MID-TERM EVALUATION REPORT ON THE EFFECTIVENESS OF THE AMAZON FUND

THEMATIC STUDY OF PROJECTS SUPPORTING THE RURAL ENVIRONMENTAL REGISTRATION (CAR)

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SUMMARY

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EXECUTIVE SUMMARY

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The Amazon Fund has allocated R$ 332 million to 17 projects; including the supported municipalities, according to data in the National Rural Environmental Registry System (SICAR), 1,2 million properties from up to four tax modules were identified and registered (4MF) in the Rural Environmental Registry (CAR). This support corresponds to 38% of the Amazon Fund's Monitoring and Control component and led to the registration of about 40.9 million hectares in SICAR.

The analysis of the projects supported by the Amazon Fund from 2014 to 2018, showed the expansion of the registered properties up to 4MF by 24% in the Amazon biome and 22% in the Cerrado. Considering the expansion of the total area of the properties, an increase in deforested areas was also observed; 25% in the Amazon biome and 28% in the Cerrado.

Considering the expansion of the towns supported by the Fund, an increase in deforested area was also observed, of 0,71% in the Amazon and 0,93% in the Cerrado biome respectively, in relation to the registered area in the two biomes, without large variations over time. Within the last three years, small rural properties up to 4MF contributed to 10% and 16% of the total deforested area, respectively, in the Amazon and Cerrado biomes. This data is crucial for measuring the contribution to deforestation on properties registered in SICAR, by projects supported by the Amazon Fund, which will be presented below. Comparisons between deforestation rates up to 4MF in and out of SICAR indicated that the rate of deforestation in unregistered rural properties (2.1% in the Amazon and 2.4% in the Cerrado) is higher than those of registered properties (0.71% in the Amazon and 0.93% in the Cerrado.

Following the methodology used by the Brazilian Ministry of Environment (MMA) to calculate the results of the Amazon Fund based on CO_2 reduction per deforestation, CAR supported projects have contributed to preventing the deforestation of 8,571 km² in the Amazon and Cerrado biomes from 2014 to 2018, which corresponds to 404 million tonnes of avoided CO_2.

The projects were fundamental to support the introduction of small properties into the SICAR database, reaching regions where there is little state presence. Today CAR is used in the supported states as the initial stage of environmental licensing, and for the most part, it is used for monitoring and inspection actions. It is important to implement incentives for compliance with and adaptation of the Forest Code, which can decisively contribute to changing the observed deforestation rates. The projects also contributed to the definition of key regulatory frameworks for the Forest Code.

Although the initial positive results in terms of use of the register, the process of CAR analysis is an important subsequent step for safe monitoring and accountability of illicit environmental territorial planning, including in priority areas for conservation and restoration, and in the conservation of ecosystem services.

Through interviews with project managers, it was possible to identify positive impacts and challenges arising from the project, directly or indirectly, intentional or involuntary:

- As stated in the previous topic, CAR supported projects have contributed to avoiding 8,571 km² of deforestation in the Amazon and Cerrado biomes from 2014 to 2018,

which is respectively, 8,244 km² of deforestation avoided in the Amazon and 327 km² in the Cerrado, which corresponds to 404 million tonnes of CO_2 avoided.

- Interiorization of environmental management: the registration of properties up to 4MF has allowed part of the rural population to have access to information on the Forest Code and state governments making progress in public policy, either through project beneficiaries or the towns where the activities are performed;
- Improved ability to identify property owners. Prior to CAR, identification, directly related to accountability, was based on land data. Part of the land data is outdated in the supported states;
- All states include CAR as the initial step in the environmental licensing process. This is a requirement established in the Forest Code and has advanced with the increased capacity to manage databases.
- Advances in the articulation between different government agencies. Partnerships between state environmental agencies (OEMAs) and technical assistance and rural extension were observed, as well as agencies that elaborate and implement public policies.
- Increased pressure on land agencies, which will also need to advance land regularization within the CARs analysis process that presents overlap.
- CAR articulation with Ecological-Economic Zoning (EEZ) in the states of Acre, Roraima and Rondônia. The database was used to update Acre's EEZ and is being used in Roraima to identify priority areas for conservation.
- Increased possibility of small farmers' access to rural credit as it is conditional on the CAR (BACEN Resolution 4663/2018)

Projects in the state of Pará contributed to the establishment of the Xingu Sustainable Meat Seal, with Mafrig's and Walmart's participation, with support from the Moore Foundation. The various registrations carried out by the projects made it possible to foster the Seal's creation.

The project exchange workshop held within the scope of the study identified that support from the Amazon Fund was fundamental for the implementation of environmental regularization policy, providing states and partners with the physical and human capacities to implement the policy. It is evident that with the progress in the implementation of the environmental regularization policy based on technological solutions, physical and human capacities, and operational infrastructure, there has been a strong advance in property regularization (registration phase). The states achieved notable synergetic results, as explained below. The full report of the Exchange Workshop is available in Annex 7.10.

1. The municipalization of politics is an example of the federative pact advances, which highlight the contributions of the projects not only to the policy of environmental law regularization, i.e. Law 12.651 / 2012 and its regulation, but advancing also in the sense of diffusing environmental rights and national environmental policy, when towns assume attributions related to registration/ analysis and consequently to environmental licensing;
2. The constitution of the rural real estate database is an unquestionable asset in the hands of states, towns and society. Certainly, the current database has the potential

to create opportunities for valuing ecosystem services, standardize incentives and payment policies for environmental services;

3. The obtained results point to the integration vocation between CAR and other policies;
4. The integration of land and environmental management is irreversible and necessary for better operation, application and efficiency of land and environmental policies;
5. Current and future stages in the environmental regularization policy will depend on support and state environmental agencies' needs for physical and human resources to advance the scale of the analysis, especially in conjunction with rural society. Additionally, such regularization policy will require programs and solutions that make it possible to recover environmental liabilities – the development of efficient and economically viable restoration techniques;
6. The population most vulnerable due to social issues and geographical isolation still needs attention in the registration phase.

1. INTRODUCTION

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The Native Vegetation Protection Law, known as the Forest Code (Law 12,651 / 2012), established general rules for the protection and use of native vegetation in the Brazilian territory and established the Rural Environmental Registry (CAR). The CAR is a mandatory electronic registration for rural properties and possessions, which integrates property information, enabling the Federal Government and state environmental agencies to identify not only the location of each rural property but also their compliance to the environmental requirements of the Forest Code by mapping the areas of permanent preservation (APP) and legal reserve (RL). Property Registration of rural areas is the first stage of the environmental regularization process and generates data for controlling, monitoring, environmental and economic planning as well as deforestation enforcement, as described in the Forest Code.

Given its importance, the Amazon Fund has, since 2011, supported CAR implementation, within the Monitoring and Control Component of its Logic Framework. It is worth mentioning that this component has the largest disbursement of funds from the Fund's resources, resulting in R$ 724 million (46%) of project support.

In addition to enabling the implementation of CAR through projects, the Amazon Fund increased support for other processes provided for in the Forest Code, such as the analysis and approval of the Environmental Regularization Programs (PRA) and Recovery Plans for Degraded and Altered Areas (PRADA). According to its Annual Report[1], the Fund supported 17 projects, which together totaled to R$ 387 million in investments in 2017 – representing 53% of the total amount invested in the Monitoring and Control Component.

This report presents the results of the impact assessment of CAR projects supported by the Amazon Fund. Evaluating the effectiveness of these projects is necessary to understand their results and impacts, showing the lessons learned and the challenges that need to be overcome, in addition to elaborating recommendations for future Amazon Fund phases.

1 Amazon Fund Annual Report 2018 (RAFA 2018) available in: http://www.fundoamazonia.gov.br/export/sites/default/pt/.galleries/documentos/rafa/RAFA_2018_port.pdf.

2. STUDY GUIDELINES AND METHODOLOGY

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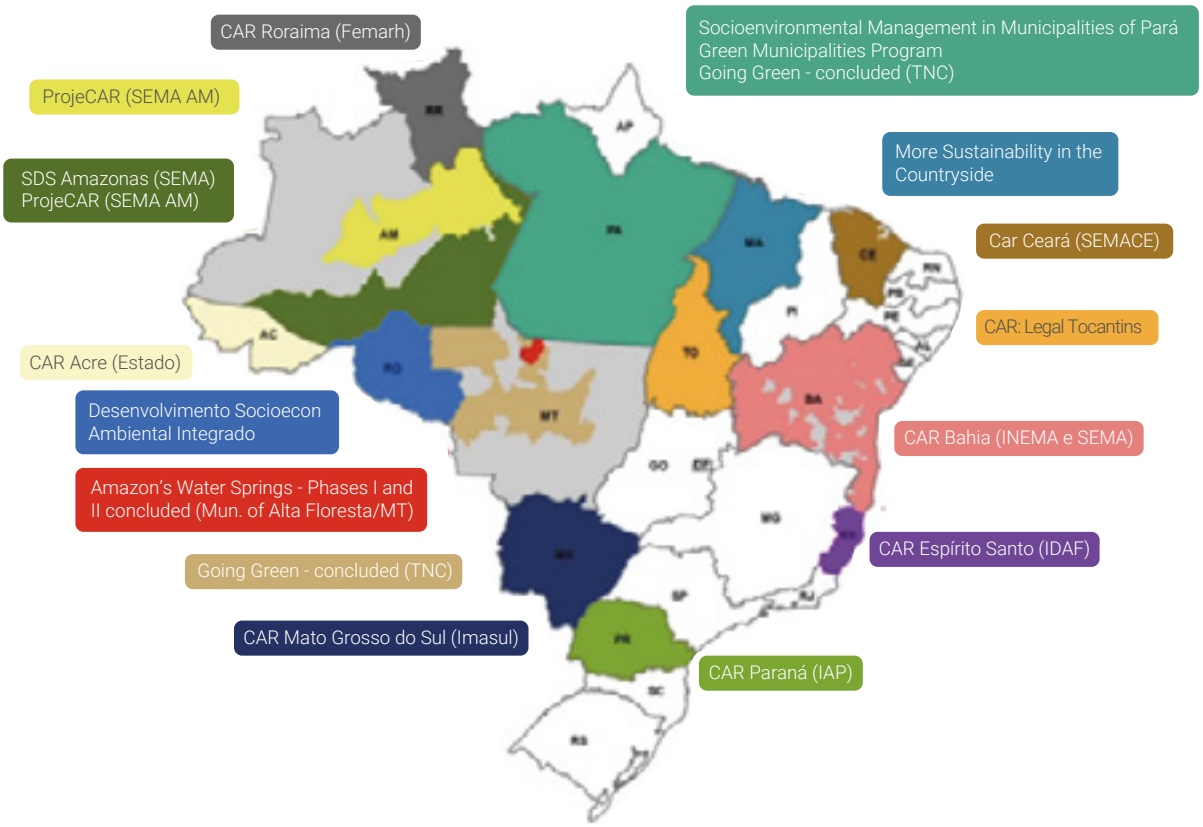
The design of this study will follow the guidelines of the Conceptual Effectiveness Evaluation Framework for projects supported by the Amazon Fund[2] (Image 1).

Image 1 – Projects that include CAR actions in the Amazon Fund.



CAR projects supported by the Amazon Fund

Source: Own elaboration based on data from projects supported by the Amazon Fund / BNDES. Available at: http://www.fundoamazonia.gov.br/pt/carteira-de-projetos/busca/index.html?reloaded&facet_category_exact=tema/cadastro-ambiental-rural-car/.

The Terms of Reference (ToR) of the Rural Environmental Registry (CAR) guides the collection of quantitative and qualitative data for CAR implementation in projects supported by the Amazon Fund, taking into account the nature of the responsible executor (state/municipal government, or third sector organization) and the different purposes of the projects, observing the following supported actions related to the project results:

- Support for CAR registration of small farms or family rural holdings up to four fiscal modules (4MF);

2 Available in: http://www.fundoamazonia.gov.br/export/sites/default/en/.galleries/documentos/monitoramento-avaliacao/FA_Marco_Conceitual_Avaliacao_Efetividade_Projetos_2016.pdf. Accessed January 2019.

- Support for the integration of state CAR systems with the Rural Environment Registration System (SICAR) and the adaptation of the Analysis and Monitoring complementary modules for state Environmental Regularization Programs (PRA) management;
- Support for CAR application approval activities;
- Support for the preparation of the Recovery of Degraded and Altered Areas Plan (PRADA).
- Support for the structuring and operationalization of regular rural property monitoring in their permanent preservation areas (APPs) and legal reserve (RL).

The ToR also defines that the study should observe the following aspects related to the projects' direct outcomes:

- The main contributions of the registration process, taking into account CAR/PRA's goals and purposes, from 2008 to 2018;
- Did support from the Amazon Fund optimize CAR implementation and what were its contributions to the implementation of this process?
- Did support from the Amazon Fund accelerate the structuring of regulatory states instruments regarding the implementation of Law 12.651 / 2012, with emphasis on the Environmental Regularization Programs (PRAs)?
- Treat these projects differently that have already been analyzed by CAR and / or areas recovering through support from the Amazon Fund during analysis, as they will have different results and interpretations.

Considering the guidelines of the Conceptual Project supported by the Amazon Fund Effectiveness Assessment Framework and the ToR guidelines, the study raised quantitative (spatial geo-processing analysis of the CAR database) and qualitative (impact analysis and the use of CAR in public policy) information.

2.1. SPATIAL ANALYSIS OF THE CAR DATABASE

Geo-processing analysis sought to evaluate the dynamics of native vegetation loss (deforestation) in the set of properties up to 4MF registered by Amazon Fund supported projects.

The vegetation loss analysis in the CAR projects were performed separately for the Amazon and Cerrado biomes in ten projects supported by the Amazon Fund (Table 1), and two projects with areas in both biomes. CAR Roraima (Femarh), More Rural Sustainability (MA State), CAR Espírito Santo (IDAF) and ProjeCAR (SEMA AM) did not start with the CAR implementation. The Olhos D'água (MT) project did not have information on the date of registration for CAR properties; for this reason, they were not included in the analysis.

The CAR area projects were cross-examined with meters of resolution deforestation data *(raster)* obtained from the Brazilian Amazon Forest Deforestation Monitoring Satellite Network Project (Prodes Amazônia and Prodes Cerrado[3]) for the period of 2014 through 2018. Although CAR projects supported by the Amazon Fund started in 2012, the annual area and CAR data are only available from 2014 at SICAR[4], where it is possible to capture data about the CAR registry entries carried out in the supported project areas. The most recent data made available by PRODES Amazônia and Cerrado for the year 2018 were used in the analysis. The accounting for deforested area considered every year from the year of property entry in CAR. For example, a property registered in CAR in 2014 has its annual deforested area accounted for in 2014, 2015, 2016, 2017 and 2018. A property registered in CAR in 2017, however, has deforested area accounted for only in 2017 to 2018 deforestation reports.

Table 1 – CAR projects supported by the Amazon Fund analyzed regarding deforestation dynamics

Cerrado Biome	Tocantins Legal (State) CAR Bahia (INEMA and SEMA) CAR Mato Grosso do Sul (Imasul) Going Green – Completed (TNC)
Amazon Biome	CAR Acre (State) Tocantins Legal (State) Social and environmental management of mun. PA – completed (Imazon) Green Municipalities Program SDS Amazonas (SEMA) SEMAS Para Going Green – Completed (TNC) Integrated Environmental Socioeconomic Development Rondônia (State)

Source: Amazon Fund Website. Available at: http://www.fundoamazonia.gov.br/pt/carteira-de-projetos/busca/index.html?reloaded&facet_category_exact=tema/cadastro-ambiental-rural-car/.

For the purpose of having a deforested area parameter in the registrations performed by the projects, deforestation was calculated in another territorial category. The comparison was in the project region itself, as it considers the specificities of each region, according to the land situation similarity. Thus, the Land Management database (SIGEF)[5] (INCRA, 2018) was chosen, using properties up to 4MF, removing overlap with the project's CAR. The comparison was made based on the percentage of deforested area because the absolute areas of these categories are not comparable.

3 Data available for Amazon and Cerrado biomes at: http://terrabrasilis.dpi.inpe.br

4 It should be considered that for this analysis, data collection from environmental rural areas in SICAR took place in June 2019.

5 The Land Management System (SIGEF) is a tool aimed at land registration. It was developed by the National Institute for Settlements and Agrarian Reforms (INCRA) and through it the validation, organization and regularization of georeferenced information about rural, public and private real estate can be made. Through the available data in this system, it is possible to analyze geographic overlaying.

Replicating the methodology for calculating Amazon Fund results from deforestation emission reduction (MMA 2018), applied by the Ministry of the Environment (MMA) and approved by the Amazon Fund Technical Committee (CTFA), calculations were made for avoided emissions from CARs carried out in the towns of the projects supported by the Fund. To this end, a baseline was built by project groups from the year of creation in the register. Some adjustments were made to the methodology due to a lack of available data. The baseline for the 2011-2015 period was the average deforestation of the previous ten years (2001 to 2010). The baseline for 2016 to 2020 has been calculated using the average of the previous ten years (2006-2015). Avoided deforestation was calculated using the difference between deforestation and baseline. For deforestation conversion in avoided emissions, the value of 132.3 tonnes of carbon per hectare was adopted by Decree 7.390 / 2010 regulating the National Policy on Climate Change. For the Cerrado biomes, the values were of 39.92 carbon tonnes per hectare (Ottmar et al., 2001; Miranda et al., 2014), used in the Third National Inventory, and the carbon to CO_2 conversion factor was 44/12, as used by the Amazon Fund.

Within all analyzes, it is important to consider that the CAR is still in implementation and that these are preliminary results of their impact on the deforestation dynamics. All properties must be registered and analyzed so that an impact analysis of the fully implemented instrument on land use dynamics can be conducted.

2.2. QUALITATIVE ANALYSIS OF CAR PROJECTS

The qualitative analysis seeks to understand the impacts of the projects on CAR use in public policy regarding (1) Monitoring and Control; (2) Territorial and Land Ordering; (3) Biodiversity Conservation and Ecosystem Services; (4) Economic aspects; (5) Normative Instruments; and (6) Governance. Aspects related to governance will be observed both within the project implementation strategy and the enabling conditions for project sustainability. Regarding the impacts related to the use and change in land cover, inferences will be made within the limit of temporal behavior and the data available to this assessment.

