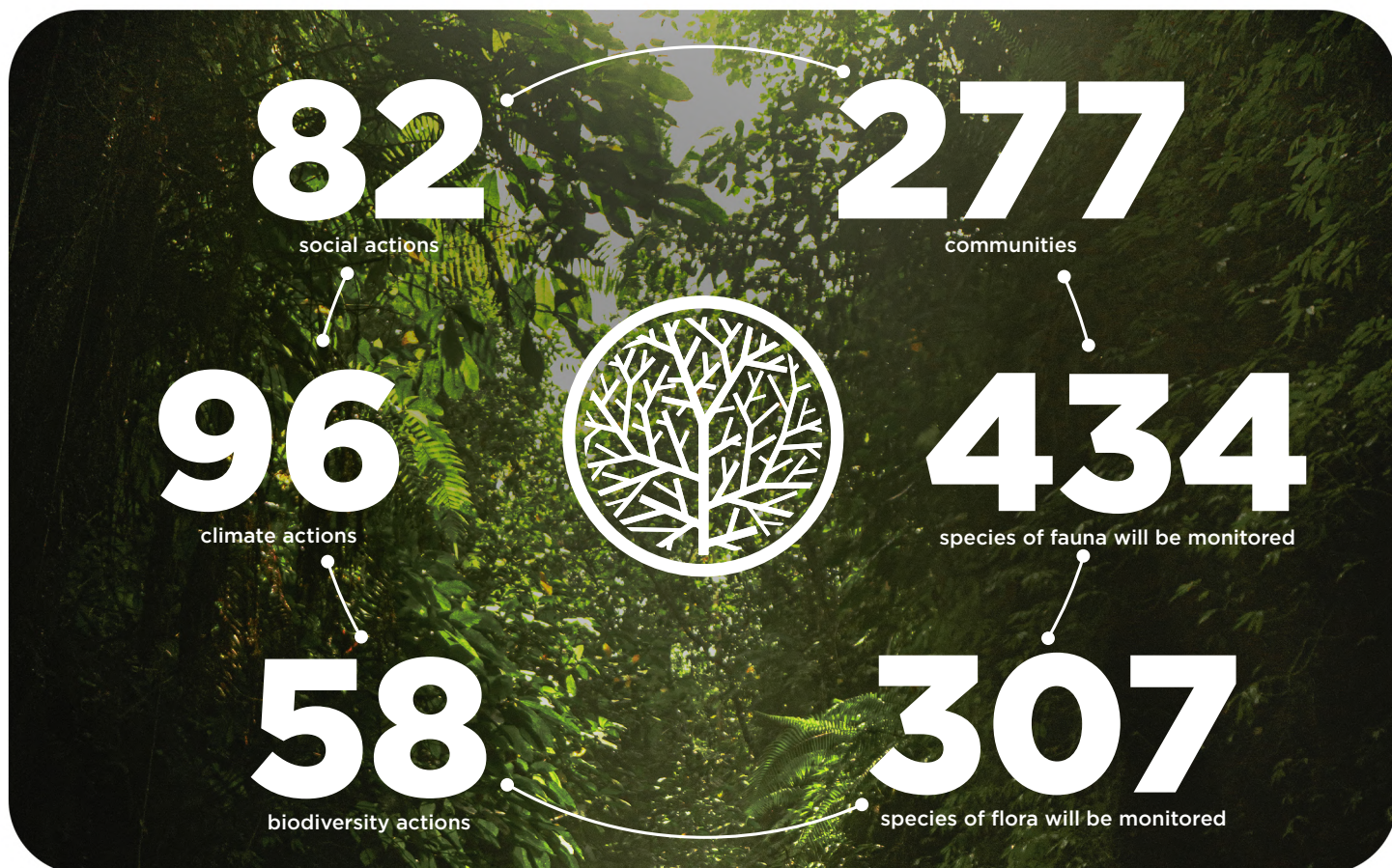
Of the 50 projects included in the sample, 16 were verified, 5 were validated, and 29 are in development. The 16 verified projects sampled in this study have already removed or reduced the emission of **31,829,150 tonnes of CO2 equivalent (CO2e) from the atmosphere.**³ Each tonne of CO2e corresponds to a carbon credit, also known as a VCU (Verified Carbon Unit). The removal/reduction potential of the 21 validated or verified projects is **160,315,355 tonnes of CO2e, totaling 192,144,505 tonnes of CO2 over the total project period.**

There are **2.7 million hectares** monitored and protected from deforestation, mining, and fire, where social, climate, and biodiversity actions are developed, such as training, qualification, and monitoring of fauna and flora. In total, **82 social actions, 96 climate actions, and 58 biodiversity actions** are conducted by the 21 validated and verified projects sampled, with an average of **263 species of fauna** and **223 species of flora** monitored per project.

