

WHERE DOES BRAZIL STAND AND WHERE IS IT HEADING IN THE IMPLEMENTATION OF THE FOREST CODE?

OPPORTUNITIES FOR THE NEW LULA ADMINISTRATION



CLIMATE
POLICY
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ACTION BASED AGENDA
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WHERE DO WE STAND?

The year 2022 marks the 10-year anniversary of the **Native Vegetation Protection Law (Law no. 12,651 of May 25, 2012)**, known simply as the **Forest Code**. Implementing the law, however, still poses major challenges. Over the last 10 years, the law has become the primary public policy at the national level for the conservation of native vegetation in private areas, by means of two conservation instruments: Permanent Preservation Areas (*Áreas de Preservação Permanente* - APP) and Legal Forest Reserves. But the Forest Code is much broader than that. It is an umbrella policy that lays out rules and instruments to address both conservation and the control of deforestation and burning. It also takes into account the restoration of (and compensation for) deforested areas and incentives and economic instruments—in addition to regulating forest exploitation and promoting agroforestry systems—and establishes mechanisms for monitoring and environmental management of rural properties. Full enforcement of the Forest Code depends on the implementation of each of these instruments.

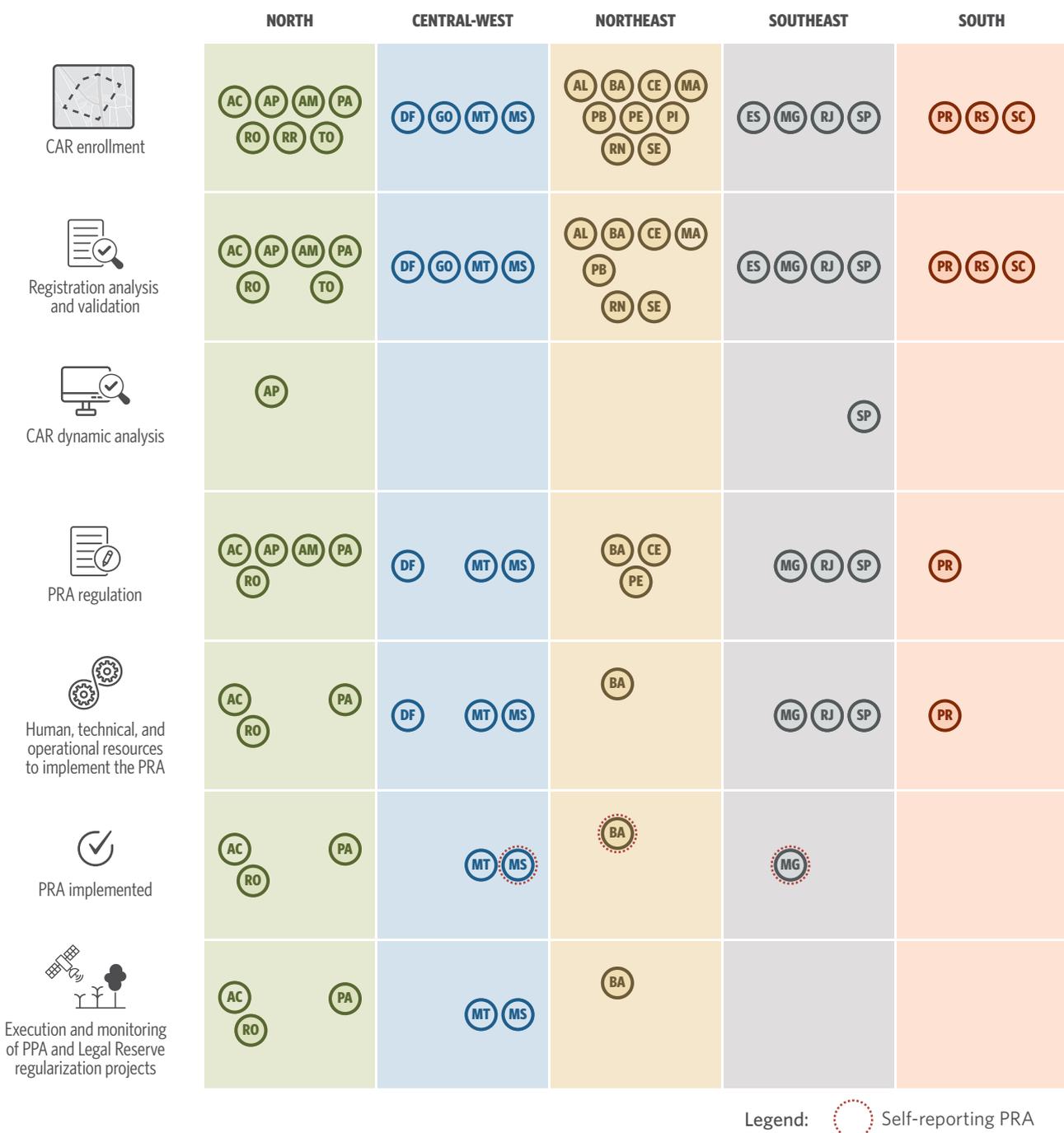
As the incoming government administration discusses new proposals for the environment, there are concrete opportunities and ways to move forward. However, it is important to emphasize that any sudden change to the policy and management of the Forest Code by the federal government could rupture the relationship with the states and impact the implementation of the law. Such changes must ensure the power balance established in 2012 to avoid further amendments to the law by National Congress.

In this publication, researchers from Climate Policy Initiative/Pontifical Catholic University of Rio de Janeiro (CPI/PUC-Rio) provide an unprecedented and updated snapshot of the implementation of the Forest Code in all Brazilian states, with a focus on the Rural Environmental Registry (*Cadastro Ambiental Rural* - CAR) and in the Environmental Compliance Program (*Programa de Regularização Ambiental* - PRA), to identify the primary challenges that must be overcome and to present an agenda with seven key actions for the effective implementation of the Forest Code across the country.

STEPS IN THE IMPLEMENTATION OF THE CAR AND THE PRA

The environmental compliance process for properties involves several steps and requires action from multiple stakeholders. Registration of rural properties in the CAR and the complete analysis of registration information by the authorities in charge are only the first steps; the states also need to regulate and implement the PRA, develop or adopt robust information systems, acquire cartographic databases, train technical staff and monitor the rectification of liabilities attached to rural properties. Figure 1 shows the status of the different states across the stages of Forest Code implementation.