The data collection for the indicators took place through interviews guided by a semi-structured questionnaire (Annex 7.8) with short multiple-choice style questions and three possible answers categories, classified as A, B, or C. In Category A – were responses in which all conditions are being met, in B – those that indicate intermediate compliance, and in C -- those that indicate non-compliance with the conditions recommended in the indicators. When the question does not apply to the state, the designation Not Applicable (NA) was used. The open-ended questions served to identify learning opportunities, challenges and recommendations.

The qualitative part was conducted with the project implementers in the State Environmental Agencies Organization (OEMAs). This clipping took place in order to understand the impacts of registrations supported by the Amazon Fund on state public policies. Participants were the project representatives from the following states: Acre (AC), Amazonas (AM), Bahia (BA), Ceará (CE), Espírito Santo (ES), Maranhão (MA), Mato Grosso doSul (MS), Pará (PA), Paraná (PR), Rondônia (RO) and Roraima (RR) (Interviewee List - Annex 7.9). It is important to highlight that the states of AM, ES, MA and RR are in the early stages of project implementation, which restricts the possibility of generating impacts on some evaluated matters. The state

of Tocantins (TO) did not conclude the interview and, therefore, could not be considered in this analysis.

A case study was conducted on the projects carried out in the state of Pará. Interviews were carried out with the implementers of the Green Municipalities Program and "SEMAS PA" projects, both done by the Secretary of State for the Environment of Pará (SEMAS), and the project managers of the project "Social and Environmental Management of Pará", executed by the Institute of Man and Environment (Imazon), and the Going Green project, conducted by The Nature Conservancy (TNC), which is responsible for its implementation in the state.[6] In addition to the implementers of the aforementioned projects, other state agencies and partners of the CAR implementation process were interviewed as well.

In order to capture the collective understanding of project impacts and the Exchange Workshop with all CAR project implementers supported by the Amazon Fund, the SWOT Matrix - Strengths, Opportunities, Weaknesses and Threats methodology was used. The main results, challenges and impacts were assessed from a shared perspective, as well as lessons learned, and recommendations shared with the Amazon Fund. In particular, the exchange workshop had the following goals:

- Exchange experiences on policy implementation;
- Identify how support from the Amazon Fund has optimized CAR implementation;
- Identify how support from the Amazon Fund has accelerated the structuring of instruments for state regulations, especially PRAs;
- To what extent have direct project objectives been or will be achieved? Which factors are most important to this achievement?
- Identify what is changing with CAR implementation (What changes may be identified in reality?)
- Generate insights regarding the effectiveness and impacts of these projects;
- Identify which strategies can be adopted and reinforced for the sustainability of politics and;
- Collect cost-effective data and information on the results achieved – investments made economically x results achieved in a satisfactory manner.

6 The TNC project was implemented in the states of Pará and Mato Grosso.

3. RESULTS

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In this section, the first topic will look at deforestation behavior in project areas supported by the Amazon Fund. The quality of the CAR was examined through the identification of overlaps, the evolution of deforestation between 2014 and 2018 in the supported areas, according to the methodology described in the previous section, and finally, the contribution of the projects to avoid deforestation and CO_2. In the next topic, qualitative results on projects' support will be evaluated.

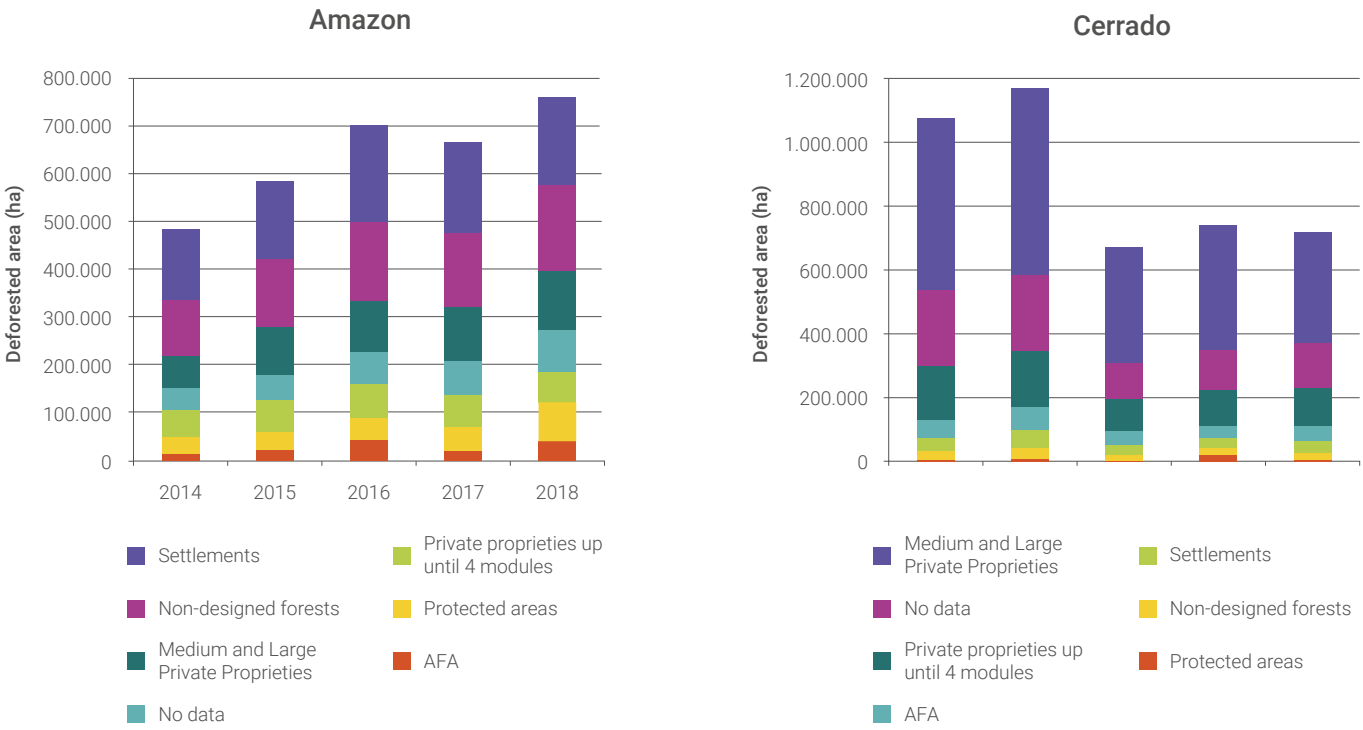
3.1 DEFORESTATION DYNAMICS IN PROPERTIES WITH CAR UP TO 4 FISCAL MODULES

Based on data available from SICAR and analysis of project areas supported by the Amazon Fund, 1.2 million CARs were identified out of a total of 40,992,419 registered hectares, of which 5% have some degree of overlap. Clearing the basis for removing overlaps that could impact deforestation analyzes, there was a 3% reduction in the number of properties and 5% in the total area of properties as shown (Annex 7.1). This demonstrates the low degree of CAR overlap in the supported areas. Nonetheless, it is necessary to consider that such overlaps occurred in towns where projects are supported by the Fund, which is not necessarily in direct correlation with specific project support.

In addition to the overlap between registrations, the incidence of CAR registry entries in areas was also observed (Annex 7.2). In the Amazon biome, approximately 250.000 hectares of CAR were identified, focusing on public domain territorial categories, with 1% on Indigenous Lands (TIs) and 2% in Conservation Units (UCs). In the TI overlaps of the biome, 63% are in the Sema Pará / Green Municipalities Program Project and 33% in the CAR Development Integrated Socio-economic Environment in Rondônia. In the Cerrado biome, about 31,000 hectares are overlapping public areas, 1% in TIs and 1% in UC. In this sense, it is important to highlight that the CAR, as a declaratory instrument, can be used in an irregular manner in an attempt to legalize irregular occupations and intrusions on TIs and UCs. Correction of such distortions should be made in the process of analyzing these records by the responsible environmental agencies.

Deforestation in the Brazilian Amazon and Cerrado has been increasing in the last three years. In this context, it is noteworthy that small rural properties - up to four fiscal modules (4MF), the focus of this assessment, contributed 10% and 16% of the total deforestation during this period (Figure 2). This data is important for measuring the contribution to deforestation on properties registered in SICAR by projects supported by the Amazon Fund, which will be presented below.

Image 2 - Deforestation in the Amazon and Cerrado by land category



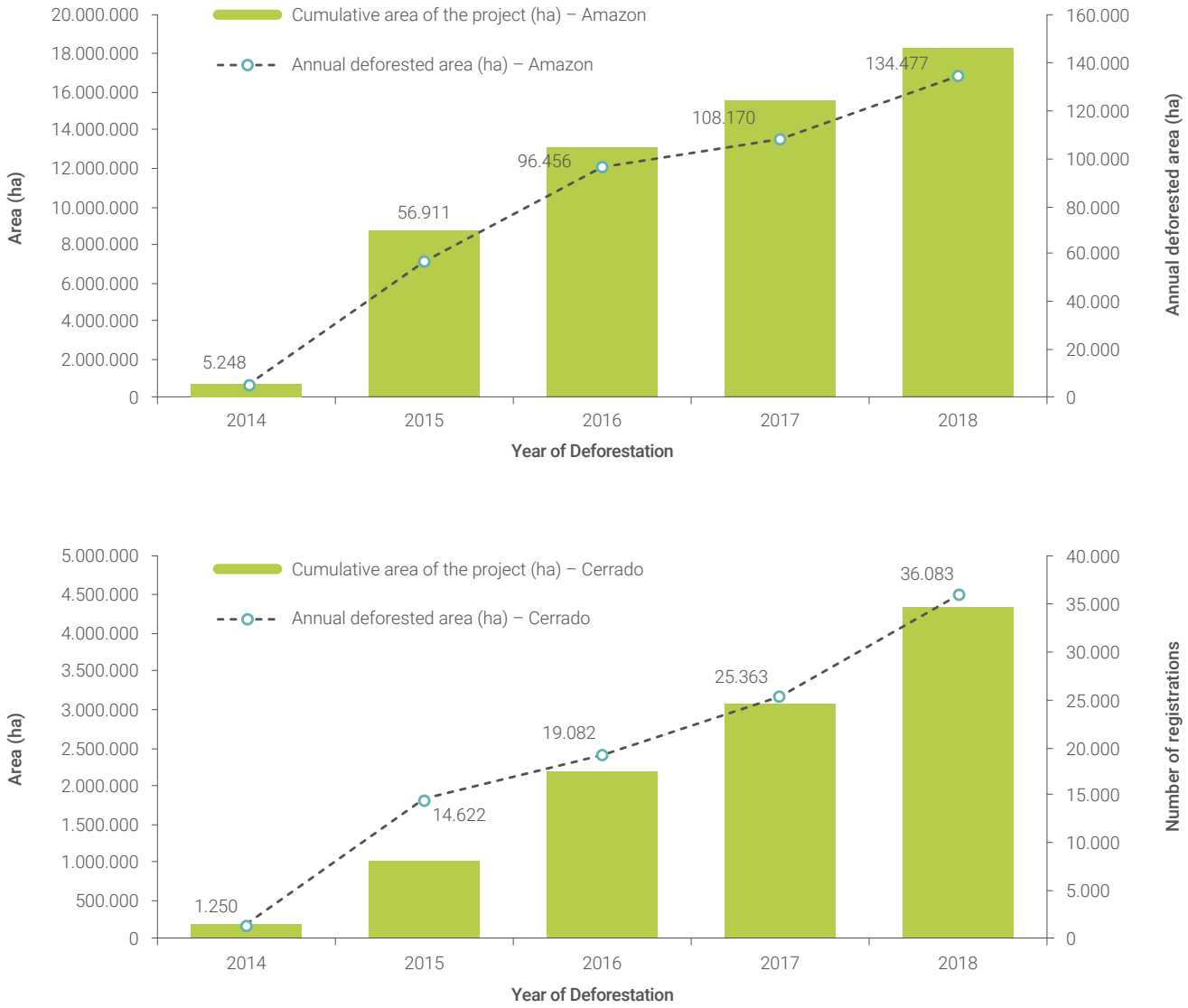
Source: Own elaboration based on data from Prodes / INPE.

The analysis of CAR projects demonstrated an annual increase in the deforested area from 2014 to 2018 (Figure 3). In the Amazon biome, the increase in deforestation registered in areas up to 4MF was 25%, while in the Cerrado it was 28%. In that same period, real estate areas up to 4MF increased 24% in the Amazon and 22% in the Cerrado (Figure 3). This behavior can also be observed when analyzing projects individually (Figure 4). Deforestation shows a continuous upward trend in all projects analyzed, except for registration entries made by the Virada Verde Project in the Mato Grosso Cerrado. However, the percentage of deforested area within the CAR has almost not changed over the analyzed period for both the Cerrado and Amazon (Figure 5), indicating little variation in land use dynamics (increase or decrease) in registered areas over time.

Analyzes show that 36% of deforestation in the Amazon biome, coincided with Legal Reserve (RL) areas, determined by the Forest Code as 80% of rural property in this biome. In the Cerrado biome, only 1% of deforestation is occurring in RL (Annex 7.5). It is important to highlight that the Cerrado applies two measures to RL: 35% of property area in Cerrado within Legal Amazon and 20% in Cerrado outside the Legal Amazon, being the second largest group in biome analysis. The high percentage of the area of rural properties that makes up the RL in the Amazon biome, being the second major group in this biome's analysis.

The high percentage of the area of rural properties that makes up the RL in the Amazon biome, is often indicated by landowners as limiting rural production. This may be a reason for the high percentage of deforestation on rural properties registered in the analyzed projects. Technical assistance, rural extension policies and technology transfer are necessary for rural production to increase its productivity without opening new areas. Deforestation in RL by project analysis can be found in Annex 7.6.

Figure 3 - Evolution of annual deforestation and cumulative area registered in SICAR with support from Amazon Fund projects

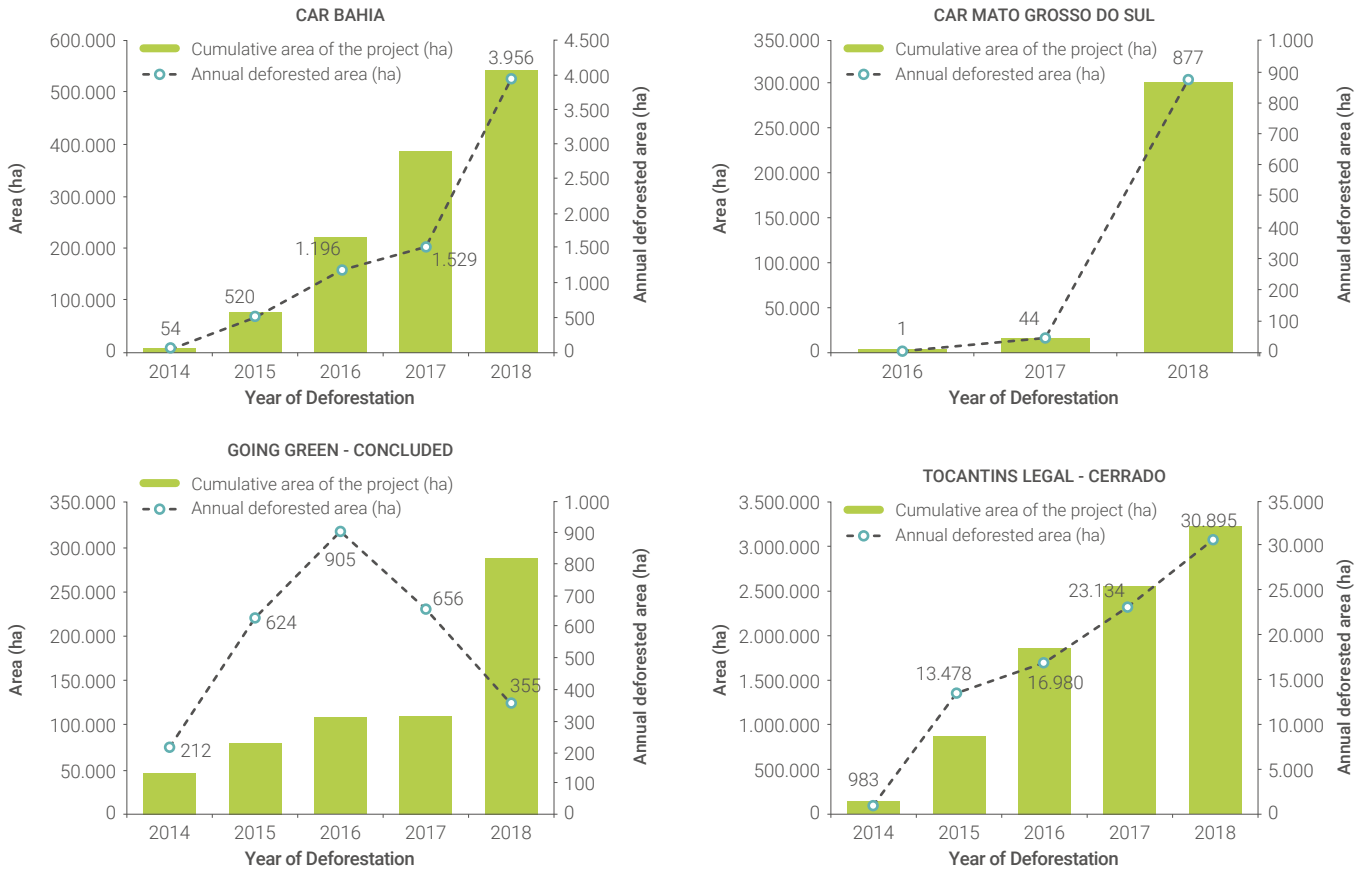


Source: Own elaboration based on Prodes / INPE data and SICAR data until May 2019.

One of CAR's impact expectations is precisely to facilitate the monitoring and accountability of landowners, who illegally clear their property, as a mechanism for transparency on compliance with the Forest Code, and thus improving the environmental performance of farms (Gibbs et al 2015). However, it is important to highlight that the CAR is an environmental regularization instrument that needs to be used in an integrated manner with other public policy efforts, so that actual changes in land use can be observed.

Two studies analyzing the relationship between CAR and deforestation found a reduction in deforestation in small rural properties associated with CAR in Pará and Mato Grosso (L'Roe et al 2016; Azevedo et al 2017). This effect, however, has been diluted over time by the lack of enforcement and penalties, the weakening of control policies such as updating and using the list of critical deforestation towns, and the slow process of validation and implementation of other Forest Code instruments.