In addition to the benefits to nature, the projects bring benefits to communities and people, generating a total of **1,397 permanent and temporary jobs** in the certified projects and their surrounding areas, benefiting **228 communities** and **12,561 people.**

The 29 NBS projects in development included in the sample have the potential to reduce or remove **183,620,322 tonnes of CO2 equivalent (VCUs) from the atmosphere, protecting an additional 1.5 million hectares.** These projects are generating **581 permanent and temporary jobs**, and they directly benefit **277 communities** and **41,174 people.** They will develop **99 social actions, 105 climate actions, and 81 biodiversity actions**, and on average **434 species of fauna** and **307 species of flora** will be monitored per project throughout their development.

³One tonne of CO2 equivalent that is prevented from being released or is sequestered from the atmosphere corresponds to a carbon credit, or Verified Carbon Unit (VCU), when the project is registered with the certifier Verra.



SCALING OF THE VOLUNTARY CARBON MARKET IN BRAZIL

The baseline sampling for this study was carried out with 17 organizations operating in Brazil, including 13 companies developing forest carbon projects and 4 third sector organizations. Of the companies developing carbon projects, more than half were founded in the past two years. In other words, from the sample in this survey, six companies were founded between 2000 and 2020, and seven (53.8%) were founded after 2020, a reflection of the second wave of carbon credits and the boom that the market has been experiencing since 2020, with growth in the number of companies developing AFOLU/NBS projects in Brazil.

The 17 organizations employ 1017 collaborators, 23.8% of whom have an MBA or specialization, and 22.3% hold Master's, Doctorate, or PhD degrees, allowing us to infer that there is a high degree of technical knowledge linked to the development of NBS projects. Among collaborators, 35 different areas of training were identified. The most frequent were Forestry Engineering (present at 88.2% of companies), Administration (88.2%), and Environmental Engineering (82.4%), as shown in Table 1, Annex I.

Regarding the project portfolio of the 17 organizations, 41.2% had only one project that was in development, validated, or verified; 41.2% had two to five projects; and a smaller portion (17.6%) had more than five projects, demonstrating the complexity and degree of organizational and time-related development necessary for the preparation, implementation, and maturity of a carbon project. The organizations developing the projects are also, for the most part, the project proponents, as shown in greater detail in Table 1, Annex II.

17
organizations

1017
collaborators employed

41.2%
had two to five projects



CLASSIFICATION PHASES

THE 50 CARBON PROJECTS SAMPLED WERE CLASSIFIED IN THE FOLLOWING THREE PHASES:

I. PROJECTS IN DEVELOPMENT:

29 projects with a contract between the company and the owner of the area already signed.

II. VALIDATED PROJECTS:

5 projects with a Project Description (PD) validated before the registering body, not yet issuing credits, without a verified Monitoring Report (MR).

III. VERIFIED PROJECTS:

16 projects with at least one verified Monitoring Report and issuance of credits.

The 50 projects sampled include 41 REDD+ (82%), eight ARR (16%), and one IFM (2%),⁴ located in 12 different states in Brazil, eight of which are part of the Brazilian Legal Amazon Region. The only state in the Legal Amazon not represented in this sample is the state of Roraima. It is worth emphasizing that carbon projects, whether grouped⁵ or not, can encompass more than one state, which was the case with four projects. The majority of REDD+ projects are located in the states of Pará, Acre, and Amazonas, while ARR projects are more numerous in Bahia. The only IFM project in the sample is located in Pará.