Figure 1. CAR and PRA Implementation Status by State, 2022



Source: CPI/PUC-Rio, 2022

Implementing the law still poses major challenges, but this has not prevented the states from moving forward with the agenda. Progress, however, has been uneven across the board. **A select group of states—Acre, Bahia, Mato Grosso, Mato Grosso do Sul, Pará, and Rondônia—have completed all stages of Forest Code implementation**, but with different scales of gains among them. There is also an intermediate group that has not yet managed to reach the final stage of compliance vis-à-vis forest liabilities in rural properties, but which has already made progress in the most challenging stage: the analysis of registration data. This intermediate group has made varying degrees of progress; in some states the results of the analyses have been quite significant, such as in Espírito Santo and São Paulo, while others have just started this stage and are advancing slowly, as is in Rio de Janeiro, Santa Catarina, Sergipe, and Alagoas. Finally, three states—Pernambuco, Piauí, and Roraima—have stagnated in their progress, having managed to implement only the initial stage in which rural properties are registered in the CAR. If implementation continues at this pace, the Forest Code runs the risk of losing credibility and becoming a law applicable only in theory. Nonetheless, **the results recently achieved by São Paulo and by the leaders of Mato Grosso and Pará in the agenda as a whole demonstrate that progress is, indeed, possible.**

REGISTRATION OF RURAL PROPERTIES IN THE CAR

The step of registering rural properties in the CAR has been practically consolidated across all states. With a constant increase in registration volume across the country, due to both the registration of small farmers and traditional peoples and communities and the dynamics involved in the dismemberment and re-merging of rural properties. Minas Gerais has surpassed Bahia to become the state with the highest registration numbers in the country, at approximately 985,000. **Registration of territories belonging to traditional peoples and communities in the CAR has advanced** in the states of Acre, Amazonas, Bahia, Maranhão, Minas Gerais, Pará, Pernambuco, and Piauí. Despite these advances, in most states, this group continues to need help from the government.

An amendment to the law has made the CAR a permanent registry, with no deadline for producers to register their rural properties. Nonetheless, **the deadline for registering in the CAR with a guaranteed option to join the PRA expired on December 31, 2020.** Therefore, strictly speaking, property owners who register after that date may face consequences in terms of environmental compliance, such as losing benefits tied to PRA participation. But this rule may change with Bill (*Projeto de Lei - PL*) no. 36/2021, under discussion in the Chamber of Deputies (the lower house of Congress), which proposes changing the deadline for registering in the CAR while maintaining the benefits of the PRA.¹ Additionally, the federal government is expected to issue, in the final days of 2022, an executive order (*Medida Provisória - MP*) establishing a period of 180 days for landowners or possessors to join the program after being summoned by the competent authorities. If such an executive order is issued and passed into law by Congress, the right to join the PRA will be ensured for CAR registrations performed at any point in time.

¹ It is important to note that the Chamber of Deputies approved a replacement for Bill no. 36/2021 in December 2021 that, in addition to proposing changes to the PRA deadline, also amends several provisions of the Forest Code, with significant bearing on the law. On December 13, 2022, the Chamber of Deputies approved a request to fast-track the Bill as an urgent matter. Accompany updates on this process in the legislative branch by accessing CPI's Forest Code Barometer (*Barômetro do Código Florestal no Legislativo*): bit.ly/BarometroCF.

ANALYSIS OF THE DATA REPORTED IN THE CAR

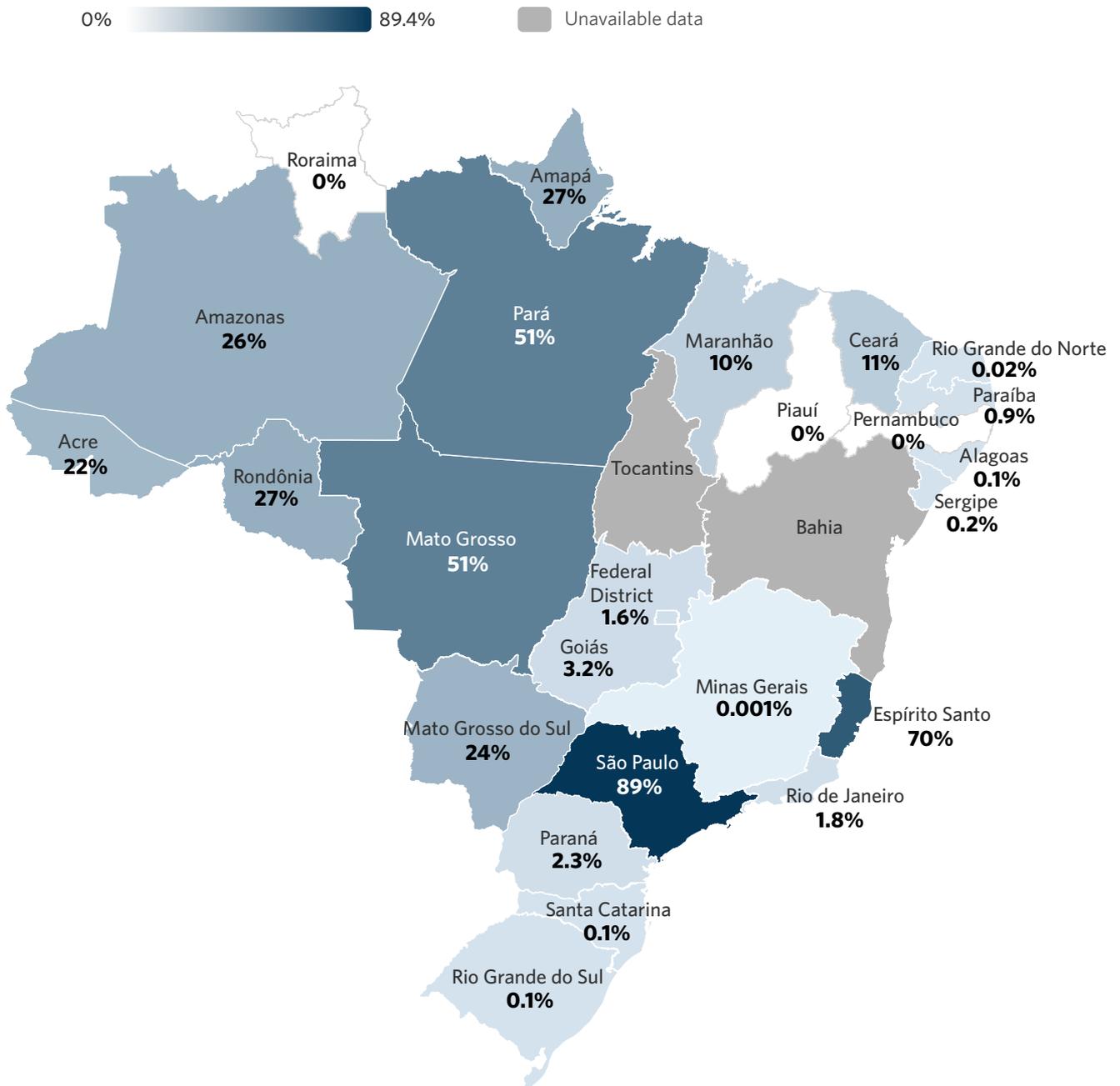
The data analysis stage has advanced in most states but remains the primary bottleneck in implementing the Forest Code. Only eight states have made significant progress in the last year: Acre, Amazonas, Ceará, Maranhão, Mato Grosso, Pará, Rondônia, and São Paulo. Among them, **São Paulo was the best performer in the registration analysis stage by employing a dynamic analysis tool.**