Figure 4 - Evolution of annual deforestation and cumulative area registered in SICAR by projects supported by the Amazon Fund

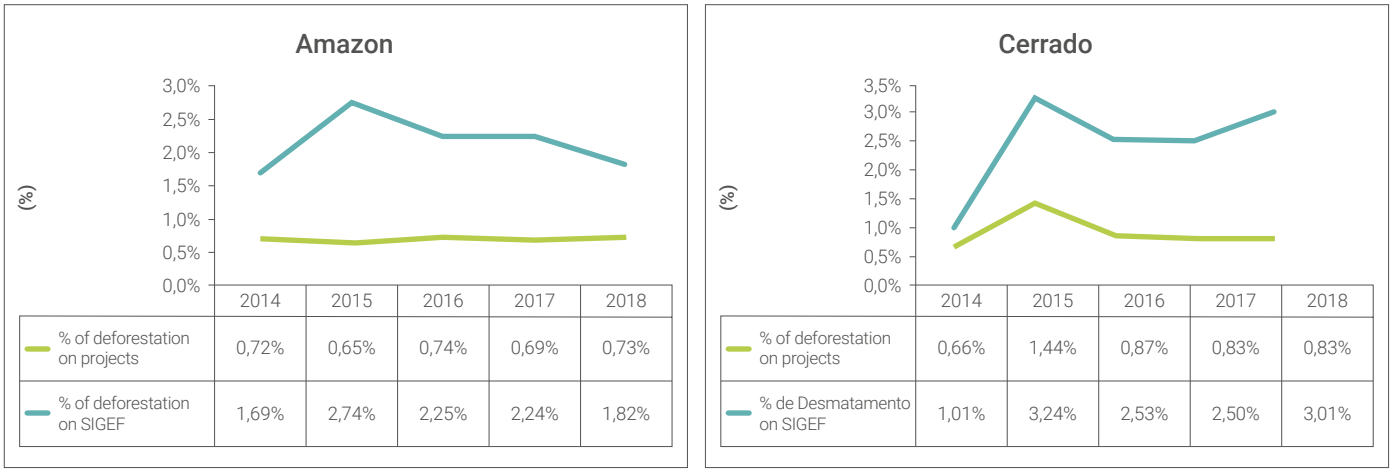


Source: Own elaboration based on Prodes / INPE data and Sicar data until May 2019.

Comparative analysis of the percentage of deforestation in areas up to 4MF registered in SICAR and those outside CAR, which are part of the Land Management System (SIGEF) demonstrated that the percentage of deforestation per area within the CAR is lower than in properties not registered with SICAR in both biomes (Figure 5). In the Amazon, the average percentage of deforestation registered in the total area is 0.71%, while in properties of up to 4MF tax not registered in SICAR this percentage is 2.1%. In the Cerrado biome, the behavior is similar. The percentage of deforestation in relation to the registered area is 0.93%, while in similar-sized properties outside SICAR the percentage is 2.4%. The data regarding the percentages in the project areas can be found in Annex 7.3 and 7.4.

The results obtained in this evaluation demonstrate that although deforestation is continuing to increase in absolute terms in areas with CAR, its percentage was lower in these areas compared to these outsides of registered areas. This may indicate an impact of the CAR, related to the exposure of properties to monitoring and enforcement, as properties of up to 4MF outside the register are less exposed to the government, which can influence the dynamics of deforestation. More detailed studies on land use dynamics in project areas should be done to understand this behavior, since the opportunity cost of land use, market conditions, infrastructure, remaining forest area, the land situation and the socio-economic profile of both farmers and the region where they are located influence this dynamic is very significant (Azevedo et al 2017; L'Roe et al 2016).

Figure 5 – Percentage of deforested area in properties up to 4MF inside CAR (SICAR) and outside SICAR (SIGEF database) in the Amazon and Cerrado Biomes.



Amazon	2014	2015	2016	2017	2018
% of deforestation on projects	0,72%	0,65%	0,74%	0,69%	0,73%
% of deforestation on SIGEF	1,69%	2,74%	2,25%	2,24%	1,82%

Cerrado	2014	2015	2016	2017	2018
% of deforestation on projects	0,66%	1,44%	0,87%	0,83%	0,83%
% de Desmatamento on SIGEF	1,01%	3,24%	2,53%	2,50%	3,01%

Source: Own elaboration based on Prodes / INPE data, SICAR data until May 2019 and SIGEF data.

Economic instruments to support environmental regularization and protection of areas such as those provided for in Article 41 of the Forest Code are fundamental for the safety of the remaining native vegetation and recovery of degraded areas. Landowners, who do not have adequate vegetation cover as required by law, should have to recover degraded areas but those who have more vegetation than required by law can convert the remaining vegetation areas (Rajão et al 2012; Azevedo and Saito 2013). This may partly explain for the increased deforestation especially in the Cerrado properties, where the legal reserve is 20% to 35% of the property area.

A study on the effect of CAR on deforestation carried out in areas up to 4MF in the states of Bahia and Piauí showed that 36% and 42%, respectively, of the owners who owned vegetation surplus to that required by law intended to convert the area for agricultural use (Rasmussen et al 2017). The application of economic instruments to the protection of areas of native vegetation surplus, such as the Environmental Reserve Quotas (CRA) is fundamental for the protection of remnants of native vegetation but little progress has been made in implementing these instruments (Rasmussen et al 2017).

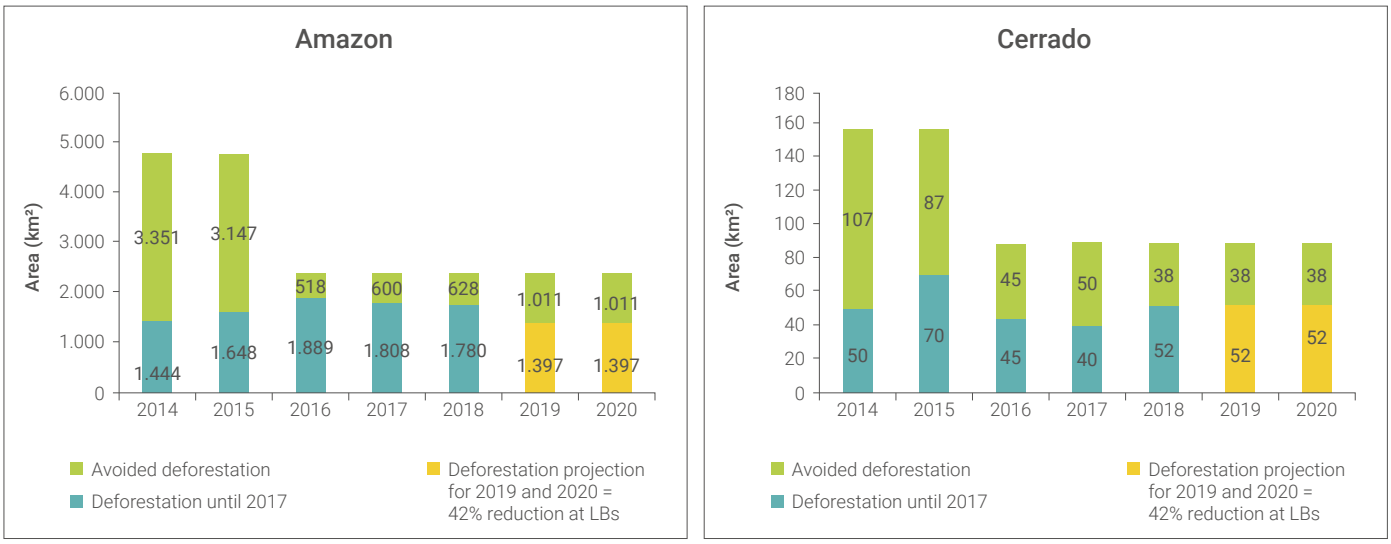
The qualitative analysis conducted in this study, described in the next section, shows that CAR is an instrument used in licensing and monitoring. However, according to most state environmental agencies interviewed, it is not used to its maximum potential due to the lack of confirmation of the declared information, which must be obtained in a record analysis by the responsible environmental agencies. In addition, the priorities of state agencies in monitoring and enforcement focus on licensed ventures and UCs, not including small rural properties. Still, the use of rural credit, whose access today is conditional on CAR, is associated with production activities related to deforestation (Assunção et al 2013).

Technical assistance and rural extension policies, which should assist in the production of good practices are currently insufficient and inadequate to meet the demand of farmers, the predominant public in rural regions. An analysis carried out in the state of Pará from 2007 to 2013 showed a reduction in deforestation in areas of small properties (100–300 ha) registered in the CAR. In this study, small farms participating in the Terra Legal program presented a reduction in deforestation in the analyzed period, since environmental violations

could cancel the titling process. The study also indicated that the CAR has the potential to be an instrument to support deforestation reduction if combined with the implementation of a set of incentives for the conservation of remnants of native vegetation (L'Roe et al 2016). The results of this study demonstrate the importance of validating the CAR and its use associated with other policies as a way of generating positive results in controlling deforestation on farms.

Using the methodology of the Ministry of the Environment (MMA) approved by the Amazon Fund Technician (MMA, 2018), the analysis showed that CAR support projects helped to prevent the deforestation of 8,571 km^2 in the period from 2014 to 2018. In the Amazon biome, the analysis showed that 8,244 km^2 of deforestation were avoided during the period mentioned above, while in the Cerrado 327 km² of deforestation were avoided (Image 6).

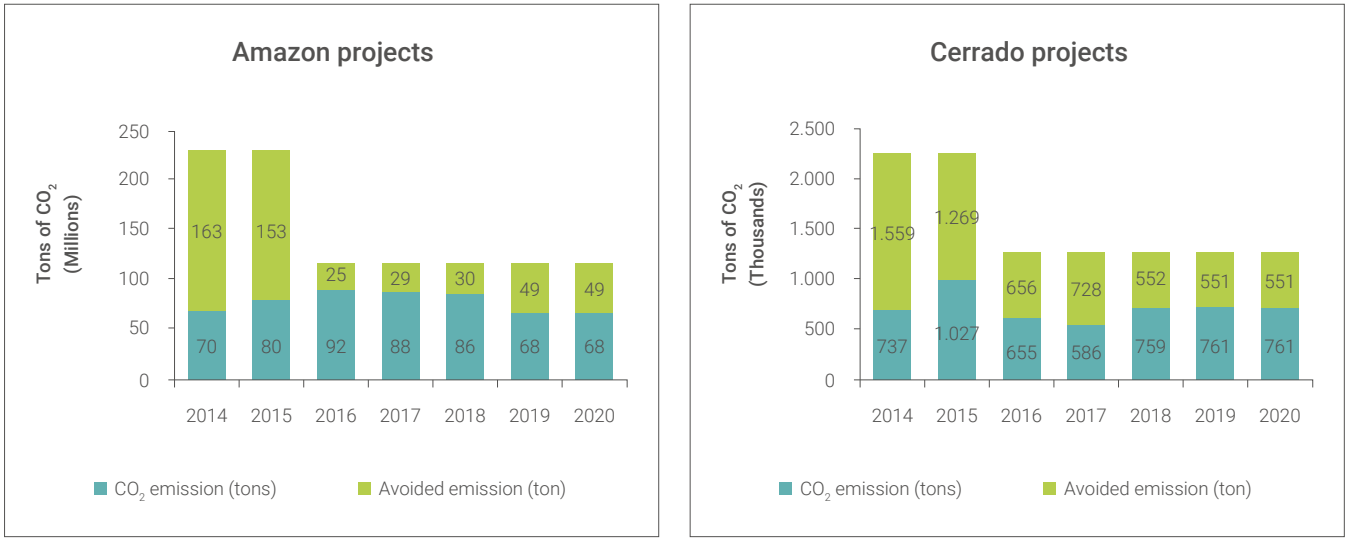
Image 6 - Graphs for calculation of baseline and avoided deforestation for Amazon and Cerrado biome projects.



Source: Own elaboration based on MMA 2018 calculation methodology and data by SICAR and Prodes / INPE.

In terms of emissions, the projects contributed to avoiding the emission of around 404.700.000 tCO_2, with 400 million tCO_2 avoided in the Amazon and 4.7 million tCO_2 in the Cerrado biome (Figure 7). This value is greater than the amount of emissions prevented by the state of Acre from 2012 to 2015, which was 4.102 million tCO_2 (IMC, 2019).

Figure 7 – CO_2 emissions in tonnes avoided and occurred in tonnes in the period from 2014 to 2018 and projections for 2019 and 2020, respectively, in the Amazon and Cerrado biomes.



Source: Own elaboration based on PPCDAm calculation methodology and SICAR and Prodes / INPE data.

3.2 QUALITATIVE ANALYSIS OF AMAZON FUND SUPPORT

The qualitative analysis of project impacts sought to verify the application of CAR within the following themes. A summary of the answers is given (Image 8) at the end of this section. The results of the qualitative analysis are sorted by themes.

In general, the main barrier limiting the use of CAR in other policies is due to the fact that the database is not analyzed, which may lead to inconsistencies in planning and applying laws and procedures. Another factor that impacts CAR database sharing and its use is the lack of integration between departments within the State Environment Organization (OEMA) internally as well as between the OEMA and other external governing bodies. In some cases, the OEMA also does not have integrated information systems and databases due to technical and technological limitations, as is the case with Maranhão.

3.2.1. MONITORING AND CONTROL

The structure of the ministry for the environment and its departments with physical and technological infrastructure, geospatial analysis and databases with geo-referenced environmental information directly contributed to the increase of the control and monitoring capacity of the states. CAR is used for environmental licensing in all states, and most also use it to inspect and hold landowners responsible for illicit environmental actions. The insertion of property records up to 4MF has increased the capacity and the reach of the states carrying out environmental management. Without the support from the Amazon

Fund, states would not have the human, financial and infrastructure resources to expand the registration of these properties.

Regarding enforcement, CAR is used in seven states to prioritize areas where the inspection will act (Image 8). This prioritization occurs since the registration enables the identification of the responsible party for the property, besides being inherently part of the process of environmental licensing. However, it is important to note that in general the enforcement prioritizes areas with environmental licensing, UCs and areas with deforestation alerts as the structure is not sufficient for the whole demand for enforcement. The state of Espírito Santo, for example, uses a tablet with access to the ministry department's database in real time in the field actions.

The interviewees pointed to the CAR database as a fundamental instrument for the accountability process as it allows the identification the responsible parties of ownership in a more up-to-date manner than the land database allows today. In the case of CAR overlap in the database, all those responsible for the CAR are notified and must provide a proof of land title. When these documents are not enough, landowners should seek the land conflict-resolution with the correct institution. In some cases, records may be pending throughout this process and be prosecuted.

3.2.2. TERRITORIAL AND LAND-USE PLANNING

Considering the declaratory nature of SICAR and effort to settle the database, it is stated that currently, the network of geo-referenced properties in CAR is larger than the land register. For the land management agencies, access to the CAR network allows the improvement and reduction of costs in the acquisition operations of geo-referencing of plots and it can guide the property inspections for land aspects.

Accessing and analyzing CAR data can yield important input for decisions regarding territorial planning considering the dynamics of use and land occupation. It is important to highlight that the CAR has no landowner character, however, as it is updated, it has the potential to support the database upgrade. This demand by land agencies has grown with the increased use of CAR in other public policies, since it is the land aspect that must be resolved in several overlapping cases of registrations.

In the state of Ceará, the 109 towns selected to be the focus of the project were those who had already undergone a land database upgrade by the responsible body. Thus, the registration strategy used the land database as guidance, while responding to land use organizations needs and updating the database. The main needs identified are related to the dismemberment of ownership for properties that were not in the land registry.

In the case of the state of Pará, the attempt to articulate with the Land Agency is old. The Pará Land Institute (ITERPA), a state land agency, has been following the project since the beginning when it was thought that land regularization could support the beginning of the registration. However, this scenario did not consolidate and only after the alteration of agency management was included in the process there was a meaningful change. The case of Pará will be examined in-depth in the case study section of this paper.

The second update of Rondônia's 2nd Ecological-Economic Zoning (EEZ) used CAR for database correction, such as hydrography, roads and boundaries of UCs, and questions regarding Cerrado and Amazonian physiognomies. State zoning alters the RL, influencing the area to be recomposed. In Acre, the zoning was recently updated, using the CAR database as a reference, and new management is reviewing the document for its publication. In Roraima, EEZ is being designed and it will use CAR to identify priority areas for conservation. In some states, EEZ is being practiced, as it is the case in Maranhão, and in others, where there is only the outdated macro EEZ.

3.2.3. BIODIVERSITY CONSERVATION AND ECOSYSTEM SERVICES

Within Biodiversity Conservation and Ecosystem Services, the main contributions of the projects with the increase of registrations were the geo-referenced areas of RL and permanent preservation (APP) identified by the automatic analysis produced by SICAR. The available information has great potential to contribute to analysis and support for decision making in the planning of conservation measures to protect biodiversity (local and landscape) and ecological corridors, as well as in the calculations for validating ecosystem services at scale.

The current tool based on automatic analysis offers geo-referenced areas of environmental assets and liabilities, enabling the initial indication of priority areas for conservation, restoration and environmental recovery. However, the use of this information in public policy is affected by the small number of registrations analyzed so far, which brings uncertainties about the actual existence and quantities of remnants and forestry liabilities.

In terms of water resources, Bahia and Pará are using CAR in the process of water resource management. In Acre, the CAR is currently not mandatory in the application, but the responsible sector is helping to qualify the most degraded areas for water resources protection in the Acre River Basin and Environmental Protection Areas (APAs). Nine of the 11 states analyzed (82%) do not use the CAR database for planning the use of these resources and lack of cross-sector dialogue within OEMAs for policy integration. In addition, the analysis of the CAR database, including its use, can lead to inconsistencies between data and reality.

In the indicator for recovery of degraded areas, four states have already begun the implementation of the Degraded and Altered Areas Recovery Projects (PRADAs). Among them, Bahia is monitoring all existing PRADAS, according to the organ. The states of Acre, Paraná and Rondônia are being monitored by area restoration, focused on priority areas. In the case of Acre, the priority areas for analysis are related to the focal areas of the REDD Early Movers (REM) programs and the World Bank. In Rondônia, the priority Global Environmental Facility areas are the same as those of the World Fund Project Environment (GEF) and Kreditanstalt für Wiederaufbau (KfW), in areas around protected areas (UCs and in those embargoed before 2008). In Paraná, the CAR is used to identify recovery areas of degraded APPs and RL, prioritizing recovery in watersheds, in a joint effort by the State and Federal Public Ministry and its Departments. In general, states use the PRA module of SICAR to conduct the analysis, but in some cases, the Ministry department representative conducts the analysis outside the system in order to integrate other relevant information.