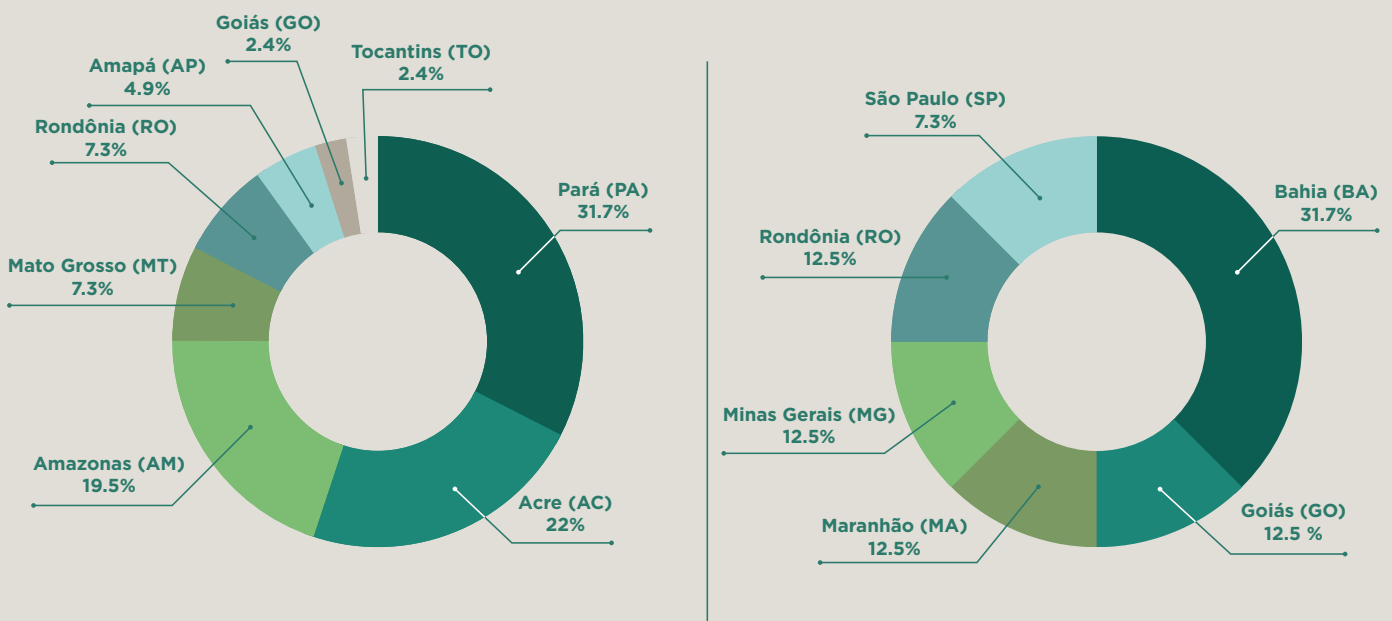


FIGURE 1. STATES WHERE THE SAMPLED REDD+ AND ARR PROJECTS ARE BASED.

⁴Further details in Table 2 (Annex).

⁵Grouped projects share similar characteristics, such as the same proponent and the same technology implemented, and are thus registered jointly. Therefore, grouped projects are composed of instances, which correspond to each of the individual projects that compose the grouped project.

Source: https://www.iccbrasil.org/wp-content/uploads/2022/10/RELATORIO_ICCtBR_2022_final.pdf

2.7 MILLION HECTARES OF PROTECTED AREAS

The validated and verified carbon projects included in the sample protect **2.7 million hectares**, where they develop conservation, restoration, or land use transformation activities. **REDD+ projects are responsible for 99.9% of protected areas.** The projects in development, in turn, will be able to **protect approximately 1.5 million hectares more.**⁶



Of the VCUs that will be generated, on average 26.5% will be directly used for conservation, restoration, or transformation of the area. This percentage is even greater for ARR projects (62.6%).



Of the 50 projects, eight are in areas of traditional communities and extractive reserves, which are partners and co-components of the projects.

98% OF PROJECTS
OPTED FOR
CERTIFICATION
BY VERRA,
AND 2% FOR
CERCARBONO

In addition to the methodology linked to generating credits (Verified Carbon Standard or equivalent), carbon projects based on land use can certify projects with seals that verify the performance of social and environmental actions that bring additional benefits to communities and biodiversity, such as Climate, Community and Biodiversity (CCB), Social Carbon, and Sustainable Development Verified Impact Standard (SD VISTA). Carbon credits with the CCB standard are generally sold at a higher price than those registered solely under the Verified Carbon Standard (VCS).⁷

Therefore, 70% of the projects in the sample have or will jointly have the VCS and CCB seals. This percentage is 75.9% among projects in development, 80% among validated projects, and 56.3% among verified projects, which demonstrates a trend towards adoption of the CCB seal. Further details are shown in Table 4, Annex II.

Of the 35 projects with VCS and CCB seals, 85.7% are REDD+, 11.4% ARR, and 2.9% IFM. Among the 41 REDD+ projects, 73.2% are or will be certified with the CCB seal in addition to the VCS (Table 5, Annex II).



⁶Table 3 (Annex) provides further details on the areas protected by carbon projects, categorized by methodology and development phase.

⁷Source: Ecosystem Marketplace - State of the Voluntary Carbon Market (2022)

SUMMARY

VALIDATED AND VERIFIED PROJECTS PROTECT 2.7 MILLION HECTARES, AS FOLLOWS:



Four REDD+ projects protect 1.5 million hectares in areas of traditional communities and extractive reserves (56% of the total protected areas), reducing the emission of 35 million tonnes of CO2 equivalent (VCUs), and generating 589 direct jobs, both permanent and temporary.