Nearly all states have already implemented the analysis of the data reported in the CAR by technical teams. Although many states have reached this stage, **the situation between states still varies significantly, with some much farther along than others.** The states that show progress in team-led analyses in 2022 include: Amazonas, Ceará, Maranhão, and Pará. In Maranhão and Pará the analysis of CAR registrations increased by 130% in the last year, while in Amazonas and Ceará the increase was around 65%. Considering the total number of registrations that the teams have begun to analyze, the best performers are: Espírito Santo, which has already analyzed 76,000 CAR records; Pará, which has started to analyze 145,000 CAR records; and Mato Grosso, which has started to analyze 66,000 CAR records. Albeit not as advanced, other states also making headway in this stage include: Rondônia, which has started to analyze 40,000 CAR records; Amazonas, with 19,000 CAR registrations; and Acre, with 9,000 registrations. In Ceará and Maranhão, analyses currently underway account for only 10% of the state's database, but in absolute terms the numbers are equally surprising: Ceará has already started to analyze 34,000 registrations and Maranhão, 26,000. In other states, such analyses are still incipient or non-existent.

To date, the dynamic analysis stage has only been effectively implemented in two states: São Paulo and Amapá. São Paulo has customized the dynamic analysis system developed by the Brazilian Forest Service (*Serviço Florestal Brasileiro - SFB*) and, in 2022, ran around 362,000 records through the tool, equivalent to 89% of its registration base. The rest of the entries were sent for individual analysis to be performed by technical teams. Although 95% of the analyses processed by the system are still awaiting approval by producers, more than 11,000 registrations have been fully analyzed, equivalent to 3% of all dynamic analyses. More than 5,000 of the 11,000 registrations refer to properties in compliance with the Forest Code, whereas the remaining properties are awaiting environmental regularization. Approximately 1,900 producers have fully or partially refused the automated analysis, requiring revisions and assessments to be conducted by a team. Amapá was the pilot state chosen by the SFB to implement the dynamic analysis tool in 2021. Around 25% of registrations were processed with the tool, but no progress was made in 2022. Other states—e.g., Amazonas, Federal District, Paraná, Piauí, and Rio de Janeiro—also received training on how to use the dynamic analysis but failed to implement it.

Figure 2 shows, with data on the ratio of registrations whose analysis has been initiated versus the total number of registrations per state (considering both team-led and dynamic analyses), that it is possible to advance in both procedures, but that this is still a major challenge for most states. **Considering the entire country, around 12% of all registrations have either been analyzed by a team or undergone dynamic analysis.**