3.2.4. ECONOMIC ASPECTS

The registration of small properties has an important impact on the expansion of the possibility of access to rural credit for these landowners. This group represents the least visible audience to social and isolation issues, and their representation of the CAR has advanced significantly, which is important because of the projects supported. However, impacts are still initial and minimal regarding access to institutional markets (lack of regulation).

It was established in the Forest Code that, five years after its publication, financial institutions could grant agricultural credit in any form, only to rural property owners who were registered within the CAR and who prove their regularity under the terms of said law. Although there were extensions within that period, the BACEN Resolution 4663/2018 stipulated that from January 1st, 2019, the rule would apply to everyone. In the interviews, it was observed that this rule is being complied with in all states. In the case of Mato Grosso do Sul, the banks require environmental licensing, with CAR being one of the obligatory steps in the process. However, in this state, family farming is exempt from licensing, which makes the impact of CAR for asking for credit less significant for this group.

Regarding private markets, initiatives such as the Term of Conduct (TAC), led by the Public Prosecution Service, have conditioned the sale of chain products to the registration of these properties in the CAR. The influence on market access for homeowners who have registered within the CAR is still an aspect to be improved. In all Amazon states, the purchase of meat is subject to the registration within the CAR because of the Livestock Term of Conduct Agreement (TAC) signed by the meatpackers with the prosecutor. Pará is the state in which livestock TAC monitoring is done in greater detail. In the case of Acre, there is a monopoly on the purchase of meat by the JBS company, which promptly requires the CAR. In Amazonas, the pallet industry is buying from people who have CAR registration. Today all timber products need to come from a property with CAR registry, which is a requirement of the Forest Product Origin Control (SINAFLOR), managed by IBAMA. No change in market access has yet been observed due to CAR in Bahia and Paraná and respondents from other states were not able to answer.

In public purchases, the National Supply Company (CONAB) requires CAR participation in the Food Acquisition Program (PAA) which, being a federal program, reaches all states. However, the National School Food Program (PNAE), despite being federal, is locally managed and relies on state and local municipal guidance. Thus, state regulation is necessary to introduce this requirement. Pará was the only state where this requirement is being made at the state level.

In Amazonas, CAR is required under the Regionalization School Estate Program (PROMOTE) as it involves timber products. The other states stated that the integration between Ministry departments and their representatives and CAR introduction as a criterion for public funds has not yet been implemented. It was also observed that in all states there are no different prices for products from CAR properties. Thus, the register shows regulatory character but is not used for pricing policies for small producers.

3.2.5. NORMATIVE INSTRUMENTS

The strengthening of states through CAR support projects, with emphasis on management, contributed positively to state regulatory advances and in some cases, on the municipal level too. In order to assume competences in the decentralization process influenced by the Complementary Law No. 140/2011, states and towns have made progress in publishing environmental management standards. The development of the national system and CAR database are assets that encourage the strengthening of decentralized environmental management. The implementation of projects had impacts on the definition of normative instruments for valuing ecosystem services and payment incentives for environmental policies.

With the exception of Ceara and Espírito Santo, which have a decree and normative instruction that guides registration, the other states have advanced under the regulation of their environmental programs. The states of Acre, Pará and Bahia highlighted projects' support to draft PRA laws. In Rondônia, the policy was elaborated with GIZ's support, through a partnership with the BNDES. The other states have PRA legislation prior to project implementation.

Regarding economic instruments, Acre has advanced in regulation with project support. The law establishing the state PRA provides for compensation of RL through the acquisition of Environmental Reserve Quotas (CRA). The law also provides for forest restoration with payment for environmental services under the Acre Environmental Services Incentive System (SISA). The other states had no support from the project in economic instrument regulation advancement.

In general, the towns targeted by the projects and the registration process played an important role in the dissemination of joint efforts, activities and physical infrastructure availability. In Pará, the involvement of municipalities occurs systematically, with the CAR registry being implemented by the towns themselves. However, these municipalities do not yet possess the analytical skills that are necessary for this. In this state, the process of strengthening the towns takes place in the Green Towns Program (PMV), which works to strengthen local environmental management of deforestation control since 2007.

BOX 1: PROJECT EXCHANGE

The Project Exchange workshop identified that support from the Amazon Fund was important for the progress of the environmental regularization policy progress, giving the states and partners the physical and human conditions of operationalization and broad implementation. It is evident that with the progress of regularization policy based on technological solutions and physical and human-based infrastructure, a strong momentum in the registration settlement – the early phase – was achieved and the states achieved remarkable synergistic results, as summarized below. The full report of the Exchange Workshop is available in Annex 7.10.

i. The municipalization of politics is an example of the progress in the federative pact, which makes evident the projects' contributions not only regarding the environmental regularization policy, i.e. Law 12.651 / 2012 and its regulation, but also made

progress in the diffusing of environment rights and National Environmental Policy, by letting towns assume duties related to registration / analysis and consequently to environmental licensing;

ii. The constitution of the rural estate database is an unquestionable asset in the hands of municipal and state governments and society. Certainly, the current database has great potential to create opportunities for valuing ecosystem services, and standardizing incentives and payment policies for environmental services

iii. The obtained results point to CAR's vocation for integration with other policies;

iv. The integration of land and environmental management is irreversible and necessary for good operation, application and efficiency of land use and environmental policies;

v. Current and future steps in the environmental regularization policy will depend on support for state environmental agencies, which need physical and human resources to advance the scale of the analysis and certainly together with rural society will need programs and solutions that make the recovery of environmental liabilities viable -- the development of efficient and economically viable restoration techniques;

vi. The population most vulnerable due to social issues and geographical isolation still needs attention in the registration phase.

3.2.6. GOVERNANCE

The projects provided key materials for the development agenda progress of the governance of the Forest Code with the Brazilian Forest Service (SFB), which since 2014 gathers state representatives to discuss demands for system customizations, legal guidelines regarding standardization gaps, among others. The technical discussions in these workspaces served both to strengthen SICAR and to improve state modules.

Local actors' communication and training campaigns on CAR and environmental regularization increased the knowledge of the rural state population about the Forest Code, its requirements and monitoring. This movement was recognized as a way of internalizing the state's presence in remote and vulnerable areas.

The implementation of the CAR with traditional peoples and communities (PCTs) remains a challenge. These groups have particular needs when dealing with territories and legislation. The Amazon Fund's support for registration encourages the internalization of compliance with policies aimed at this audience in OEMAs. It is noted that the support from the Amazon Fund creates an opportunity for progress in this direction, as well as the articulation between different government agencies in implementing related policies.

In the states of Ceará, Maranhão and Pará, the beneficiaries of the projects made a direct contribution to the project design. Ceará held meetings with the National Rural Learning Institute (SENAR) and the Institute of Agricultural and Forestry Defense Federation (IDAF) because it understood that CAR is not only part of environmental policy, but also a rural development policy. The state faced resistance from the family agriculture sector in during the initial discussions, due to a lack of understanding of their fears that the registry would only serve to punish small farmers.

In Maranhão, the project was designed in response to the demand of social movements from family farming and PCTs. A State Discussion Committee was created for the project, composed of the Ministry department and representative(s) for Racial Equality (SEDIHOP), Secretary of State for the Environment (SEMA), Secretary of Family Farming (SAF) and the Institute of Socioeconomic and Cartographic Studies of Maranhão (IMESC). The discussions about the family farming CAR and PCTs is occurring within this Committee. The movements requested a CAR Working Group (WG) – created by an SAF Ordinance – to monitor the execution of the project, composed of SAF representatives, employers' unions and agricultural workers, the social movements of the area, and PCT associations. In Pará, the project strategy was based on the demands presented by the sector in the Municipal Local Pacts and the meetings of the Budgetary Management (COGEO) of PMV. In PMV, municipalities defined CAR targets as part of their commitments to the program.

Since 2014, in the Amazonas state, there is an interstate WG within the State Council of Sustainable Rural Development (CEDRS) for CAR discussion. Part of this discussion guided the elaboration of this project. In addition, the Federation of Agricultural Workers of Amazonas (FETAGRI), Federation of Agriculture and Livestock of the State of Amazonas (FAEA) and National Council of Amazon Extractive Populations (CNS) established a partnership to mobilize other actors to register. These organizations were already mobilized in the project with the Amazon Fund (reforestation) and have remained partners in this new registration project. In Paraná, the interviewee stated that previous experience with towns and family farming entities were used in the process of project preparation.

Most of the conflicts declared by the interviewees are related to the overlap of entries in the database. For the purposes of this research, we do not take conflicts of overlap into consideration, as they do not configure conflicts between implementers and beneficiaries. In terms of implementation conflict, the states of Acre and Bahia mentioned no conflicts with the beneficiaries. Rondônia indicated that at the beginning of the CAR registration there was some resistance due to fear of penalties.

Among the states that declare conflicts, Paraná brought a situation with PCTs to light, who filed a statement with the Public Defender's Office alleging that they were not being granted the Free, Prior and Informed Consultation (CLPI) in respect to the process of registration. The CLPI was not actually in the Term of Reference (ToR), and even after an amendment was made with the company responsible for the registration, it did not want to continue the process. In Pará, conflicts were also reported with *quilombolas*, but such conflicts are not the focus of the project. The state of Bahia utilizes compliance with the State Environmental Information System and Water Resources (SEIA) to guide conflict resolution and information transfer.

In Paraná the resolution of conflicts begun with the action of the Defense Office mediating the issue between the beneficiaries and SEMA. The other states do not have a mechanism for settling conflicts with beneficiaries. In the case of overlaps in the CAR database, procedures vary slightly, yet still follow a pattern. The involved shall provide land documentation, and if this is not sufficient, peers have the power to go to the land agency and, ultimately, to take it to a judge.

In terms of scalability, in Acre, the inclusion of CAR in the environmental licensing and its use as an instrument in the elaboration of the new EEZ (government review). In Rondônia, the inclusion of CAR in the environmental licensing was also highlighted. The interviewee from Paraná highlighted the importance of infrastructure which supports the

Ministry department its representatives and other work and not just the implementation of the Forest Code, as well as the possibility of carrying out the CAR analysis, allowing the instrument to be used in various public policies. Pará highlighted the institutional structure, which reduces the chance of a setback in the area, and the methodology by SEMA for registration, which is being incorporated by ITERPA and the National Institute of Agrarian Reform (INCRA). In Mato Grosso do Sul, they highlighted the Siriema system enhancement, which has resolved conflicts and accelerated processes. CAR's online methodology is being replicated with companies that are working on registration.

It was also noted that the state of Ceará did not incorporate a part of the project into other public initiatives. The states of Maranhão, Amazonas, Roraima and Espírito Santo did not initiate project implementation and had no scale results.

The sustainability strategy has seeks to minimize possible setbacks in the Forest Code implementation in its normative framework. In Amazonas, SEMA is working to update the Environmental Licensing Law, which will govern CAR requirements in the initial stage of state licensing. They are advancing also in technical definitions, procedures and forms of outsourced contracts for CAR in PCT territories, so that when the resource becomes available, the project can be implemented efficiently. In Rondônia, the strategy is to capture other resources and partnerships to advance CAR analysis, which will allow its use as a database for various policies. The state currently has the GEF and KfW project to hire staff for analysis and acquisition of equipment and software for PRA monitoring.

Pará, on the other hand, strengthens competencies so that partners can perform analyzes. The Company of Technical Assistance and Rural Extension (EMATER) and municipalities are partners in this implementation process. In addition, the team plans to change the ICMS Green criteria once those CAR targets are met, and validation needs to be encouraged. Today ITERPA already has a system integrated with CAR, which opens room for integration between these areas.

Some states have only elements for sustainability. Acre set up a project office where not only the Amazon Fund project, but also projects of KfW, IDB, and Sustainable Landscapes are being managed. This is a way to share lessons. However, there is a lack of strategy for institutional alignment for the best project and policy implementation to which they are related. Moreover, further financial support is needed for the CAR review phase, as the Institute for Acre's Environment (IMAC) has not a sufficient structure for the existing demand.

In Maranhão, besides the support from SFB tools, there is the intent to create new projects to support CAR analysis. SEMA-MA is discussing the possibility of initiating the process with large properties as this is the licensing demand which does not cover family farming.

Figure 8 - Research results on the impact of CAR on public policies by theme.

Source: Own elaboration based on interview results.

Note: The Not Applicable (NA) category was used for states where projects were not started or are at a very early stage of implementation. Overall, implementers from 11 state projects participated in the survey.

BOX 2: CASE STUDY: PROJECTS SUPPORTED IN PARÁ

Support from the Amazon Fund to the state of Pará was analyzed in more detail. The main feature is the projects' contribution to the Green Municipalities Program (PMV). Created in 2011 in an effort between State Government, Public Prosecutor, IBAMA and civil society (unions and NGOs), the program seeks to control deforestation through sustainable rural production, land use and municipal environmental management.

One of PMV's main strategies is the implementation of the Rural Environmental Registry (CAR) as an instrument for monitoring and controlling deforestation. In this context, the Amazon Fund supported both project execution by the state, via support from the State Secretary of the Environment and Sustainability (SEMAS) and the PMV Management Center, and the actions by civil society organizations, via support from the Institute for Man and Environment (IMAZON) and The Nature Conservancy (TNC). Beyond PMV, the project supported the structuring of the secretariats in terms of infrastructure, including vehicles,

computers, systems and high definition images, in addition to training managers for carrying out and analyzing CAR and deforestation alerts. The project's execution involved the land agency (ITERPA) and technical assistance and rural extension (EMATER-PA).

The deforestation analysis carried out in the towns supported by the projects shows a tendency to reduce deforestation in CAR areas of up to four fiscal modules (4MF) (Image 2). Although it is not possible to establish a cause and effect relationship, it can be inferred that the set of actions that have been implemented in towns and registered areas up to 4MF with support from the Amazon Fund are being effective in supporting deforestation control in benefited areas in Pará. Other highlights of the research are:

i. The first support from the Amazon Fund to the state government of Pará (Project SEMAS-PA) enabled the state to have the technical and infrastructural capacity to carry out deforestation monitoring. As a result, the Integrated Center for Environmental Monitoring was created (CIMAM), and the publication of the List of Illegal Deforesters (LDI) followed. Pará is the only state today where the CAR database is fully available on the SEMAS website.

ii. The support from the Amazon Fund was fundamental for the adaptation of the Integrated Environmental Monitoring and Licensing (SIMLAM) to SICAR, enabling the integration of the state to the national system and a friendlier interface for municipal use

iii. The Pará State Land Registration and Regularization System (SICARF) is today integrated with SICAR, with CAR being used as a reference for territorial occupation. Until the end of 2019, any change in ownership shall be authorized only upon CAR presentation without a backlog. Land regularization is essential to provide legal certainty and facilitate investments in the recovery of degraded areas, as well as in the deforestation combat for land speculation.

iv. Registered areas are a priority for the provision of technical assistance and rural extension by EMATER-PA. The organ is recognized today for its municipal far reach and may contribute to the analysis and recovery of degraded areas based on production.

v. CAR analysis is reactive and prioritizes environmental licensing processes. The towns' participation in CAR analysis will be fundamental for meeting the existing demand, which totals around 401,454 registrations of areas up to 4MF in the benefited towns. There is still CAR demand for small properties and Traditional Peoples and Communities.

vi. CAR is a prerequisite for environmental licensing of the 120 towns qualified in the state. However, the CAR analysis capacity of the said towns is small, and demand is still under state responsibility (SEMAS). The towns of Paragominas, Dom Eliseu and Ulianópolis are the only ones doing CAR analysis today.

vii. Even with the institutional fragility of the Municipal Environment Secretary, the technical and infrastructure capacity that was established with the support of the projects remained even after the last municipal elections.

viii. The performance of civil society and state government enabled an environment of dialogue and mutual reinforcement of the actions carried out, with the involvement of various social actors increased the reach of the actions in the territory.

ix. Civil society projects play an important role in developing and testing various methodologies and approaches. However, constant alignment between projects and civil society and related public bodies is needed so that methodologies developed on a pilot-scale gain the territorial scale of public policy.

x. CAR is an instrument that can be used for both landscape planning and for rural property planning. To this end, it is essential that the Environmental Regularization (PRA) and Environmental Recovery Plans are initiated. Currently, in practical terms, the issue of environmental liabilities and legislation compliance is in the same condition.

4. RECOMMENDATIONS

4. RECOMMENDATIONS

The results observed in this study produce important recommendations for the Amazon Fund:

- Use a guiding matrix for project analysis by the Amazon Fund. The matrix can provide a roadmap for analyzing not only project objectives but also can enable a view of the context and elements for its implementation. Therefore, one could work with greater knowledge of the context of the states where the project implementation will take place, supporting the strategies in a more organized way, which could guarantee more success for the supported projects.
- Supporting the development of regulatory frameworks is very important for environmental regularization. Some states do not yet have their normative frameworks leaving the basic procedures open that should govern the Rural Environmental Registry (CAR) analysis. Even if the Amazon Fund will not support the elaboration of normative frameworks, this can be a counterpart of the states.
- In the same vein as counterparts that states could submit to the Amazon Fund is the integration between the different areas of the State Environment Organizations (OEMA) and those in key agencies in environmental and forest management. For example, making the CAR database available for water resource planning purposes is relatively simple and can be implemented at low cost. Even if there are still inconsistencies in the given CAR databases, it is already a measure that can be implemented following what happens with environmental licensing.
- The Fund has the potential to support the dissemination of good solutions identified in the projects by the Amazon Fund. Exploring this role as a driver of new solutions and a catalyst for the exchange of experiences can be further explored, with a possibility for positive impact.
- There is a need for greater clarity and articulation between climate projects and policies for deforestation reduction to ensure effective and efficient results. Today deforestation control plans are insufficient in most states and they are not strategies that guide government actions.
- We know that monitoring and control plays a very important role in reducing deforestation, but progress needs to be made on economic instruments that support regularization and maintenance of forest stocks. Moreover, it is important to invest in economic activities that value the forest, forest products management and non-timber and low-carbon agriculture as alternatives to irrational exploitation of resources. Private sector involvement is key for creating alternative production solutions.
- Synergy with other international cooperation projects, such as the portfolio of Forest Investment Program (FIP) projects can strengthen the possibilities for the sustainability of the supported initiatives.
- Increasing support from the Amazon Fund for the registration of indigenous peoples and communities (PCTs) can stimulate the development of innovative methodologies to meet the demands of this specific public.