17 projects protect 1.2 million hectares of private properties, reducing total emissions of 156 million tonnes of CO2 equivalent (VCUs) throughout their duration, and creating 808 direct jobs.



Approximately 1.7 million hectares are registered under Verra's Verified Carbon Standard (VCS) and Cercarbono's Protocol for Voluntary Carbon Certification seals, while 1 million are under Verra's VCS and CCB (Climate, Community and Biodiversity Standards) seals, and the Social Carbon seal.

FOR PROJECTS IN DEVELOPMENT:



Three REDD+ projects and one IFM project will protect 419,000 hectares in areas of traditional communities and extractive reserves, with the potential to reduce the emission of 18 million tonnes of CO2 equivalent (VCUs), while creating 167 direct jobs, both permanent and temporary.



17 projects protect 1.1 million hectares of private properties, potentially reducing total emissions of 166 million tonnes of CO2 equivalent (VCUs) throughout their duration and creating 414 direct jobs.



Approximately 1.2 million hectares (80%) will be under the VCS and CCB seals, demonstrating a trend towards adopting community, climate, and biodiversity actions in new projects.



CREATION OF **1,978 DIRECT JOBS**, 596 PERMANENT AND 1,382 TEMPORARY

Direct permanent jobs were quantified in 40 projects,⁸ and direct temporary jobs in 36 projects.⁹ The sample was smaller than the total number of projects, because many projects in development do not yet have direct collaborators integrally working in the project area.

REDD+ projects were responsible for 76.3% of permanent jobs, and 73% of temporary jobs. ARR projects accounted for 23.7% of permanent jobs and 24.8% of temporary jobs. Finally, the IFM project accounted for 2.2% of temporary jobs.

ARR projects showed a higher average number of jobs created per project than REDD+ projects, in both permanent and temporary jobs, due to the fact that forest restoration activities are more labor

intensive. The average among ARR projects was 23.5 permanent jobs and 57.2 temporary jobs, while it was 13.4 permanent jobs and 34.8 temporary jobs among REDD+ projects.

Additionally, validated and verified projects had a higher average number of jobs created than projects in development, demonstrating the potential to increase the number of jobs that will be created in projects in development.



On average, 20.7 permanent jobs¹⁰ and 59 temporary jobs¹¹ are generated by validated or verified carbon projects.



⁸34 from REDD and six from ARR
⁹29 from REDD, six from ARR, and one from IFM
¹⁰Data from 19 projects
¹¹Data from 17 projects

86% OF CARBON PROJECTS MONITOR DEFORESTATION CONTINUOUSLY

86% of validated and verified projects monitor deforestation continuously, and only one project monitors it occasionally, for the purpose of the

Monitoring Report. Two responded that monitoring does not apply.

Deforestation monitoring is carried out in the project area (PA) by eight projects; another eight include the leakage belt, and two monitor the project area, the leakage belt, and the reference region.

Of the projects in development, 47.8% will carry out monitoring in the project area and in the leakage belt; 39.1% in the project area; and 13% in the project area, leakage belt, and reference region.

The projects also monitor fauna and flora. Thus, 39 projects monitor, or will monitor, an average of 342 species of fauna, and 42 projects monitor, or will monitor, an average of 265 species of flora. The data vary depending on the biome; for this reason, a REDD+ project in the Cerrado can monitor as many as 1,022 species of flora, while a REDD+ project in the Legal Amazon intends to monitor up to 1,074 species of fauna.



228 COMMUNITIES AND 12,561 PEOPLE BENEFIT FROM CARBON PROJECTS

228 communities are directly benefited by validated and verified carbon projects, and another 277 communities can benefit from projects in development, totaling 505 communities. The number of communities varies depending on the regional characteristics where the project is being developed, therefore ranging from one community to 80 communities benefited per project. Projects with the CCB or SocialCarbon seal encompass 81% of these communities.¹².

The validated and verified projects benefit 12,561 people, while the projects in development could benefit another 41,174 people, totaling 53,735 people directly benefited.

BUT WHAT ARE THE BENEFITS?

NBS projects support the socioeconomic development of the region where they are located, creating jobs, training, and qualification, in addition to protecting forest areas (preventing agents of deforestation, fire, and mining), and preserving biodiversity. Furthermore, social, climate, and biodiversity actions are carried out. On average, 17% of the VCUs generated are directly invested in social and biodiversity actions.