Figure 2. Ratio of Initiated CAR Record Analyses, 2022



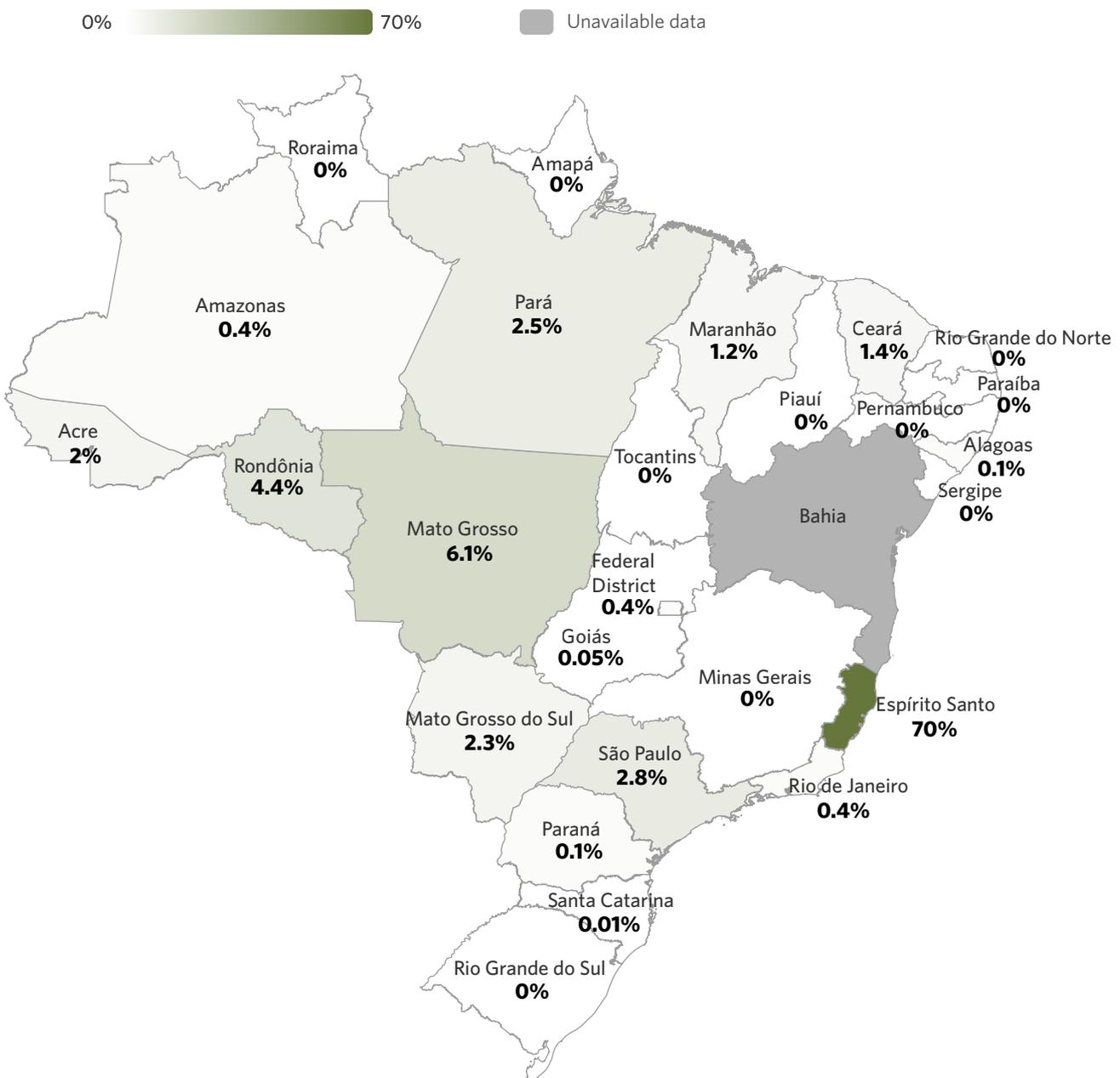
Source: CPI/PUC-Rio with updated data from the state entities responsible for CAR (november 2022), 2022

Despite advances in this stage, the actual completion of the analysis—with the acceptance of the data reported in the CAR and an analysis of the environmental compliance status of properties—still poses major challenges. Only a handful of states have made progress in completing team analyses in 2022. Maranhão and Pará increased the number of completed analyses by approximately 280% compared to the previous year. In Amazonas, the increase was of 130%; in Acre, Ceará and Rondônia, increases ranged between 50% and 85%. In absolute terms, **the number of registrations for which the analysis cycle is complete varies greatly from one state to another.** In Santa Catarina, the Federal District, Alagoas, and Goiás this number is still extremely low, between one and 100 registrations. In Rio de Janeiro, Amazonas, and Paraná, only between 200 and 400 registrations have had their analyses finalized. Acre has completed the analysis of around 900 CAR registrations, and Mato Grosso do Sul has completed

approximately 1,800. Other states have managed a bit more progress and stand between 3,000 and 5,500 fully analyzed registrations—such is the case of Maranhão, Ceará, and Rondônia. Pará and Mato Grosso have finalized the analysis of almost 8,000 registrations, whereas São Paulo has achieved the impressive mark of 11,000 CAR registrations dynamically analyzed, processed, and accepted by landowners. Despite progress in those states, **Espírito Santo remains the frontrunner in this stage, having fully analyzed around 76,000 state records (approximately 70% of all the state’s registrations). Considering all the states, only 2% of the registrations in the country have been fully analyzed by a team or undergone dynamic analysis.**

Figure 3, on the ratio of registrations with complete analyses versus the total number of registrations per state, shows the magnitude of the challenges ahead, in the form of how much each state still needs to do to finalize all analyses, as well as how much has been achieved thus far.

Figure 3. Ratio of Completed CAR Record Analyses, 2022



Source: CPI/PUC-Rio with updated data from the state entities responsible for CAR (november 2022), 2022

Communicating with landowners or possessors is one of the biggest obstacles to completing the analyses. In Pará, of the 145,000 records analyzed so far, 139,000 are pending a response from producers to the notifications sent by the competent authorities urging them to rectify or supplement the CAR data. A similar situation occurs in São Paulo with the dynamic analysis; out of 362,000 records automatically analyzed by the system, 343,000 are pending acceptance by producers. Several other states also face this challenge—e.g., Acre, Amapá, Amazonas, Mato Grosso, Paraná, and Rondônia.

The fact that irregular registrations are not cancelled—as is the case of CAR records in Indigenous Lands and other public areas—, coupled with the suspension of property registrations when pending environmental issues exist, prevent the National Rural Environmental Registry System (*Sistema Nacional de Cadastro Ambiental Rural - SICAR*) from becoming a reliable registration database. This is key to ensuring alignment between the CAR and other public policies, such as environmental licensing, access to rural credit and land tenure compliance. Some states have enacted subnational policies that should be adopted by other states as well—e.g., Pará has cancelled/suspended more than 4,000 registrations that were found to overlap with Indigenous Lands and Conservation Units; Amazonas has suspended more than 3,000 registrations due to illegal deforestation alerts; and Mato Grosso has suspended more than 21,000 registrations for not complying with notifications sent by the competent authorities during the CAR analysis and the procedure for joining the PRA.

REGULATION OF THE PRA AND CRITERIA FOR THE RECOVERY OF LIABILITIES IN APP AND LEGAL FOREST RESERVES

Effective regulation of the PRA has been finalized in 15 states, and most of them have also set forth criteria for recovering liabilities in APPs and Legal Forest Reserves. Eight states, however, still lag far behind in terms of building a minimum legal framework for ensuring compliance by rural properties: Alagoas, Paraíba, Piauí, Rio Grande do Norte, Rio Grande do Sul, Roraima, Sergipe, and Tocantins. Normally, state regulation follows the general rules set forth in the Forest Code. Priority continues to be given to compensation for Legal Forest Reserve, as opposed to other types of compensation, by means of donating areas in Conservation Units pending land regularization to the government, as this has been regulated by 14 states so far.