- The use of rural credit is associated with conventional productive activities, which are related to the increase of deforestation. In this context, it is important that the policies with technical assistance and rural extension are appropriate and assist rural production with good production practices in family farming, predominantly in small farms. All of these factors contribute to the use of CAR in controlling deforestation being limited. It is essential to create strategies and preventive instruments to control deforestation and encourage sustainable production.
- To extend the use of CAR to various environmental management policies, further database analysis needs to be made, which will require significant effort from states. Continued support for CAR analysis is acknowledged by states as fundamental for the sustainability of the results obtained in the projects already supported. The scale of the Amazon Fund's performance allows for a great capacity for the development and dissemination of efficient methodologies and initiatives through the projects. Expanding this role of fostering innovation and catalyzing the exchange of experiences involved among actors will increase the likelihood of achieving results and positive impacts in supported projects.

5. FINAL CONSIDERATIONS

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The Amazon Fund's support for computer, database and system infrastructure, in addition to training, has brought states to a new level in terms of monitoring and control. The Rural Environmental Registry (CAR) constitutes a baseline tool for territorial planning through the geo-referencing of rural properties, native vegetation areas, consolidated use, environmental assets and liabilities, springs, as well as other features available. Thus, the database allows planning on various current and urgent issues, such as water resources management, degraded areas, vegetation restoration, management and conservation of biodiversity, climate change, among others.

The registration of property registers up to four fiscal modules (4MF) came to complement the basis for a category that was underrepresented. This category includes family farmers and small holdings. Complementing the database makes it possible to have information not only on environmental requirements such as permanent preservation area (PPA) and legal reserves (RL), as well as providing updated information on land use and occupation, which can support the process of land regularization and agricultural planning. The greater the use of the database for these different purposes, the larger the scale of project results and their perpetuation.

Today, the CAR database is already being used for environmental licensing in all states with an established regulatory framework. In surveillance and monitoring, the database is used in ten states. With resources from the Amazon Fund, some states (Espírito Santo, Pará, Tocantins, Acre, Mato Grosso do Sul and Bahia) expanded their CAR database sharing capacity with data on land use and deforestation, and environmental licensing, which enabled better management of environmental information. The CAR is still being used for accountability in eight of the 11 states analyzed.

The use of the CAR database, however, faces a validation challenge. The inaccuracy of registration limits their widespread use in various areas. Without confirmation of the APP and RL areas and the environmental regulation of properties, its use as a planning tool is limited. This is a point of concern for states and could be seen as a space for potential support by the Amazon Fund to states in future project cycles.

In terms of risks to the sustainability of the results, the Provisional Measure (MP) 867/2018, issued in 2018 was recently discussed. In addition to extending the deadline for adherence to the Environmental Regularization Program (PRA) by the rural owner or squatter registered in the CAR, other amendments from congressmen and senators were inserted, which misread the text of the 2012 Law. The MP was not voted on in time in the Federal Senate and has since expired. However, there is the signaling of the executive power to create a new MP with similar content. Should any changes to the text of the Forest Code Act occur, this could severely impact efforts to customize database and information system customization efforts, and this information could damage the environmental agenda.

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7. ANNEXES

7. ANNEXES

7.1. TABLE — NUMBER AND AREA IN HECTARE OF CAR BEFORE AND AFTER OVERLAP CLEANING AND LOST PERCENTAGE

Type	Amount	Area (ha)
CAR (including overlay)	1.248.805	40.992.419
CAR (after overlay cleaning)	1.213.199	38.922.253
Amount change after cleaning	3%	-
Area variation after cleaning	5%	-

Source: Own making from SICAR data on supported project areas

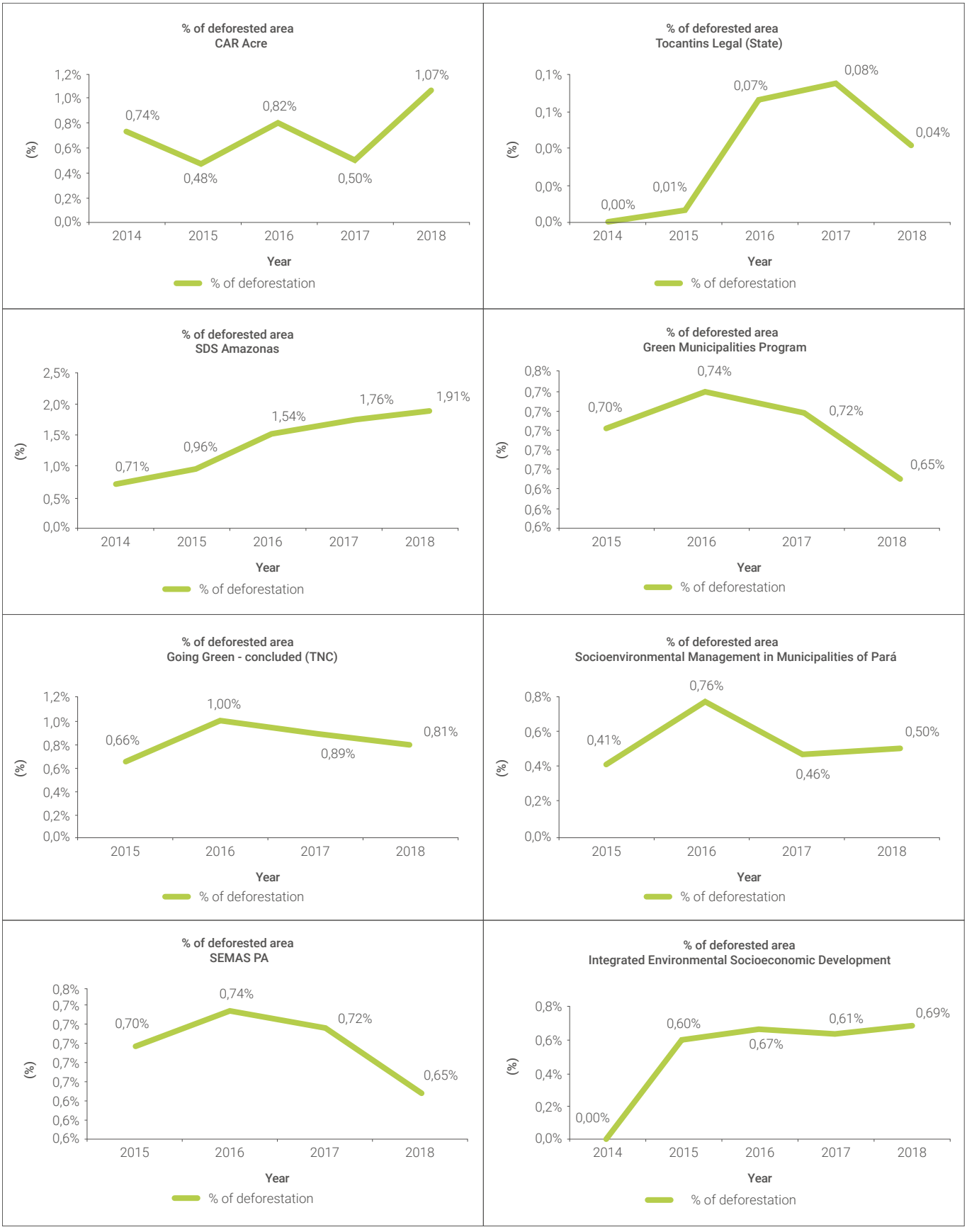
7.2. TABLE — AREA IN HECTARE AND PERCENTAGE OF CAR AREA OVERLAPPING WITH INDIGENOUS LANDS, CONSERVATION UNITS IN THE AMAZON AND CERRADO BIOME

CAR Overlay – Amazon		
Category	Overlap Area (ha)	% of Overlap Area (ha)
Indigenous Lands	92.227	1%
Conservation units	159.802	2%

CAR Overlay – Cerrado		
Category	Overlap Area (ha)%	% of Overlap Area
Indigenous Lands	3.453	3%
Conservation units	27.979	28%

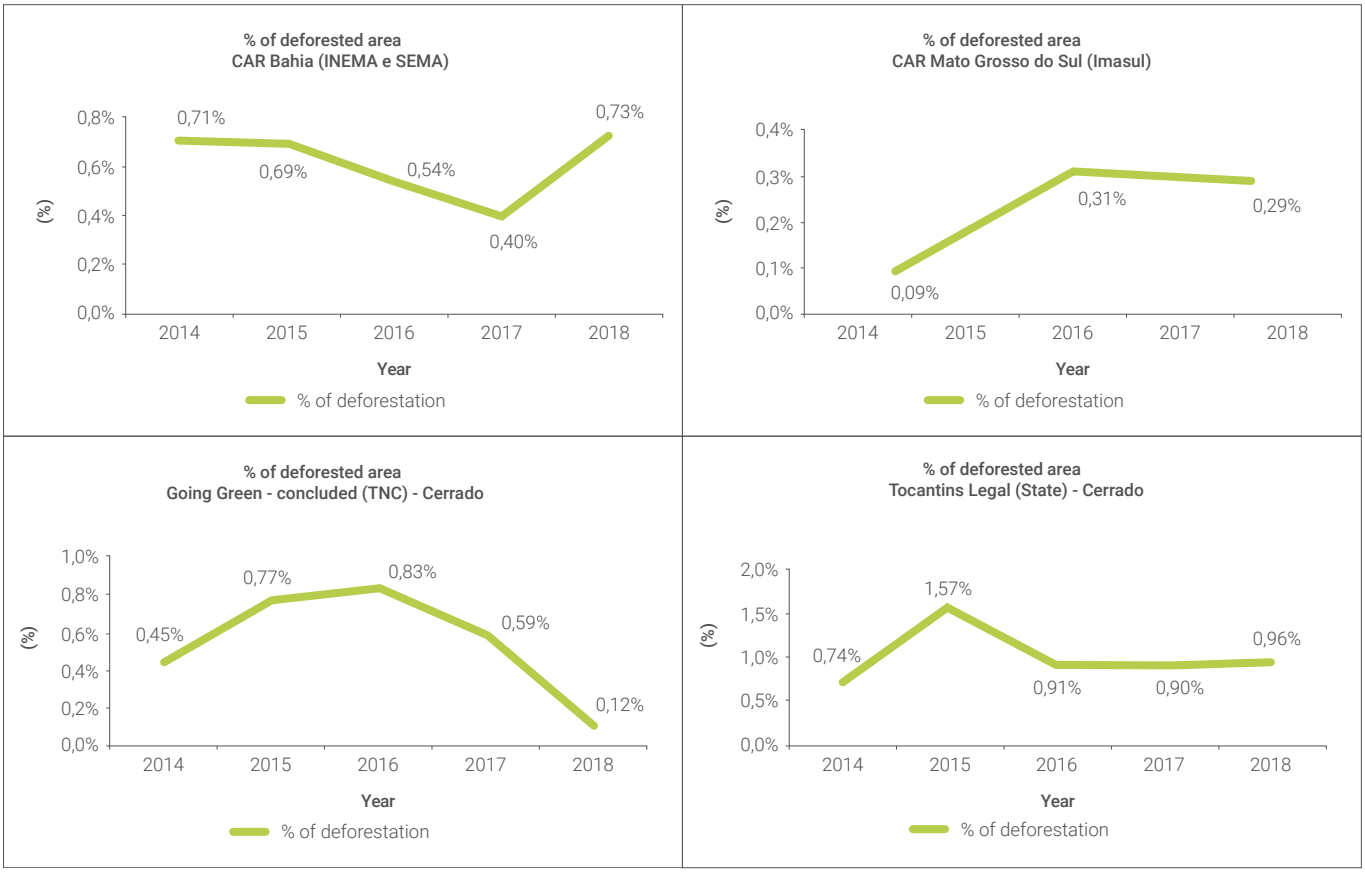
Source: Own elaboration from SICAR data on supported project areas.

7.3. IMAGE — PERCENTAGE OF ANNUAL DEFORESTED AREA IN RELATION TO TOTAL CAR AREA IN THE AMAZON BIOME BY PROJECT



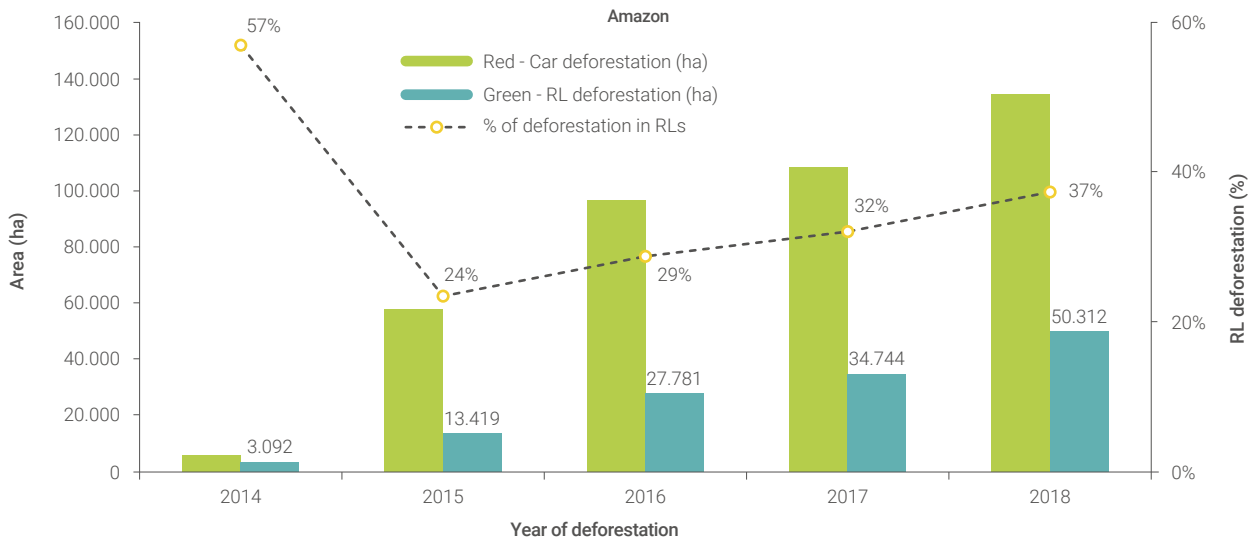
Fonte: Dados do SICAR e INPE..

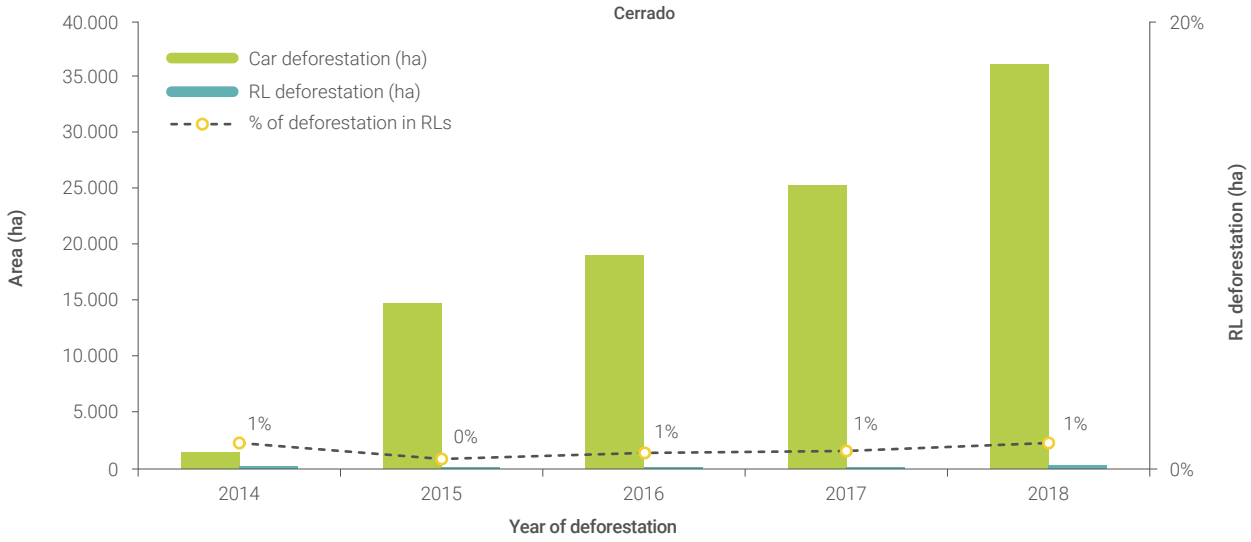
7.4. IMAGE — PERCENTAGE OF ANNUAL DEFORESTED AREA IN RELATION TO TOTAL CAR AREA IN CERRADO BIOME BY PROJECT



Source: Own elaboration based on data from SICAR and INPE on supported project areas.

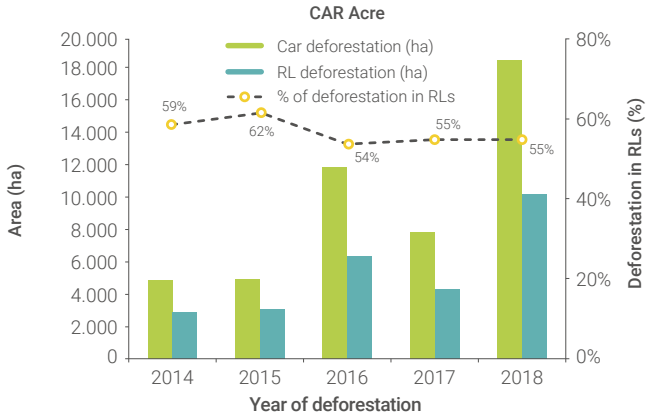
7.5. FIGURE — AREA IN DEFORESTED HECTARE, DEFORESTED AREA IN LEGAL RESERVES (RL) AND PERCENTAGE OF VEGETATION LOSS ON THE RL PROPERTIES IN THE AMAZON BIOME PROJECTS AS A WHOLE, AND CERRADO BIOME

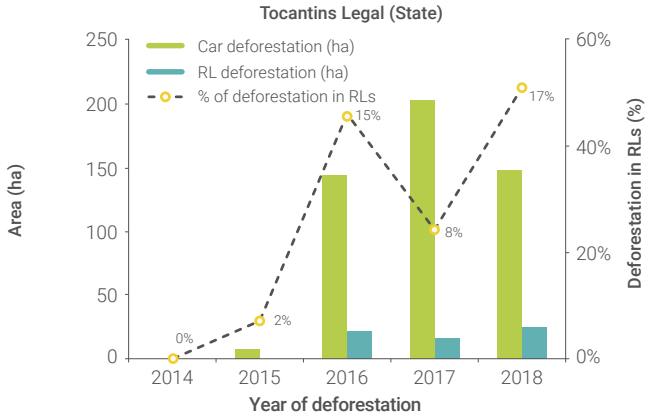


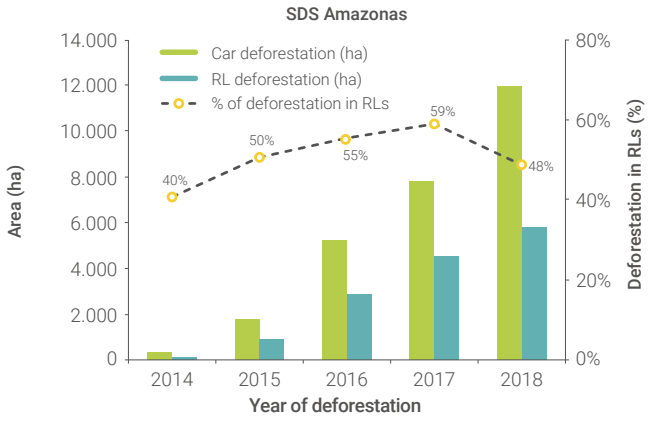


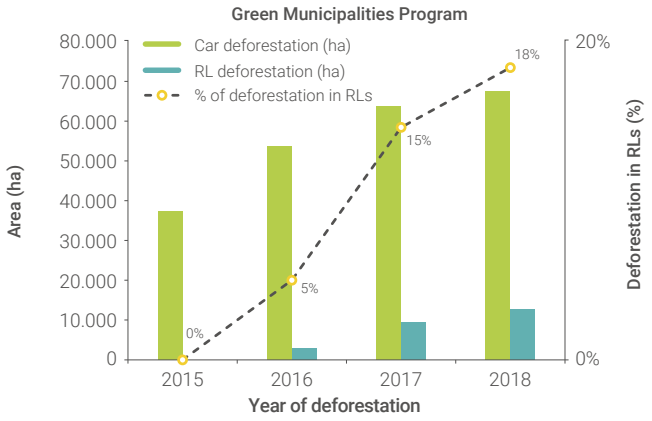
Source: Own elaboration based on data from SICAR and INPE on supported project areas.