All projects carry out at least one climate action; the most common is on-site monitoring of projects (94% of the 50 projects). Remote monitoring is also carried out (90% of projects), fire brigade training (60%), preservation of High Conservation Value (HCV) areas whose biodiversity is threatened by climate change (36%), restoration of degraded areas (34%), implementation of agroforestry systems (28%), forest enrichment (28%), restoration of APPs (22%), and sustainable forest management (8%). One project also protects surplus native vegetation in addition to the Legal Reserve.

The number of climate actions per project was largely two (24% of 50 projects) or three (26%) of the actions mentioned above, totaling **201 climate actions, with 105 actions by projects in development and 96 actions by validated and verified projects.**

Of the 50 projects sampled, 96% carry out social and biodiversity actions. This study mapped 17 different types of social actions and 13 types of biodiversity actions, exhibited in Tables 2 and 3 in Annex I, totaling **181 social actions and 139 biodiversity actions, with 82 social actions and 58 biodiversity actions by the 21 validated or verified projects.**

SOME OF THE SOCIAL ACTIONS CARRIED INCLUDE:



Educational lectures on various topics (health, safety, environment); training focused on sustainable management/livestock practices; courses focused on education; strengthening institutional management of organizations representing communities (associations, cooperatives); vaccination and basic health campaigns; installation of solar panels; implementation of communication infrastructure (rural telephone); and places for processing agricultural products (manioc flour houses, fruit processing centers).

THE MOST RECURRING BIODIVERSITY ACTIONS ARE:



Environmental education programs and activities; fauna and flora inventories; fostering of sustainable ecotourism; creation of sanctuaries, reserves, release sites, and ecological corridors; partnerships with the Chico Mendes Institute for Biodiversity Conservation (ICMbio) for monitoring actions in regional conservation units; and support in developing plant nurseries.

¹² 33 projects

GENERATION OF CARBON CREDITS

The verified carbon projects represent 32% of the 50 projects in this study,¹³ which have already issued **31,829,150 VCUs** (or carbon credits) accounting for 6.19% of the AFOLU/NBS VCUs already issued by Verra.¹⁴

Each project's total number of carbon credits varies according to the periodically reviewed baseline, the size of the area being protected, the methodology adopted, and the duration of the project. The duration of forest carbon projects can vary from 20 to 100

years, due to the need to guarantee permanence of the actions being carried out. Forest restoration projects, for example, depend on the growth of individual trees to generate their first credits, which, according to the current methodology, takes at least 10 years.

To estimate the VCUs issued in the short/medium term, the concept of a determined period was used, and, for the sake of simplicity, the projects' baseline will remain the same for the determined period.

DETERMINED PERIOD:

10
YEARS

for REDD+ and
IFM projects

30
YEARS

for ARR projects

The **16 verified projects have already issued 17.4%** of the total VCUs and, by the end of the next 10 years, the verified REDD+ projects will have issued 63.1% of the planned carbon credits, while the ARR projects expect to issue all their credits in the next 30 years.

So far, ARR projects have had a low share in generating credits, but the figures for projects under development and validated point to a significant increase in the supply of forest restoration credits.

The **29 projects under development**, in turn, if validated, will further expand the supply of carbon credits in the Brazilian voluntary market. It's worth pointing out that there are degrees of uncertainty and risk associated with projects under development, which could be unfeasible for any reason, but this data gives an idea of what is being planned. There is also a waiting factor in the validation and verification of projects, which can take from six months to two years to be registered and issue credits. Of the total credits planned for projects under development, 60.9% will have the VCS and CCB seals.

¹³14 from REDD+ and two from ARR

¹⁴The start date of each project varies, which influences the number of credits already issued per project.

PROJECT PHASE/ ISSUANCE OF VCUs	VCUs ISSUED		VCUs IN THE DETERMINED PERIOD			TOTAL VCUs		
	REDD+	ARR	REDD+	ARR	IFM	REDD+	ARR	IFM
IN DEVELOPMENT	---	---	48,869,699	55,009,138	5,703,860	110,600,197	67,316,265	5,703,860
VALIDATED PROJECT	---	---	8,038,361	800,000	---	8,334,600	800,000	---
VERIFIED MR	31,811,043	18,107	83,531,679	257,742	---	182,752,163	257,742	5,703,860
SUBTOTAL	31,811,043	18,107	140,439,739	56,066,880	5,703,860	301,686,960	68,374,007	5,703,860
TOTAL	31,829,150		202,210,479			375,764,827		