In 2022, the state of Goiás passed legislation that caused major setbacks and set a grave precedent by establishing an alternative and even more flexible procedure than that provided for in the Forest Code for the environmental regularization of forest liabilities before and after July 22, 2008. The new law in Goiás extends the more flexible regime provided for by the Forest Code to 2019 for areas deforested prior to 2008. For example, deforestation within Legal Forest Reserves after 2008 can be compensated outside the rural property in question, which is not allowed by federal law.

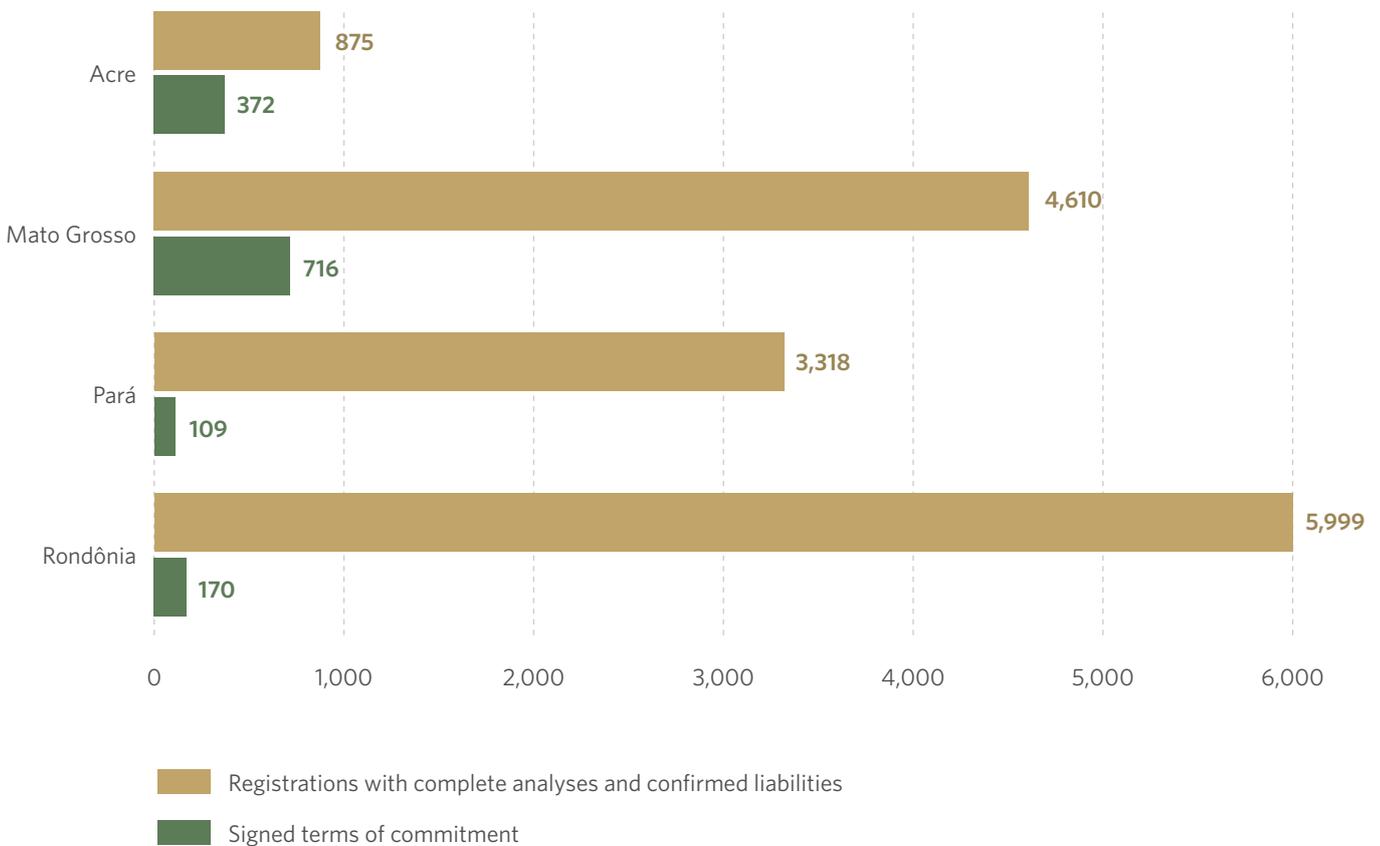
IMPLEMENTATION OF THE PRA AND ENVIRONMENTAL REGULARIZATION OF RURAL PROPERTIES

The final stage of regularizing liabilities in APP and Legal Forest Reserves by joining the PRA remains a distant goal to be achieved in the short or medium-term. The program is only fully operational in four states—Acre, Mato Grosso, Rondônia, and Pará—with a fully functional IT system, signed terms of commitment, and endeavors underway (and under monitoring) to regularize APP and Legal Forest Reserves. Three states—Bahia, Mato Grosso do Sul, and Minas Gerais—adopted a **self-reporting PRA** system in which the landowners or possessors report liabilities and commit to environmental regularization without the competent body carrying out a prior analysis of the CAR and of the proposed Recovery Project for Degraded and Altered Areas (*Projeto de Recuperação de Áreas Degradadas e Alteradas - PRADA*). São Paulo has been the only state so far to adopt and customize the Environmental Regularization Module (*Módulo de Regularização Ambiental - MRA*) developed by the SFB. A preliminary version has already been released, still without any adopters, and the state intends to introduce the final version of the module in 2022.

Even in the states where the PRA has been implemented, only some of the records whose environmental compliance is fully analyzed and liabilities are identified move on to the following stage, which entails the signature of terms of commitment (*Termo de Compromisso - TC*) for the regularization of APP and Legal Forest Reserves. Challenges faced range from producers' resistance to committing to environmental regularization to lack of knowledge of productive and/or multifunctional forest restoration solutions. Despite an increase in the number of TCs signed last year in Mato Grosso and Pará, the gap between properties awaiting environmental regularization and properties undergoing environmental regularization is enormous. In Acre, around 43% of rural properties with completed CAR analyses and confirmed liabilities moved on to the TC phase; in Mato Grosso, this number drops to 16%. The situation is even worse for the states of Pará and Rondônia. In Pará, only 3.3% of the records analyzed and found to contain liabilities were subject to TCs; in Rondônia, this number drops to only 2.8% (Figure 4). These numbers show that only a small share of producers proceed to the stage of environmental regularization of their properties. It should be noted that, in addition to the TCs already signed, there are approximately 1,100 requests to join the PRA currently under assessment by the environmental agency of Mato Grosso; in the state of Pará, more than 540 PRADAs delivered by producers await validation by the agency in charge.