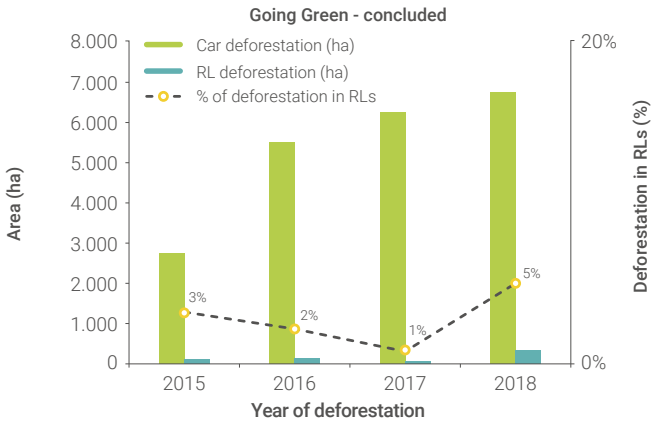
7.6. AREA IN HECTARES DEFORESTED, AREA DEFORESTED IN THE LEGAL RESERVE (RL) AND PERCENTAGE OF VEGETATION LOSS ON PROPERTIES IN RL BY PROJECTS IN THE AMAZON AND CERRADO BIOMES

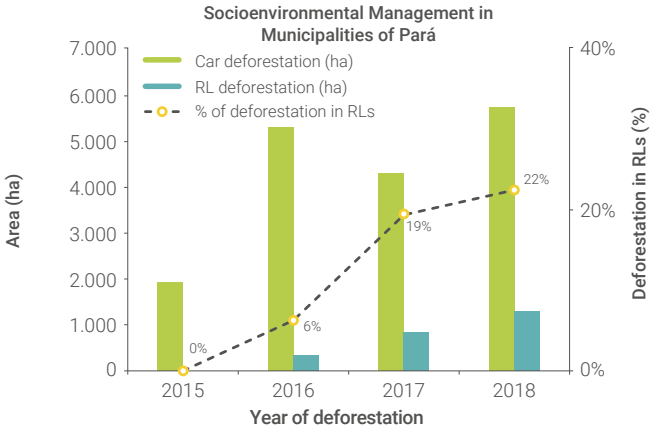


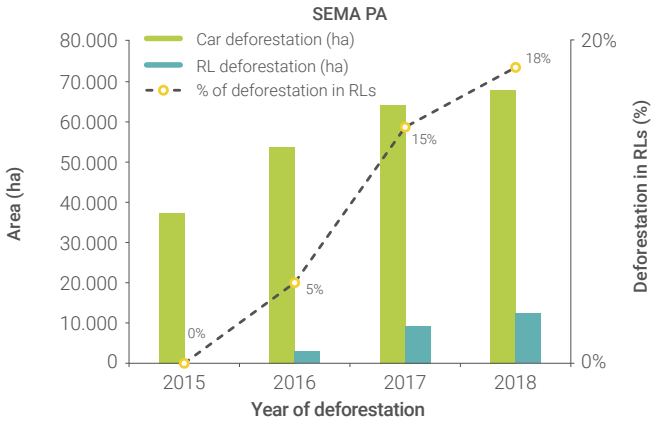


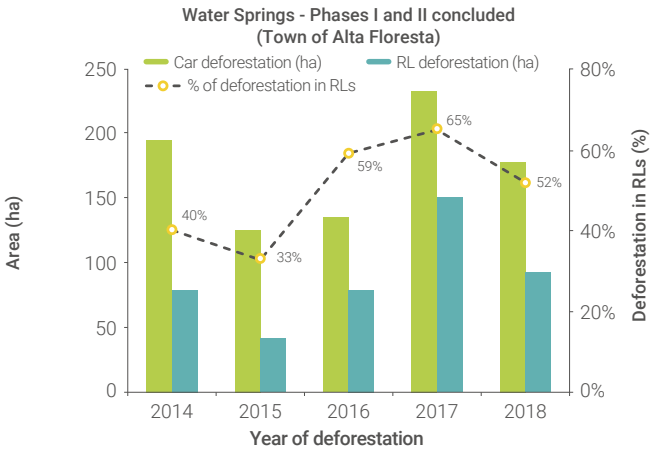


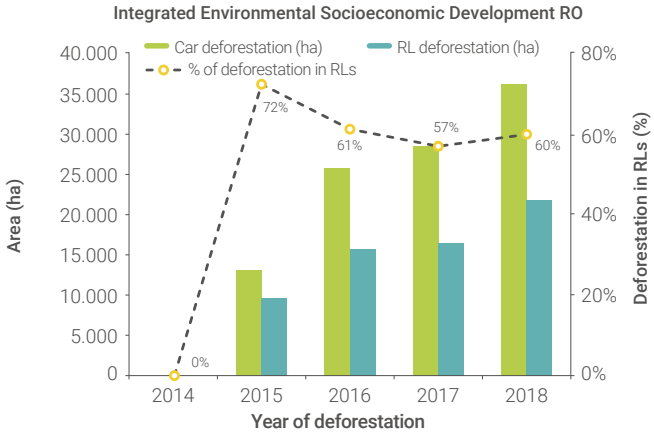


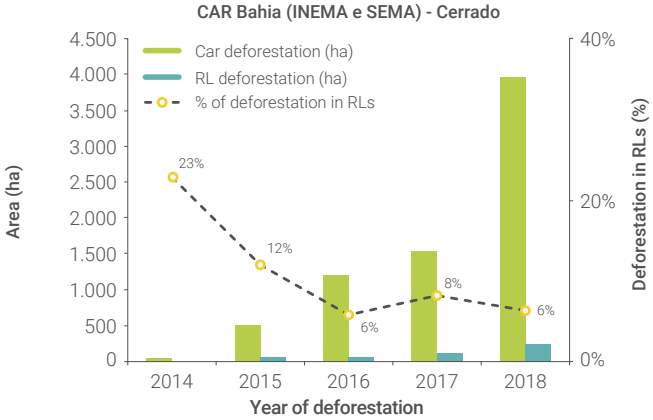


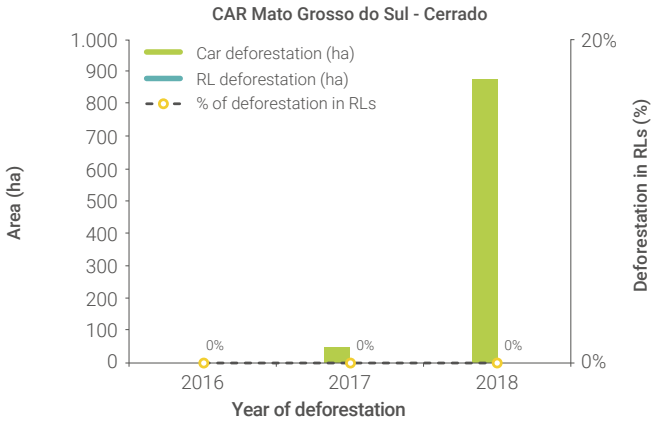


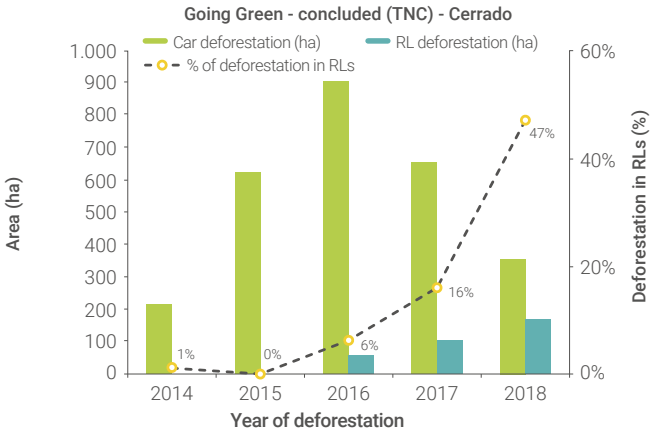






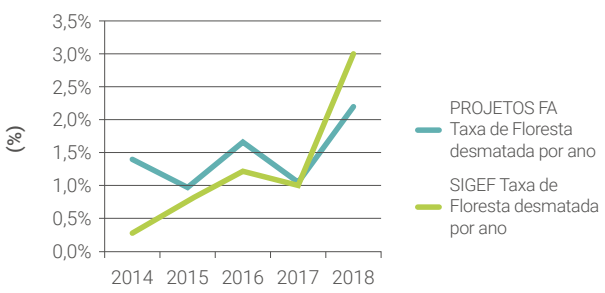


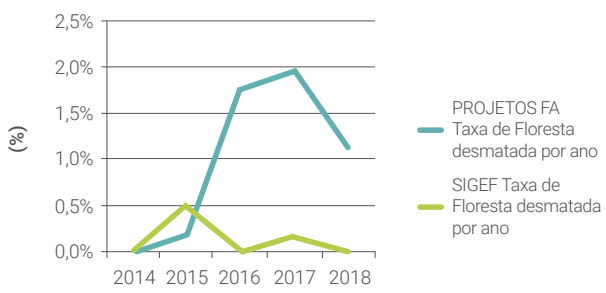


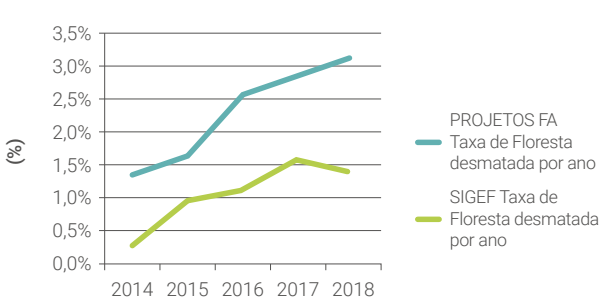


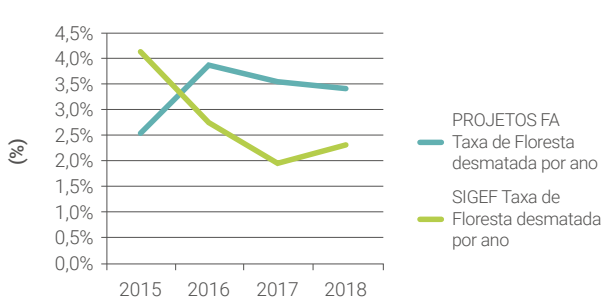
Source: Own elaboration based on data from SICAR and INPE on supported project areas

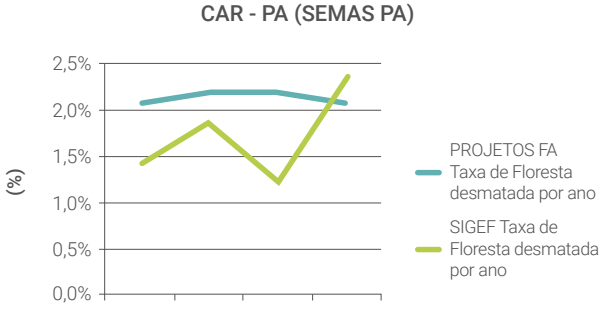
7.7. FIGURE — COMPARATIVE ANALYSIS BY TERRITORIAL DOMAINS. SOURCE: PROJECTS SUPPORTED BY THE AF, SIGEF

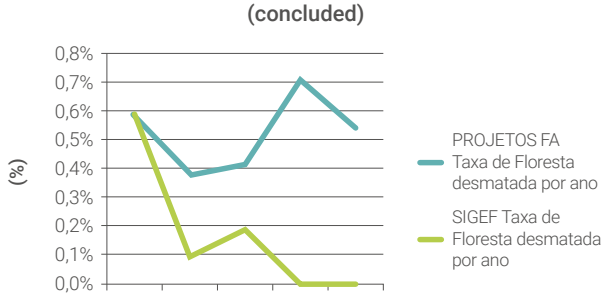


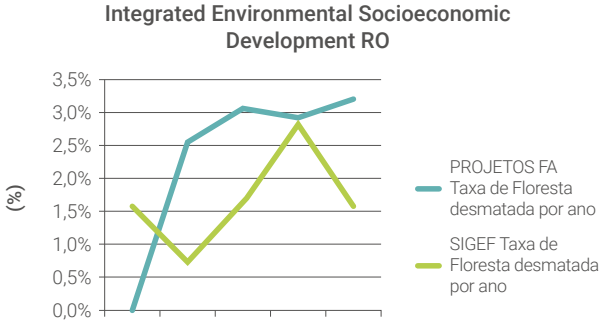


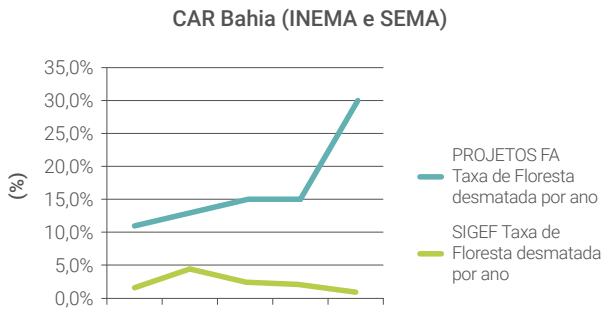


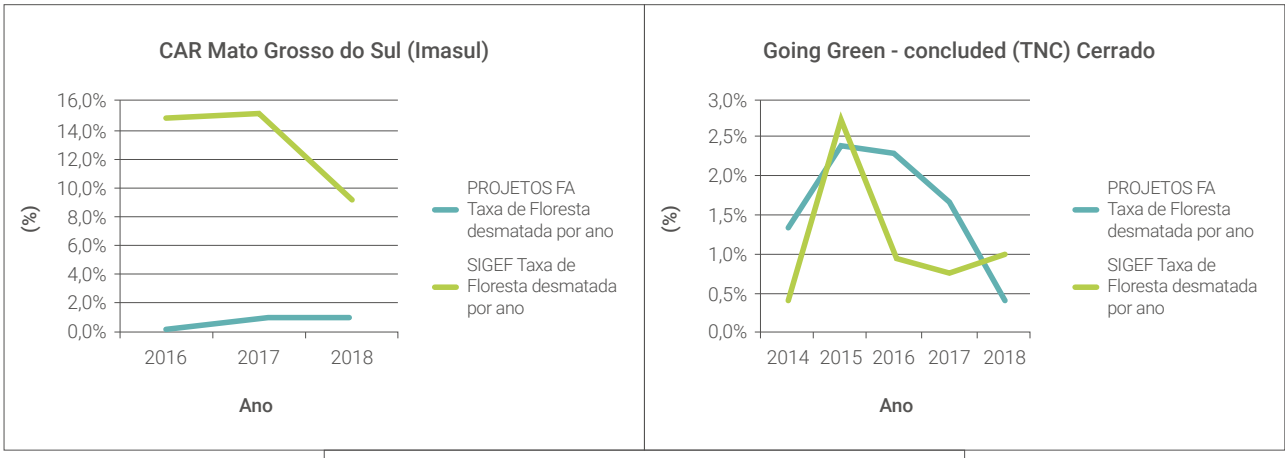


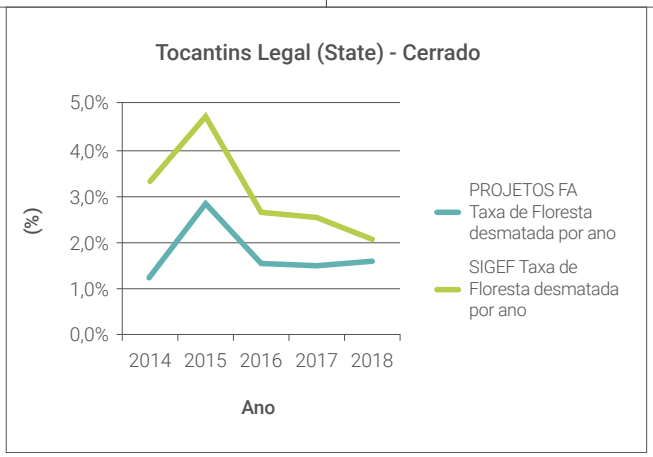












Source: Own elaboration based on data from SICAR and INPE on supported project areas