TABLE 6. PROJECTED VCU ISSUANCE BY REGISTERED CARBON PROJECTS AND PROJECTS IN DEVELOPMENT

ANNEX I

CHART 1. AREAS OF TRAINING OF THE ORGANIZATIONS' EMPLOYEES

Number of training areas cited	Areas of training	Number of organizations that cited the area	Participation in the total number of organizations sampled
1	Management	15	88.20%
2	Forest Engineering	15	88.20%
3	Environmental Engineering	14	82.40%
4	Agronomy	13	76.50%
5	Economy	13	76.50%
6	Biology Sciences	12	70.60%
7	Geography	10	58.80%
8	Law	8	47.10%
9	Information Systems (IT)	4	23.50%
10	Social Sciences	3	17.60%
11	Anthropology	2	11.80%
12	Environmental Sciences	2	11.80%
13	Accounting Sciences	2	11.80%
14	Oceanography	2	11.80%
15	Psychology	2	11.80%
16	International Relations	2	11.80%
17	Architecture	1	5.90%
18	Social Assistance	1	5.90%
19	Communication and Marketing	1	5.90%
20	Ecology	1	5.90%
21	Civil Engineering and Work Engineering	1	5.90%
22	Food Engineering	1	5.90%
23	Electrical Engineering	1	5.90%
24	Physical Engineering	1	5.90%
25	Sanitary Engineering	1	5.90%
26	Engineering in General	1	5.90%
27	Philosophy	1	5.90%
28	Physics	1	5.90%
29	Geology	1	5.90%
30	Environmental Management	1	5.90%
31	Public Policy Management	1	5.90%
32	Marketing	1	5.90%
33	Education	1	5.90%
34	Public Relations	1	5.90%
35	Human Resources	1	5.90%

CHART 2. SOCIAL ACTIONS CARRIED OUT OR PLANNED		Number of projects that carry out or will carry out the action
1	Educational lectures on various topics (health, safety, environment, etc.)	38
2	Training focused on sustainable management/livestock practices	31
3	Courses focused on education	30
4	Strengthening institutional management of organizations representing communities (associations, cooperatives)	24
5	Vaccination/basic health campaigns	23
6	Installation of solar panels	17
7	Implementation of communication infrastructures (rural telephone) and places for processing agricultural products (manioc flour houses, fruit processing centers)	3
8	Courses focused on preventing and fighting forest fires	2
9	Courses focused on regenerative agriculture	2
10	Internet installation	2
11	Providing infrastructure	2
12	Training in the production and processing of socio-biodiversity products	2
13	Job creation	1
14	Installation of cisterns	1
15	Low-carbon vertical livestock workshops	1
16	Projects for i) income generation and diversification ii) training and knowledge exchange iii) community strengthening	1
17	Regularizing resident families' land ownership	1

CHART 3. BIODIVERSITY ACTIONS CARRIED OUT OR PLANNED		Number of projects that carry out or will carry out the action
1	Environmental education programs/activities	39
2	Fauna inventories	38
3	Flora inventories	38
4	Fostering sustainable ecotourism	6
5	Creation of sanctuaries, reserves, release sites, and ecological corridors	5
6	Partnerships with the ICMBIO for monitoring actions in regional conservation units	3
7	Support in developing plant nurseries	2
8	Training seed collectors	2
9	Study/monitoring of biodiversity via eDNA	2
10	Local extraction practices	1
11	Fostering productive chains	1
12	Establishing corridors	1
13	Habitat recovery	1

ANNEX II

TABLE 1. DISTRIBUTION OF PROJECTS IN WHICH ORGANIZATIONS ARE BOTH DEVELOPERS AND PROPONENTS OR ONLY DEVELOPERS

	Projects	%	In development	Validated project	Verified MR
Developer and Proponent	41	82.00%	23	4	14
Project Developer only	9	18.00%	6	1	2
	50	100.00%	29	5	16

TABLE 2. TYPES OF PROJECTS SAMPLED AND PHASES OF DEVELOPMENT

Type of Project	Projects	%	In development	Validated project	Verified MR
REDD+	41	82.00%	23	4	14
ARR	8	16.00%	5	1	2
IFM	1	2.00%	1	-	-
	50	100.00%	29	5	16

TABLE 3. AREAS PROTECTED BY CARBON PROJECTS IN HECTARES, CATEGORIZED BY METHODOLOGY AND DEVELOPMENT PHASE

Protected area (hectares)	REDD+	ARR	IFM	Total
In development	1,105,203	185	208	1,498,611
Validated project	754	2	-	756
Verified MR	1,953,408	668	-	1,954,076
Total	3,812,282	188	208	4,208,358

TABLE 4. PROJECT SEALS BY DEVELOPMENT PHASE

Standard	Projects	%	In development	Validated project	Verified MR
Social Carbon	1	2.00%	-	-	1
VCS	11	22.00%	5	1	5
VCS + CCB	35	70.00%	22	4	9
Cercarbono's Protocol for Voluntary	1	2.00%	-	-	1
Carbon Certification	2	4.00%	2	-	-
	50	100.00%	29	5	16