Improvements in procedural flows and fines for failing to meet deadlines can boost enforcement of the law. Once their CAR analysis was complete, many producers in Mato Grosso did not proceed to the final step of joining the PRA by formalizing a TC for the recovery of liabilities. Producers also failed to respond to notifications within established deadlines. With the aim of accelerating the process and pressuring producers towards environmental compliance, the state combined the stages of CAR analysis and joining the PRA into a single procedural flow. As such, the CAR analysis is only complete when a producer joins the PRA, prepares a PRADA, and signs the TC within the deadline set by the competent authorities. Under this strategy, Mato Grosso increased the number of TCs signed in the last year by almost 60%. If producers fail to respond to notifications within the established deadline, their registrations are suspended; there are currently more than 21,000 registrations in this condition, which makes it impossible for producers to perform a series of activities and to obtain authorizations that require an active CAR status.

Figure 4. Number of Registrations with Completed Analyses and Confirmed Liabilities in APP and Legal Forest Reserves, and Signed TCs, 2022



Source: CPI/PUC-Rio, 2022

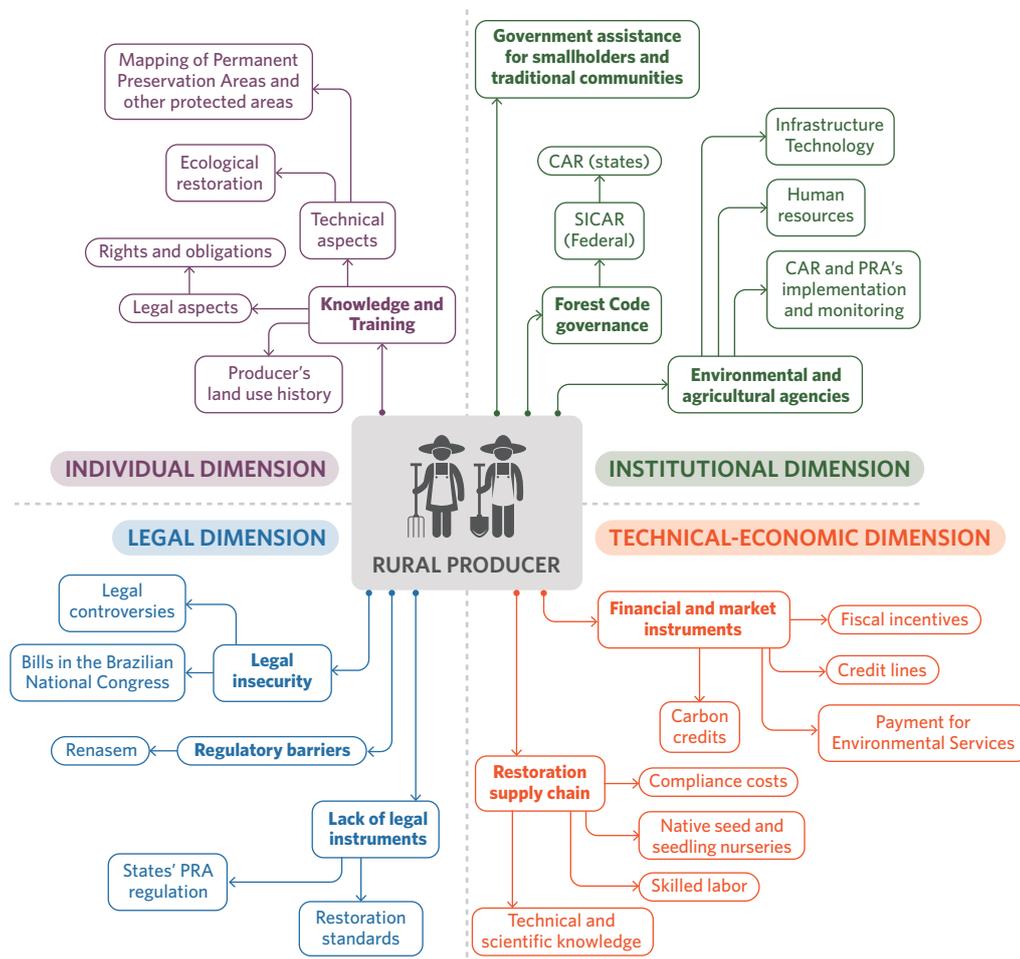
Of the states that adopted a self-reported PRA procedure (Bahia, Minas Gerais, and Mato Grosso do Sul), only Bahia features a relevant number of proposals for environmental regularization: around 45,000 terms of voluntary commitment. The program in Minas Gerais is still incipient—only 10 producers have submitted self-reported TCs to the agency in charge. Mato Grosso do Sul, in turn, has found that the program failed to bring about the expected results in the state and intends to migrate to the Forest Code procedure, with the CAR analysis conducted first and subsequent entry into the PRA.

Several states have already set rules for monitoring the regularization of liabilities in APP and Legal Forest Reserves but, in practice, few states have adopted systems and tools for monitoring restoration. Most states require self-monitoring by landowners or possessors, with delivery of periodic reports, and also monitoring by the environmental agency by means of remote sensing and field inspections when necessary. The use of technologies, such as monitoring systems and a geospatial data platform, and the use of applications—such as AgroTag-Veg, under development by the Brazilian Agricultural Research Corporation (*Empresa Brasileira de Pesquisa Agropecuária - EMBRAPA*)—is essential for managing forest restoration.

CHALLENGES IN IMPLEMENTING THE FOREST CODE

Despite the potential benefits and advances made thus far, implementation of the Forest Code continues to face a multitude of challenges. The task is enormous; it involves approximately 5.07 million rural properties, of which around 75% are owned by family farmers (according to the 2017 Agricultural Census) and require concerted actions by government agencies in 27 states with varying levels of human and technological resources. Rural producers must take the initiative to carry out the environmental regularization process for properties and possessions by navigating a complex process full of hurdles. Figure 5 below illustrates the main challenges broken down into four dimensions: individual, institutional, economic, and legal.