7.8. INDICATORS ON THE USE AND INFLUENCE OF CAR IN PUBLIC POLICIES

MONITORING AND CONTROL

Theme	Questions	Indicators	Evaluation	Added Info	Source
Enforcement	Does the CAR database guide the planning in enforcement actions in the projects' range? How?	CAR database use in the inspection actions.	**A:** The inspection actions use CAR database of to find irregularities?	How is the database considered? In what cases is the CAR database used for enforcement? How was the inspection action project area (increased, decreased, indifferent)? Why? It is possible to trace a relationship with the project (temporal analysis)?	State agencies for environmental enforcement
			B: The inspection actions use the CAR database in some cases		
			C: The inspection actions do not use CAR database as a reference.		
Licensing	Is the CAR database used in environmental licensing?	CAR database use in environmental licensing	**A:** The CAR database is used in the analysis of environmental licensing and in issuing licenses	How is the database considered? What are the cases where the CAR is considered in the licensing analysis? How is it characterized in the scope of the program (increased, decreased, indifferent)? It is possible to draw a relationship with the project (temporal analysis)?	State agencies for environmental licensing
			B: The CAR database is used in environmental licensing analysis and issuing environmental licensing in some cases		
			C: The CAR database is not used in environmental licensing analysis and licenses issued in some cases		
Responsibility	Is the CAR used to identify those responsible for illicit action? How does that happen in the region of the scope of the project?	Use of CAR database in the accountability process for environmental offenses	**A:** The CAR database is used in accountability process	How is the database is used? What are the cases in which CAR is considered in accountability process? How is this characterized in regions covered by the project (increased, decreased, indifferent)? Is it possible to draw a relationship with the project (temporal analysis)?	States institutions for responsible for punishing environmental infractions
			B: The CAR database is used in the accountability process in some cases		
			C: The CAR database is not used in accountability process		

FOREST CONSERVATION AND REMAINING FORESTS

Theme	Questions	Indicators	Evaluation	Added Info	Source
Priority conservation areas	Did CAR orient the identification of priority areas for conservation either through recovery or through the guidance for the creation of UCs in the project's scope?	CAR database used for identification of priority areas for conservation	**A:** CAR database is used for the identification of priority areas for conservation	In which cases is the database used in conservation planning? How does it influence the project territory? It is possible to establish a relationship with the project (temporal analysis)? If not, why not?	OEMAS, management institutions in protected state areas, towns under the project's action and federal government
			B: CAR database is used for the identification of priority areas for conservation sometimes		
			C: CAR database is not used for the identification of priority areas for conservation		
Water resources planning	Is the CAR database is used in water resources management in the scope of the project?	CAR database use in water resources planning and management	**A:** CAR database is used in water resources planning and management	In which cases is the database used in the management of water resources? How did it influence the scope of the project? It is possible to establish a relationship with the project (temporal analysis)? If not, why not?	OEMAS, state hydric resources management agencies, towns under the project influence
			B: CAR database is used in water resource planning and management sometimes		
			C: CAR database is not used in water resource planning and management		
Recovery of degraded areas	Is the CAR database is used in monitoring of degraded areas (PRADA) in the scope of the project?	CAR/ PRADA contributed to the recovery of degraded areas	**A:** The CAR database is used for the monitoring of the recovery of degraded areas identified at PRADA	How many (n and &%) properties on CAR PRADA in the state and in scope of the project. If they are not used, why not?	OEMAS, forest management/ forest code implementation agencies in the states, towns under project influence
			B: The CAR database is used for the monitoring of the recovery of degraded areas identified at PRADA sometimes		
			C: The CAR database is not used for the monitoring of the recovery of degraded areas identified at PRADA		

TERRITORIAL AND LAND PLANNING

Theme	Questions	Indicators	Evaluation	Added Info	Source
Economic and Environmental Zoning	Did the state EEZ consider the CAR database on territorial management?	The CAR database is used in territorial planning	**A:** The CAR database uses EEZ as an instrument for territorial ordering	How is CAR used in territorial planning? And if it is not used, why not? Does the project reach include any territory under EEZs scope? Was there an initiative of territorial ordering in the area within the scope of the project? Which ones? Did this initiative consider CAR? What were its results??	OEMA, State planning agencies
			B: The CAR database uses EEZ as instrument for territorial ordering sometimes		
			C: The CAR database does not use EZE as instrument for territorial ordering sometimes		
Agricultural zoning		Agricultural zoning uses CAR database for territorial management	**A:** The CAR database is used in agricultural zoning as an instrument of territorial management	Pertinent question only if there is agricultural zoning and other territorial ordering instruments in the state which are valid in the project's range region.o.	OEMA, State planning agencies, State and Municipal Agricultural agencies, MAPA, Embrapa
			B: The CAR database is used in agricultural zoning as an instrument of territorial management sometimes		
			C: The CAR database is not used in agricultural zoning as an instrument of territorial management		
Land Use Regulation	Is the CAR database is being used to help the land regulation of rural properties benefited by the project? How?	The CAR database is being used to help land use regulation in rural properties	**A:** The CAR database is used for land regulation	How was the database used? Are there partnerships in land institutions? Was there any cases of regularization using CAR in the region under the project scope? If not, why not?	State and federal agencies
			B: The CAR database is used for land regulation sometimes		
			C: The CAR database is not used for land regulation		

ECONOMIC ASPECTS

Theme	Questions	Indicators	Evaluation	Added Info	Source
Credit	Are farmers benefiting from the project having an easier time to get public rural credit?	Restrictions on access to public rural credit	**A:** Producers without CAR suffer restrictions on access to public credit	Which financial agents in practice restrict credit for lack of CAR? How did this configure itself among the producers benefited by the projects?	Public companies for technical assistance and agricultural state secretary
			B: Producers without CAR suffer restrictions on access to public credit in some cases.		
			C: Producers without CAR do not suffer restrictions on access to public credit		
	Are farmers benefiting from the project having an easier time to get public rural credit?	Restrictions on access to public rural credit	**A:** Producers without CAR suffer restrictions on access to public credit	Which financial agents in practice restrict credit for lack of CAR? How did this configure itself among the producers benefited by the projects?	Public companies for technical assistance; state agriculture secretary
			B: Producers without CAR suffer restrictions on access to public credit in some cases		
			C: Producers without CAR do not suffer restrictions on access to public credit		
Market Access	Did the farmers benefiting from the project have differentiated market access for their products?	Access to private markets	**A:** Producers joining CAR have greater access to private markets	How is this configured among the project beneficiaries? Have farmers increased access to private markets?	Producers association on the territories benefited by the project; Public companies for technical assistance; state secretaries for agriculture
			B: Producers joining CAR have greater access to private markets in some cases		
			C: Producers joining CAR no longer have access to private markets		
	Farmers had better access to public procurement markets	Access to institutional public markets	**A:** Producers joining CAR have better access to institutional markets	Identify existing institutional markets in the project coverage region. Has the number of farmers selling to public procurement programs increased by joining CAR?	Producers association on the territories benefited by the project; Public companies for technical assistance; state secretaries for agriculture
			B: Producers joining CAR have better access to institutional markets		
			C: Producers joining CAR have no better access to institutional markets		

NORMATIVE INSTRUMENTS

Theme	Questions	Indicators	Evaluation	Added Info	Source
Normative State mark	Does the project support the preparation of the PRA regulatory framework?	Contribution of the project to the definition of the PRA regulatory framework	**A (high):** The project contributed in a fundamental way to the definition of the PRA regulatory framework.	Implementing institutions, OEMAs	Implementing institutions, OEMAs
			B (average): The project contributed secondary to the definition of the PRA regulatory framework.		
			C: Implementing institutions, OEMAs		
	Has there been progress in regulating economic instruments associated with the Forest Code, due to the influence of the project?	Contribution of the project to the regulation of article 41 on economic instruments	**A (high):** The project contributed in a fundamental way to the regulation of article 41 of the forest code in the state	Implementing institutions, OEMAs	Implementing institutions, OEMAs
			B (average): The project contributed secondary to the regulation of article 41 of the forest code in the state		
			C (low): Implementing institutions, OEMAs		
Municipal normative mark	Has the project contributed to the development of municipal environmen-tal and forest management standards?	Contribution of the proje ct to the definition of the municipal regulatory framework	**A (high):** The project contributed in a fundamental way to the definition of the environmental normative framework of the benefited municipalities.	Implementing institutions, OEMAs, municipal environmental organizations	Implementing institutions, OEMAs, municipal environmental organizations
			B (average): The project contributed secondary to the definition of the environmental regulatory framework of the benefited municipalities.		
			C (low): Implementing institutions, OEMAs, municipal environmental organizations		

GOVERNANCE

Theme	Questions	Indicators	Evaluation	Added Info	Source
Participation of the relevant social actors	The projects did social actor analysis in the elaboration phase?	Actors from different social groups were involved in the project's design	**A (high):** The project was designed with the participation of the social actors benefited by the project	Identifying the benefited actors in different projects. Identify the aspects of participation (consultation, collaboration, co-creation)	Project approved with the proponents; interviews with the proponents, and other actors like associations
			B (average): The project was designed with the participation of some of the social actors benefited by the project		
			C: The project was designed without the participation of social actors benefited from the project		
Conflict between the parts	The beneficiaries and implementers have conflicts in the process of implementing the project?	Conflict between beneficiaries and implementers	**A (high):** There is no conflict between beneficiaries and implementers	Which social actors were involved in the conflicts during project implementation? What are the conflicts? Are they of interests, points of view or values?	Interviews with project implementers and
			B (average): There is eventual conflict between beneficiaries and implementers		
			C (low): There is severe conflict between beneficiaries and implementers		
Implementers and beneficiary conflicts?	Is there a mechanism for conflict resolution?	Conflict resolution	**A (high):** There is a formal mechanism for conflict resolution between beneficiaries and implementers	What are the mechanisms for conflict resolution? Is the mechanism efficient in conflict resolution? Is the conflict solved often?	Interviews with project implementers and
			B (average): A formal mechanism for conflict resolution between beneficiaries and implementers is activated in case of issues		
			C (low): There is no formal mechanism for conflict resolution between beneficiaries and implementers		

→

GOVERNANCE

Theme	Questions	Indicators	Evaluation	Added Info	Source
Sustainability of results Strategy	Do the projects have exit strategies in their acting scope?	Exit strategy	**A (high):** The Project has an exit strategy after the end of the program.	What are the strategies? Do they identify key institutions for continuity? How are the actors involved in this process? Do these actors possess the knowledge, skills and resources necessary to maintain the sustainability of the benefits generated by the project? If there is no strategy, why not?	Interview with implementers
			B (average): The project approaches key elements to ensure their benefits are continued after its end but does not organize an exit strategy.		
			C: The project does not have an exit strategy, nor does it approach any mechanism that aims to continue its benefits after its ending		
	The project generated some product that was incorporated in public policy?	Scalability	**A (high):** The project did generate products (methodology, technical pieces, etc.) which has been incorporated in public policy.		Interview with the implementers
			B (average): The project generates products (methodology, technical pieces, etc.) which were partially incorporated in public policy.		
			C (low): The project did not generate products (methodology, technical pieces, etc.) which has been incorporated in public policy.		

7.9. LIST OF INTERVIEWEES

State	Interview	Institution
Acre	João Paulo Mastrangelo	UFAC
	Cláudio Cavalcante	SEMA-AC
Ceará	Maria Tereza	SEMACE
Maranhão	Luciene Dias	SAF
Mato Grosso do Sul	Marcelo Moraes Freitas	IMASUL
Bahia	Pablo Rabelo	SEMA-BA
Espírito Santo	Fabrício Fardin	IDAF
Pará	Juliane Moutinho	PMV/SEMA
	Ayami	PMV/SEMA
	Luiz Cardoso	SEMA
	Kátia	SEMA
	Maximira Silva	SEMA
	Jaqueline Gomes	CIMAM/ SEMA
	Paulo Amaral	IMAZON
	Katia Pereira	IMAZON
	Bruno Kono	ITERPA
	Jamerson Viana	EMATER-PA
	Francisco Fonseca	TNC
	Teresa Moreira	TNC
Rondônia	Arquimedes Longo	SEDAM
	Geovani Rosa	SEDAM
Amazonas	Julia Linhares	SEMA
	Eduardo White	IPAAM
Roraima	Wagner Severo	FEMARH
Paraná	Pedro Bernardino	IAP
Tocantins	Samuel Gonçalves	SEMARH

7.10. EXCHANGE WORKSHOP REPORT

BACKGROUND

The Amazon Fund (FA) was created in 2008 by Decree No. 6,527 / 2008 to capture donations and allocate their value to non-repayable investments through projects on actions to prevent, monitor and combat deforestation and to promote conservation and the sustainable use of the Amazon. It is worth noticing that there was an update of the territorial scope of the Amazon Fund, which has gone from the Amazon biome to the Legal Amazon (Decree No. 8.773 / 2016). Thus, the Cerrado biome, which covers 37% of the Legal Amazon, was contemplated by the actions of the Fund, as well as 40% of the Pantanal biome and small stretches of varied plant formations.

The actions of the Amazon Fund are guided by the guidelines of the Action Plan for Prevention and Control of Deforestation in the Legal Amazon (PPCDAm) and the National Strategy for Greenhouse Gas Emissions Reduction, Deforestation and Forest Degradation, Conservation of Forest Carbon Stocks, Sustainable Forest Management and Increased Forest Carbon Stocks (ENREDD +). The actions are arranged in the Logical Framework which, from its general objective, summarizes the specific objectives, their respective indicators and proposed targets, organized into four Components that drive non-refundable project support: 1) Productive Sustainable Activities (PHC), 2) Deforestation Monitoring and Control, 3) Territorial Planning and 4) Science, Technology and Innovation – this last component is currently the Science, Innovation and Economic Instruments Component.

After ten years of existence, the National Development Bank (BNDES), the Ministry of the Environment (MMA), the German Sustainable Development Cooperation agency, through GIZ and the Economic Commission for Latin America and the Caribbean (ECLAC) set up a reference group to guide an Amazon Fund Effectiveness Half Term Evaluation.

Within the scope of the Half-Term Evaluation currently underway, there is an ongoing Thematic Study aimed at evaluating the Fund's contributions through its Rural Environmental Registry (CAR) projects, in the context of the implementation of the Native Vegetation Protection Act (LPVN).

To support the Thematic Study, in the framework of the Half-Term Evaluation process, an Exchange Workshop was set up, for projects supported by the Amazon Fund related to the CAR theme, object of this report.

INTRODUCTION

The CAR, an instrument for environmental regularization of public and private real estate, created by Law No. 12,651 of May 5, 2012, also known as the Native Vegetation Protection Law (LPVN) became mandatory after January 1st, 2019, as established by Paragraph 2 of art. 59 of the aforementioned Law.

The Provisional Measure No. 867 published on 12/27/2018 in the Federal Official Gazette extended the period for signing up to the Environmental Regularization Program (PRA),

another instrument brought by Law No. 12,651 / 2012, until the end of the current year on 12/31/2019. That deadline, according to paragraph 2 of Article 59 mentioned in the previous paragraph, may also be extended for another year by an act of the Chief Executive.

By adhering to the PRAs, landowners and rural owners set up a recovery plan of the environmental compliance of their properties and, while the commitment is being met, they are exempt from sanctions. The deadline for the completion of environmental regularization is 20 years. The rules for the restoration of the areas to be recovered are defined by the states and the Federal District through specific regulations

In addition to the instruments mentioned above, the Decree No. 7.830,October 17, 2012 is fundamental to the understanding and application of the environmental regularization policy determined by LPVN, which provides for the Rural Environmental Registry System, establishes general rules for the Environmental Regularization Registry, about Law No. 12,651 of May 25, 2012, and the Normative Instruction No. 2 / MMA of May 6, 2014, which provides the procedures for the integration, execution and compatibility of the Rural Environmental Registration System (Sicar) and defines the general procedures of the Rural Environmental Registry - CAR.

CAR enrolment being mandatory from 01/01/2019, rural owners will need this subscription to access credit and agricultural insurance. CAR may also be required in commercial and bank transactions such as access to rural credit and agricultural insurance.

To date, more than 5.5 million rural properties are already at the database of the National Rural Environmental Registry (SICAR). The area of registered properties already exceeds 460 million hectares and also 1.7 million springs and 120 million hectares of declared legal reserves, indicating the success of the registration stage.

However, the environmental regularization policy faces a number of challenges, in part related to the registration demand from small farmers, on up to four tax modules and the territories of traditional peoples and communities. But the challenges certainly focus on the post CAR phase, as has been said by the states about the analysis stages of registrations and PRA compliance.

In this context, the CAR Exchange Workshop was designed with the projects supported by the Amazon Fund.

METHODOLOGY AND RESULTS

Considering the significant contribution made by the Amazon Fund to the states' CAR projects(R$ 386 million), it was justified to carry out a project exchange workshop, aiming at the systematization of grants and contributions to the study that will bring analysis and conclusions about the Fund's support to the CAR under the Half-Term Evaluation.

The aim of the meeting was to evaluate CAR projects supported by the Amazon Fund and promote exchanges between them. The results of the meeting will also contribute to the final analysis of the CAR Study. These are the objectives of the exchange meetings on projects supported by the Amazon Fund:

- Exchange experiences on policy implementation;

- Identify how support from the Amazon Fund has optimized CAR implementation;
- Identify how support from the Amazon Fund has accelerated the structuring of state regulations instruments, especially PRAs;
- To what extent the direct aims of the projects have been or will be achieved and which factors are most important;
- Identify what is changing with CAR implementation (What changes can be identified in reality?);
- Raise insights into the effectiveness and impacts of these projects;
- Identify which strategies can be adopted and reinforced for policy sustainability and;
- Collect data and information on the cost-effectiveness of results achieved - investments made economically vs. results achieved satisfactorily.