TABLE 5. PROJECT SEALS BY METHODOLOGY

Standard	Projects	%	REDD+	ARR	IFM
Social Carbon	1	2.00%	1	-	1
VCS	11	22.00%	9	2	-
VCS + CCB	35	70.00%	30	4	1
Cercarbono's Protocol for Voluntary	1	2.00%	1	-	-
Carbon Certification	2	4.00%	-	2	-
	50	100.00%	41	8	1

CONTEXT OF THE VOLUNTARY CARBON MARKET IN BRAZIL

BRIEF HISTORY OF THE EMERGENCE OF THE CARBON MARKET

The idea of carbon credit emerged with the Kyoto Protocol (1997), where developed countries began to have targets for reducing greenhouse gas (GHG) emissions. In the event that targets were not met, they could be achieved by purchasing the reduction surplus of countries that had already exceeded their target. In the Kyoto Protocol, only developed countries had reduction targets.

As the majority of countries did not reach their emissions reduction targets, the possibility of purchasing surplus resulted in the monetization of tonnes of carbon and the financing of emission mitigation projects in developing countries. In this context, financing mechanisms emerged, such as the Amazon Fund, and the UNFCCC Clean Development Mechanism (CDM) was established, which began to support the idea of exchanging avoided or sequestered carbon for money, a practice called offsetting, in other words, compensating for emissions through the purchase of credits from carbon projects.

The sale of carbon credits can be considered an indirect investment in projects and actions that are reducing emissions or sequestering greenhouse gases, which would not currently occur without the contribution of this resource.

In 2015, the Paris Agreement brought about changes to the agreements established in the Kyoto Protocol. The main novelty was that all signatory countries, whether developed or developing, now have emissions reduction targets or Nationally Determined Contributions (NDCs).

Problems then arose related to already established mechanisms, such as the Amazon Fund, and the accounting and offsetting of emissions between federal jurisdictions.

As an example, Brazil, in having its own NDC, made a commitment to invest its own resources to achieve its emissions reduction target, not being able to commercialize any reduction (like other countries) before it had quantified and obtained a surplus reduction in greenhouse gas emissions relative to its target.

A country's emissions are quantified by means of a national inventory of different production and service sectors, such as refineries, steel mills, agriculture, livestock, transport, etc. Developed countries, which have had emission reduction targets since the Kyoto Protocol, then created federal laws to establish emissions limitations by sector, which characterizes regulated carbon markets.

The sources of Brazilian emissions can be classified into five broad categories: industrial processes, waste, energy, agriculture, and changes in land use¹⁵, the latter being the one that emits the most GHG in Brazil. The **Greenhouse Gas Emissions and Removals Estimation System (SEEG)**, an initiative of the Climate Observatory, has historical data on annual estimates of GHG emissions in Brazil since 1990.

Currently, Brazil is in the process of regulating its carbon market, called the Greenhouse Gas Emissions Trading System (SBCE), a bill on which is being debated by the productive sectors and the executive and legislative branches.

¹⁵ https://plataforma.seeg.eco.br/total_emission

VOLUNTARY MARKET AND CERTIFICATION

The voluntary carbon market followed the international scenario of interest in carbon credits in two large waves. The first wave emerged after the Kyoto Protocol, and the second, more recent wave, resulted from the Paris Agreement and the global climate emergency scenario. There is also a growing interest in ESG (Environmental, social and Governance) practices and Net-Zero mechanisms, which add value to the production chain and meet consumer demand for environmentally sound products.

In 2007, Verra emerged, a non-governmental organization that became the largest certifier of voluntary carbon projects in the world, responsible for 90,53%¹⁶ of carbon credits historically issued in the Agriculture, Forestry, and Other Land Use (AFOLU) category, through the Verified Carbon Standard (VCS) seal. Verra currently has 2,042 registered projects, with different types (AFOLU, chemical industry, construction, energy, metallurgy, transport, etc.), and more than 1.1 billion VCUs issued. A little more than 50% of these credits have already been retired¹⁷, or be it, they have been removed from the market.

The role of certifiers is to present methodologies for validating, verifying, and reporting what is actually being reduced or sequestered by carbon projects, which includes a third-party auditing process, transparency through public consultations and monitoring of benefits, and systems of credit registration, guaranteeing and tracking the integrity of carbon credits issued and sold. Other certifiers and seals have joined the voluntary market, including some that are already more established, such as the American Carbon Registry (ACR), the Climate Action Reserve (CAR), Plan Vivo, and the Gold Standard, as well as new ones that are emerging, such as Social Carbon, BioCarbon Registry, and Cercarbono.