Figure 5. Challenges in Implementing the Forest Code, 2022



Source: CPI/PUC-Rio, 2022

In the **individual dimension**, the main challenge is a producer's own knowledge of the Forest Code and its obligations, such as correctly registering the property in the CAR and subsequent entry into the PRA to resolve any liabilities in APP and Legal Forest Reserves. This process requires not only legal knowledge of a very complex law, but also technical knowledge on how to recover environmental liabilities. It is up to producers to take the initiative and register their properties in the CAR, join the PRA, and prepare and execute projects to recover degraded areas. Rural producers need knowledge, willingness, and capacity when making the decision to restore a

given area. While the restoration of environmental liabilities may be mandatory, public strategies and incentives to increase producer engagement remain scarce.

The **institutional dimension** poses the biggest challenge, as the state agencies responsible for implementing the Forest Code need to regulate, implement, and monitor the CAR and PRA while helping small producers, including traditional peoples and communities. As discussed above, the CAR analysis stage is currently the main bottleneck in implementing the law. Challenges at this stage include the high volume and low quality of registration records, many cases where registration data must be re-analyzed, difficulties in communicating with landowners and possessors, scarce cartographic databases, and lack of technical and human resources to perform analyses in their entirety. The objective of the dynamic analysis is precisely to expedite and scale up this process; however, the states still lack the necessary cartographic databases to run the system. There are also challenges in policy governance, in defining the roles of federal agencies and in coordinating actions at the federal and state levels. Although the states are the primary executors of the policy, they depend on the actions of the SFB, the federal agency that manages SICAR, a system used to aggregate all state-level databases. In 2022, problems with SICAR added an extra hurdle to the analysis of registration records. System instability, synchronization issues between state databases and SICAR, delays in updating and correcting technical failures, and slowness in meeting state demands negatively impacted CAR analyses.

The **economic dimension** plays a crucial role in the environmental regularization of rural properties. Lack of technical and scientific knowledge, scarce reference models, and lack of specialists and inputs (e.g., seeds and seedlings) in the forest restoration chain are challenges that need to be overcome for environmental regularization to take place throughout the country. In addition, the high costs of restoration and absence of economic incentives make it difficult for rural producers to recover degraded areas. Productive arrangements, such as agroforestry (AFS) and multifunctional forestry systems, are currently being tested in various biomes, but have yet to gain the necessary scale to restore thousands of hectares of environmental liabilities.

Finally, the **legal dimension** adds an additional layer to the many challenges that exist today in implementing the forest law. Several states still need to regulate the PRA and/or set parameters for the recovery of liabilities in APP and Legal Forest Reserves. Certain instruments in the federal law also lack adequate regulation, such as the Environmental Reserve Quotas (*Cotas de Reserva Ambiental* - CRA) and other market instruments. There are also regulatory barriers that impact the restoration chain, as is the case of the National Registry of Seeds and Seedlings (*Registro Nacional de Sementes e Mudanças* - RENASEM) system, which imposes rules that make the production of seeds and seedlings more difficult and/or expensive. Furthermore, legal controversies involving the Forest Code—such as the application of the Atlantic Forest Law, the use of ecological identity criteria for Legal Forest Reserve compensations, the possibility of calculating APP in Legal Forest Reserves, and the review of TCs signed under the previous law, among others—have made their way to higher courts. Finally, there are proposals to change the Forest Code under discussion in Congress that seek to make the law even more flexible, which generates legal uncertainty.

WHERE ARE WE HEADED?

Implementation of the Forest Code has been an ongoing process. After a long period in which the law almost never got off the ground due to questions about its constitutionality, many experiments have taken place in recent years in the states, the main executors of the policy. Several strategies were tested, with different levels of progress and at vastly different speeds. At the same time, a broad arsenal of research has emerged on the implementation of the law. Documentation and analysis of the different initiatives, based on data from the states and an annual measurement of progress, show the path forward. As a new administration that promises to make the environment a priority once again transfers to power, it has an opportunity to accelerate the implementation of the Forest Code throughout the country based on the adoption of seven key priorities:

1 Make an agreement with the states to build a national plan for the implementation of the Forest Code, coordinating the role of the federal government and the states and defining the necessary governance structure for the implementation of the law

Implementation of the Forest Code relies on different stakeholders and includes all levels of government. Therefore, a national plan must be drafted to establish the sphere of governance for decision-making between the states (the primary executors of the policy) and the federal government, which plays a central role in national coordination. There must be commitments, counterparts, rights, and obligations for both sides, as well as targets with agreed-upon deadlines. A budget must also be allocated to guarantee the effective implementation of the policy by the states, as implementation is unfeasible without proper funding.

The governance structure of the Forest Code must clearly define the mandates of the national and state bodies involved, as well as participation mechanisms to ensure a harmonious federative system. On the one hand, federal government decisions on the law and its instruments have a direct impact on the states; on the other hand, the autonomy of the states in implementing the policy cannot jeopardize national and international commitments and goals in the environmental agenda.

The states are the primary executors of the policy, which they execute by regulating and implementing the CAR and the PRA, but the SFB is responsible for managing SICAR, a system that integrates CAR data from all states. Over the years, the SFB has begun to play other roles, such as policy coordinator and direct or indirect provider of technological, cartographic, financial, and legal support to the states. The SFB has developed systems for registering, analyzing, and managing information in the CAR and regularizing liabilities in APP and Legal Forest Reserves, in the form of a set of modules integrated into SICAR. If, on the one hand, the use of these systems by the states provides many advantages, on the other hand, the states have become overly dependent on the SFB; any federal government decision related to SICAR impacts the ability of the states to enforce the law. A national plan must provide for safeguard mechanisms to ensure the permanence, integrity, and improvements in SICAR and prevent the system, as well as its modules, from being disconnected or altered without the consent of the states. This aims to avoid what happened in 2019, when SICAR's Environmental Regularization Module (*Módulo de Regularização Ambiental - MRA*) was taken offline and could no longer be used by the states.