To achieve the aims, the workshop was planned for a day and a half with the following schedule:

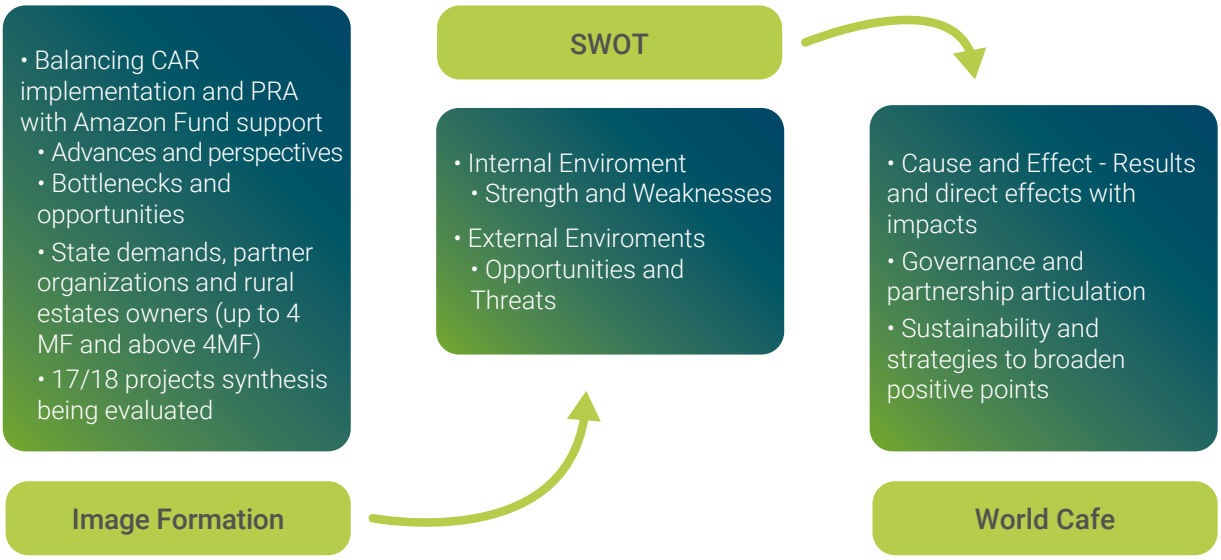
1st day

- 8h30 Coffee with Accreditation
- 8h50 Opening
- 9h10 Project Overview
- 9h40 SWOT Matrix
- 10h30 Coffee Break
- 12h30 Lunch
- 15h15 World Coffee
- 18h Accreditation Coffee

2nd day

- 9h Next Steps
- 11h Closing

The logical thread of the workshop followed the three steps in the following figure.



The Image Formation stage filled the role of levelling the participants in the overall picture. For this task, the Brazilian Forest Service was invited; Jaine Davet, Director of Forestry Registry and Development did the presentation: The National Overview of the advances and prospects for the implementation of the Law of Native Vegetation Protection Law and the development of the CRA Module with support from the Amazon Fund. Considering the amount of the work developed by the Brazilian Forest Service, we can highlight some points:

- Streamlined Flow Analysis Delivery under development;
- Assisted implementation of the Analysis Module in 7 UFs by the end of 2019;
- Finishing the development of the CRA Module;
- PRA Streamlined Module Development in planning.
- Owner Center Application for smartphones and tablets in approval;
- Other technical, management and internal modules in planning, development and approval;
- Constant maintenance and improvement of existing modules as required by states and other users;
- 35 Technical Cooperation Agreements in the making (UFs and other public and private entities);
- FIP - Rural Landscapes, FIP – CAR, KFW – CAR projects: CAR for smallholders / rural owners, including PCT, CAR rectification, technical assistance for RL restoration, APP and AUR.

a. *SWOT* Matrix Application

Then the workshop schedule was presented, as described above, and the SWOT (or FOFA) matrix procedure was further detailed. To begin the analysis in the internal environment, as related to the projects and the management and operational environment, guiding questions were elaborated to characterize the Strengths and Weaknesses, according to the following table:

Internal Factors (controllable)
Strengths • Have the direct (specific) project aims been or will be achieved? • What were the main factors that influenced the fulfillment of direct (specific) aims?
Weaknesses • Were the direct (specific) aims of the project not or will not be achieved? • What were the main factors that influenced the non-fulfillment of direct (specific) objectives?

The plenary was divided into two groups - Strengths and Weaknesses - who had 30 minutes to answer the questions. After 30 minutes, the groups rotated, and a host was kept presenting the work results. The strength group learns about the outcomes from the weaknesses group and can contribute for about 10 minutes, closing the first step.

Then, under the same procedure, the Opportunities and Threats were worked in the external environment, as shown in the following table:

External Factors (Uncontrollable)
Opportunities • Did the project make any difference to the beneficiaries? Does the project have a scale in the region? Does the project influence other initiatives? What the project provided or can generate in terms of new opportunities / sustainability in the town? What about the State? With the Federal Government and other partners? • What federal public policies or international agreements did the project provide for? • Has the project contributed, or could it contribute directly or indirectly to reducing emissions from deforestation or forest degradation? In what way? • With the results achieved by the project, what opportunities arose?
Threats • What are the main factors that influenced the failure to achieve results? • What risks should be monitored to ensure project sustainability? • What external factors may compromise project execution? The results? The impacts? • Is CAR a sustainable policy? What are the threats to the sustainability of environmental regularization policy?

The methodology provided the “marketplace of ideas” so that all participants learned about everyone’s responses and had the opportunity to discuss and contribute to the work. At the end of the initial two stages, the presentation was made by the hosts of each block.

The result of the procedure can be seen in the following table:

Box: Results from the SWOT application with the "marketplace of ideas"

Strength	Weakness
Ceará • Payment conditional upon prior review by the monitoring module (5 days to rectify) • Prior training for contractors • Well-designed TdR • Interfaces with rural unions: environmental and land • Uses regularized land network • Requirements for rural credits, licensing, river basin regularization **Mato Grosso do Sul** • Legislation • Licensing • Land agency as partner • Land ownership mapping **Pará** • CAR analysis by towns • SEMAS capacity settled • Meat / Grain TACs • EMATER • Decentralized management, municipal support, partners support, institutionalized norms • Producers' mobilization and Awareness with Everyday Language (100 municipalities) • Access to rural credit and proof of retirement • CAR is a prerequisite for licensing and getting a licensing waiver • Migration to the SICAR PA system • List of deforesters vs. CAR (LDI) • Green ICMS (CAR as criterion) **Mato Grosso - Alta Floresta - TNC** • BNDES, World Bank, KfW and other investments • Investment in local OEMA • Support for family farming • Exit from towns in MMA list • Mapping quality (no overlap) - lower analysis pending (TNC) • Support and local articulation • Established history in Environmental Management • Technology Package (Mapping and Tool) (TNC)	• Need for CAR analysis to be carried out • Staff turnover • Skills Demand • Delayed / bureaucratic bidding process at state level in service hiring processes • Need to increase quality in the elaboration of TdRs • Delay in SICAR integration process • Technical and logistic complexity for methodology definition • Conflict of interest - no register, no analyze • Lack of alignment of legal bodies regarding analysis outsourcing • Lack of standardization and definition of CAR registration in settlements • Low adherence to CAR by farmers • Lack of technical staff • Complexity of contract management and supervision • Lack of exclusive HR for product and service approval • Lack of regulations for CAR enrolment in specific activities (e.g. mining) • No reference in territories for registration planning

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Strength	Weakness
Rondônia • Land ownership map • EMATER Partnership - Technical Assistance and Rural Extension • Legislation (Public Prosecutor's Office) • Environmental licensing • Grant water use • Technical training • Meatpacking Requirement • Mobilization • BNDES Equipment and Vehicles - Investments **Maran** • PCT module • Servers Training • Support partners (rural unions) - partnerships • Levelling public policies with partners • Structuring (rural regional extension) - deconcentration of state vs. decentralization • Strengthening agriculture body (focus family farming) • PCT movement partners • Perception of the relationship between the environment and land owners guides CAR **Amazonas** • ATER focused on assistance, reconciling agriculture and forest • Integrated mobilization and awareness and communication plan (under development) **Transversal** • Indirect Results • Local capacity • Qualified Information • Forest Code Implementation in the field • Financial resource application improvement • Boost territorial planning projects • Investments • CAR as an aggregator for environmental, land, economic, social, liability recovery • Municipalization of the environmental theme • Institutional strengthening through structuring, complementary databases and images, and integrated information systems - technology	

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Opportunities	Threat
Amazonas • SAF and Reforestation Opportunities • Had scale and encouraged other policies • Contributed to reducing deforestation • Appreciation of environmental assets • Regulatory Process • Standardization of offsets and environmental assets in progress **Rondônia** • Access to various public policies for environmental regularization, land tenure and credits • Has scale (all towns) • Has advanced in other initiatives like PRA • Contributed to reducing deforestation • Environmental easement • Liability Recovery - Green Corridors / APP • Liability Mapping **Mato Grosso do Sul** • Opportunity to enter land regularization • Knowledge of Law 12.651 / 2012 • Contributed to reducing deforestation through licensing • New opportunities for advancement in PRA and more sustainable business • PSA already standardized • Ecological ICMS • RL quota increase by UCs • CAR: Unified Rural Property Information • Awakening the role of farmers as agents of change **Mato Grosso - Alta floresta - TNC** • Leaving MMA list, 82% land use regulation • Local experience encouraged state policy • Emission reduction through deforestation and degradation Ex. Alta Floresta (+5000 hectares natural regeneration) • Involvement of new actors in forest restoration (Embrapa, UNEMAT, ICV) • Creation / strengthening of recovery chains • Management: Territorial Planning at Municipal Scale • Environmental education - professional awareness and training of	**External factors compromise project / results and impacts** • CHANGE IN MANAGEMENT: BNDES and Government; Staff turnover • CAR OVERLAPS (technical error x land regularization): Low public use up to 4MF from the owner owning center; Institutional Alignment BNDES - OEMAS Project Actions, reference database and inputs to support the registration (opportunity?) • AF DISCONTINUITY: High CAR rectification demand - SICAR over-rectification; Differentiated logistics costs of Amazon states need to be internalized in BNDES • LAND REGULARIZATION: Territories in dispute, UC displacement database; Updating and dynamics of land tenure - It is important for CAR to integrate with land databases, so that CAR can also follow the dynamics of land tenure regularization; High informality of access to land and diversity of proof of possession; Landfill missing • CAR SUSTAINABILITY: Changes to Law 12,651; Weakening of national environmental policy; Lack of specific credit incentive for regularization; Lack of state political support for regularization; Guarantees (Financing Guarantee Fund); Indebted Producers **Risks to be monitored for sustainability** • Juridical insecurity • Lack of qualified service providers • Downgrading Rural Real Estate Domain Data • SICAR weaknesses that lead to fraud • Lack of cartographic databases updating • Delay in the process of regularization of real estate (embargoed areas) **Factors for failure to reach** • Harvest and planting period • Electoral period • SICAR instability (down for15 days) • IBGE databases x States update • Old land use mapping • Low adherence to CAR by rural producers • Deadline Extension CAR OEMA Strategies • Lack of understanding of external control institutions • CAR logistics and costs • Access logistics to target audience

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Opportunities	Threat
Pará • PSA Grid reference • Towns and estate payments • Encouraged Green ICMS • Largest public register in Brazil • Resource generation from decentralization at municipal level • Largest discussion on Forest Code -knowledge • CAR - Best Business Environment sustainable areas • CAR as a planning tool by municipal managers • OEMAs Revenue Increase with licensing (CAR-LAR) • CAR as an instrument for monitoring and accountability for illegal deforestation • Identification of special public (Ribeirinhos,PCT) **Bahia** • Strengthening supervision and licensing • PSA process qualification • Strengthening Water Resource Policies • Strengthening of the relationship with towns and federal government • Improved territorial management of deforestation • Technological advances propositions **Ceará Maranhão** • Training and integration with towns/ unions • Research Integration X Water Resources x Land regularization • Geodatabase, local scale environmental • Property Capacity Assessment (use of land) • Credibility to project data BNDES • Farmers' knowledge of Environmental policies-Environmental Education **Maran** • REED + • SIM - Articulation with several partners, social movements, other ministry departments and federal government • SIM in all states • SIM in all new projects • Deforestation monitoring and control • Transparency in sustainable activities • Audience Access Logistics • Enable the need for regularization in land use as well • Enabling PCT territories and empowering policies for them • Strengthen State Environmental Policies	

b. Application of the World Coffee methodology

Then, with the objective of deepening the issues raised by the application of the SWOT Matrix, the World Coffee was held. For the procedure, three blocks of questions were elaborated, and participants were divided into three groups, which had 30 minutes to work on each block. After three rounds, all participants had the opportunity to discuss and contribute to the aspects addressed by each block. Each block elected one host who welcomed the groups that arrived for the rounds. The following is the division table of guiding questions by block.

Block I – results and impact	• To what extent are the project objectives still valid today? • Project activities and immediate results are consistent with the scope of the objectives set for the project? • What were the main changes generated with the project results? • Describe and indicate the causes of the positive or negative effects observed, intentional or not
Block II – management and governance	• To what extent has the project promoted the articulation between various actors (public, private, third sector or local communities)? • Has shared governance been used? Which aspects? • To what extent has the project contributed to strengthening public and environmental / forestry and territorial management processes?
Block III – Sustainability	• To what extent do project benefits last after the project funding from the AF has been completed? • Based on the opportunities and sustainability strategies which were the most successful strategies to ensure continuity and expansion of the positive impacts of the project?

Note that each block sought to deepen some evaluation criteria: in Block I, aspects related to Results and Impacts were addressed; in Block II, Governance and Partnerships and in Block III, Sustainability.

Block I	• Objective met to the extent that it has carried out environmental regularization including environmental liability recovery • The scale was above the registration and project goal - BA • Structuring municipalities for licensing from CAR • Databases for environmental management and sustainable business - MT • Review of Regulatory Milestones • Sustainable farm management changes (new look) - MT • Training State and Municipalities • Fall in deforestation X Increased environmental legality (regularity) • Technological Development (CAR module) - MS • Validation (deforestation decrease) - MS • Integration of public policies (monitoring, enforcement, licensing) • They are consistent but we need land regularization • Stimulated farmers' income generation (sustainable product chains) • BA and MT infrastructure development

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Block I	• Municipal and social governance MT • There is still a need for CAR rectification and analysis • Individual CAR requirement for access to PCT credit (negative effect not intentional) SPECIFIC CASE: Ceará Components I - Increase in the number of entries (CAR) II - Communication and integration III - TI Improvements • The increase in registrations led to the constitution of the state database • Strengthening of monitoring and control • TI improvement for analysis and validation • Quantification and qualification of assets and liabilities (positive) • Integration with environmental and land management • SINAFLOR x SICAR Synergy • Insufficient number of technicians to meet deadlines to validate entries (negative) • Crosscutting • Engagement of the productive sector with CAR • Project objectives are still valid although achieved, they still occur such as CAR registration • The dynamics of land use and occupation do not follow the update of the domain of rural estate • LAR decentralization to the municipality from the CAR database
Block II	• Exchange between local and interstate governance actors (Rondônia and Acre) • Creation of state discussion committee (MA) (CAR policy) • Dialogue with the GT • Dialogue between environmental agency and public PCT communities • IMASUL (environment) + AGRAER (family farming) + City halls • AM - Pre-project Effective Participation GT-CAR (OEMA, ATER, Union, INCRA, SERFAL, etc.) • Shared management between State and Municipality for CAR elaboration • Cooperation Term (MA and RO) • Organization of social actors joint actions (RO) • Municipal deforestation monitoring groups and CMMA (PA) • Creating GT with civil society (demand met) FA project execution (MA) • Strengthening municipal environmental management • Green Towns (PA) Program Steering Committee • Integration between land and environmental agency • Broadening dialogue between actors through committees and GT management group • Agenda building with various institutions • Possibility of dialogue between executing agencies and environmental policy planners • Empowerment of diverse segments / government agents and civil society • Awareness of shared responsibility • Territory Management (EEZs / UCs) • PRA Preparation

Block III	LASTING BENEFITS	SUCCESSFUL CONTINUITY AND EXPANSION STRATEGIES
	• Database as a territorial and environmental management instrument • Customizations: from States specificities, and SICAR • Staff training • Technological Innovation in environmental management • Awareness and education target audience • Inclusion of farmers in owner's central	• Support and acceleration of the construction of CAR data • Integration and availability of data for the governing ones • CAR data update and publicity • Infrastructure acquired and maintained in institutions
	• CROSSCUTTING • Integrated land use and occupation monitoring • Drafting of state laws and regulations (CAR and PRA) • PRA implementation • Implementation of CRA Markets • Strengthening of the state forest sector (CE) • CAR as ICMS transfer criteria	

The second day of the event began with a synthesis of the work from the previous day and then the hosts from each of the World Coffee Blocks presented the results presented in the previous table, referring to the three debated Blocks.

Following the plenary presentation, the provocative question was raised for a debate on the future: **what can the Amazon Fund contribute to advancing environmental regularization and sustainable development?**

The plenary had a rich discussion in which productive points were made. The systematization of this final moment of the even follows next:

- In addition to the CAR, it is necessary to implement the other PRA instruments
- Integration with land use organs to accelerate PRA
- Strengthen analysis and Pradas
- Strengthen land regularization associated with environmental regularization
- Support EMATERs for greater reach of environmental regularization
- Inclusion of PCT in project support
- Continue to support other biomes besides the Amazon
- Link environmental regularization with smallholder credit policies(eg articulation with Safra / Pronaf plan)
- Strengthen institutional instruments at all stages TAC of environmental regularization
- Standardization of service hiring procedures: elaboration of TdRs
- Promotion of environmental regularization integrated with production dynamics and markets

- Promote exchanges of experience and lessons learned workshops within the environmental regularization projects
- Integrate market players, private partners to promote Pradas valorization
- Include INCRA in discussions for CAR consolidation in settlements (CAR batch)
- Support for the strengthening of environmental surveillance instruments and technologies
- Support restoration chains with technological innovation and integration into regional socioeconomic dynamics

FINAL CONSIDERATIONS

The support of the Amazon Fund was fundamental for the implementation of the environmental regulation, giving states and partners the physical and human conditions for policy operationalization and implementation in a broad way. It is clear that with the progress in implementing the environmental regularization policy, based on technological solutions and physical and human infrastructure, a strong advance in the settlement registration was possible - in the registration phase. However, states have achieved remarkable synergistic results:

(i) The municipalization of politics is an example of the federative pact progress, which highlights the project contributions not only regarding environmental regularization policy, that is, the Law 12.651 / 2012 and its regulation, but has advanced on issues related to diffuse environmental rights and national environmental policy, when towns assume duties related to registration / analysis and consequently to environmental licensing;

(ii) The constitution of the rural estate database is an unquestionable asset in the hands of municipal and state governments and society; certainly, the current database has great potential to create opportunities for valuing ecosystem services, standardizing incentives and payment policies for environmental services;

(iii) The obtained results point to CAR's vocation to integrate with other policies;

(iv) The integration of land and environmental management is irreversible and necessary for its proper functioning, as well as the application and efficiency of land and environmental policies;

(v) Current and future steps of the environmental regularization policy will depend on support as state environmental agencies need physical and human resources to advance the analysis and certainly, rural society will need programs and solutions that make the recovery of environmental liabilities viable - the development of restoration techniques that are efficient and economically viable;

(vi) The population most vulnerable due to social issues and geographical isolation still needs attention in the registration phase.

MID-TERM EVALUATION OF THE AMAZON FUND

THEMATIC STUDY OF PROJECTS SUPPORTING THE RURAL ENVIRONMENTAL REGISTRATION (CAR)