AFOLU/NBS carbon projects can follow different methodologies: avoided deforestation (REDD+),

forest restoration (ARR), agricultural land management (ALM), forest management (IFM), and blue carbon being the best known. In Brazil, REDD+ and ARR projects are the most widespread. REDD+ projects avoid GHG emissions by preventing areas of native forest facing the threat of deforestation from being converted to other uses. As previously mentioned, land use change is the category that most contributes to emissions in Brazil, according to SEEG data. Restoration in turn sequesters carbon by planting (total or partial) or encouraging the regeneration of native and biodiverse species of trees, which will store forest biomass.

In any type of carbon project, the proponent must calculate the risk of impermanence of the project, in addition to proving the additionality of the project compared to the business-as-usual (BAU) scenario. For REDD+ projects, it is also necessary to calculate the baseline, which is the projection of deforestation in the project region, making it possible to calculate the percentage of deforestation avoided in the project area (PA), where the tonnes of CO₂ equivalent prevented from being emitted; based on this, the carbon credits that will be generated are measured.

Carbon projects must describe and monitor climate, social, and biodiversity actions, as well as the communities benefiting from the projects, and present evidence of consultations and agreements reached with actors, in a process called stakeholder consultation. For projects carried out in public areas and in partnership with Indigenous peoples and traditional communities, it is necessary to conduct a free, prior, and informed consent process.

All definitions, calculations, actions, and benefits of carbon projects must be described in the project description (PD), which is open to scrutiny on the part of peers during the project's public consultation period. After the project is validated, it must periodically present the Monitoring Report

¹⁶ Source: <https://climatefocus.com/initiatives/voluntary-carbon-market-dashboard/>

¹⁷ Source: <https://registry.verra.org/app/search/VCS>

(MR), which, once validated, provides permission to issue and sell credits. Once sold, carbon credits can either be retired by the certifier, permanently leaving circulation, or transferred to an account

other than the developer's, at which point they can subsequently be retired or resold by intermediaries (secondary market).

REGULATION OF THE CARBON MARKET IN BRAZIL¹⁸

The regulated carbon market aims to establish, through federal regulation, a system that coordinates productive sectors to achieve the Brazilian target for reducing emissions signed in the Paris Agreement (2015). Regulated carbon markets are a pricing instrument used by governments to put an explicit price on carbon and make regulated entities pay for their emissions.

Simply, within the regulated market, a quantitative limit is imposed on the emissions of regulated entities, and emission permits compatible with this limit are generated, which are then sold or distributed free of charge, allowing regulated entities to transact them among themselves. Annually, regulated sources have to reconcile their emissions with a total equivalent number of emission permits.

This model, denominated "Cap and Trade" and adopted by the regulated market in Europe (EU ETS) and the State of California, focuses on the objective of establishing and regulating a specific market for certain economic sectors, imposing limits (caps) and GHG emission permits, enabling market mechanisms between regulated entities and market operators (trade).

The market mechanism allows the regulated entity to decide between internal emissions reduction and purchase of allowances (according to which is more economically viable). Furthermore, each system defines whether or not it is possible to purchase carbon credits to offset unavoidable emissions.

THUS, GHG EMISSION PERMITS IN REGULATED SECTORS OCCUR THROUGH A NATIONAL ALLOCATION PLAN, OBSERVING CRITERIA SUCH AS:

A The establishment of global and sectoral emission targets, with quantitative emission limits related to the trading system, compatible with the emissions profile

B Rules for calculating the annual limits corresponding to each regulated entity

C The sectors, entities, and GHGs to be regulated

The voluntary carbon market, in turn, is made up of project proponents and developers, certifiers, auditors, financiers, and traders, who facilitate and prepare **voluntary projects** to reduce or remove tonnes of CO₂, and who sell the credits on the global market. In other words, it is a market in which the climate benefit is generated regardless of a legal obligation.

Having made these distinctions, the regulated and voluntary markets must be treated complementarily. If, in the regulated system, an obligation is imposed to reduce GHG, in the voluntary system, it is possible to increase climate ambition and reduce GHG in a supplemental manner.

¹⁸For more information: Technical Note - Overview of Carbon Markets: Objectives, Dynamics and Performance (CEBDS, 2020). Available at: <https://cebds.org/wp-content/uploads/2023/06/cebds.org-visao-geral-dos-mercados-de-carbono-objetivos-dinamicas-e-desempenho-20201026-nota-tecnica-webinar-marco-regulatorio-mercado-carbono-1.pdf>



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