The National Plan for the Environmental Regularization of Rural Properties (*Plano Nacional de Regularização Ambiental de Imóveis Rurais - RegularizAgro*), currently under design by the SFB, is a step in the direction of creating a strategic plan, but it has several weaknesses and needs to be significantly improved. First of all, the targets are not very ambitious and are excessively long, thus jeopardizing the implementation of the law itself. Furthermore, only government agencies sit on RegularizAgro's Management Committee, which should, instead, be ensuring the participation of all strategic sectors involved in the implementation of the Forest Code. Under the Committee's current structure, discussions and decisions lack the necessary legitimacy and may face resistance from the plan's own target audience - i.e., rural property owners and possessors. Finally, the plan does not establish mechanisms to ensure the effective participation of subnational bodies, which are underrepresented and have no say in RegularizAgro's governance process.

2 Strengthen the National Rural Environmental Registry System (SICAR)

The CAR is the main innovation in the Forest Code and also the policy's cornerstone. The CAR provides an environmental snapshot of a property and informs governments and society about areas with forests and other forms of native vegetation, areas with consolidated agricultural activities and degraded or abandoned areas. This information enables the environmental management not only of a given property, but also of the landscape as a whole, by identifying environmental liabilities, priority areas for restoration and conservation, and the areas available for additional productive activities. The CAR has also been used as an instrument to align different policies—such is the case of the rural credit policy, which grants higher subsidies to producers whose CAR records have been analyzed and found to be compliant with the legislation.

In this sense, strengthening SICAR—the system used to gather and integrate the CAR databases of all states—is key to expediting the implementation of the law. Property registration in the CAR and the analysis performed by the authorities of the information reported during registration depend entirely on IT infrastructure, which includes both hardware—such as servers, datacenters, and computers—and software, such as storage systems and systems to manage registration data.

Responsibility for managing SICAR falls upon the SFB, as stated in the decree that establishes the structure of the Ministry of Agriculture, Livestock and Supply (*Ministério de Agricultura, Pecuária e Abastecimento - MAPA*). However, such role was never properly regulated by the Forest Code legislation, which adds to the fragility of the system. Partially due to lack of proper regulation, in April 2022, SICAR—which until then had been stored in physical infrastructure (i.e., a datacenter) under management of the SFB—was migrated to a cloud environment under management of MAPA's Information Technology Department (*Departamento de Tecnologia da Informação - DTI*).

The migration was accompanied by changes in the team in charge of development and providing support to the states, thus causing a multitude of problems—e.g., constant system instability and delays in updating, correcting system failures, and meeting state demands, which impacted the analysis of records, validation by operational managers, and integration between state databases and the federal database (SICAR). Synchronization issues between SICAR and CAR state databases have directly impacted the states—which have reported loss of information and, in

some cases, have resorted to processes that are not synchronized with the federal database—, as well as rural producers, who depend on updated registration information to apply for rural credit and other financial operations and administrative authorizations.

This needs to be addressed urgently, as it has become clear that DTI/MAPA is unable to manage the system. The key questions the new government administration will have to answer about SICAR are: Who will develop it? Who will support it? Who will manage the system?

It should be noted that the DTI/SFB has been shut down and that the DTI/MMA is not qualified to take over operations in the short term. It is paramount to ensure that SICAR is managed by an agency well versed in system management—one such example would be the Federal Data Processing Service (*Serviço Federal de Processamento de Dados - SERPRO*), which has a capable IT structure in place to cross-check data and integrate with other records managed by the entity. It can manage the system without a migration that would impose additional obstacles on the states.

To make sure the law is effectively implemented, systems must be developed and deployed to manage analyzed records, dismember and re-merge rural properties, compensate Legal Forest Reserves, and monitor the TCs involved in forest recovery. The SFB has played an important role in providing these tools and additional SICAR modules are being developed to address these issues. Changes made to SICAR's management structure must not jeopardize the development and incorporation of these tools into the system.

In this sense, the SFB team (as the managing body of SICAR) needs to be expanded and strengthened. The team has limited operational capacity to address all the issues on the agenda. Currently, six technicians are responsible for managing the policy nationwide, making improvements to the system and providing assistance to the states. This situation is unsustainable.

Finally, a point that must be highlighted concerns the availability, both by the federal government and by the states, of information related to the CAR and the PRA in a clear and accessible way, with proper transparency and access to information. The information currently disclosed is outdated, incomplete, and far from transparent. The information in SICAR is of the utmost importance to governments, the productive sector, and civil society in monitoring environmental regularization actions, assessing the environmental compliance of productive chains, and financing contracts. It is also key to environmental licensing and land tenure regularization, among other processes; as such, improving transparency and information mechanisms must be a priority. Access to information is also a critical point to enable rural landowners to join and continue their engagement in the other stages of the environmental regularization process.

3 Adopt strategies, tools and inputs to expedite the analysis of registration records

The registration analysis stage constitutes the main bottleneck for the states in the implementation of the Forest Code. Analyses can be performed in one of two ways: (i) analysis by a team, in which technicians analyze each registration, detect inconsistencies, and request follow-up information when necessary; and (ii) dynamic analysis, in which the system automatically checks the data using remote sensing images as reference, detects inconsistencies, and automatically proposes how to rectify the registration data; this is then submitted to the owner or possessor for acceptance.

The registration analysis stage was expected to advance significantly in 2022 with the introduction of the dynamic analysis module. However, the deployment of the tool did not achieve the expected level of success. Only São Paulo and Amapá were able to implement the dynamic analysis. Amapá was the pilot state chosen by the SFB to use the technology, and São Paulo hired a specialized consultancy firm to customize the tool and make it operational in the state.

The experience of São Paulo, which managed to begin the analysis of 89% of its registration base in less than a year by employing the dynamic analysis, shows the enormous potential of this tool to scale up the CAR analysis process. It has also made clear, however, that in addition to political will, a series of measures are needed that require support from the federal government to: (i) acquire cartographic databases and other inputs that meet the technical requirements of the system and also faithfully reflect the geographic characteristics of each state; (ii) adapt the tool to local contexts in order to make it operational in the states (in particular, a policy must be designed to transfer the source code to the states and/or enact other measures (protocol of understanding) to package the system features for use by the states); and (iii) train the states to implement the tool.

One of the main problems faced by the states that advance in the analysis stage is communicating with the landowners and possessors so they may rectify/add to the registration information or accept the information as corrected automatically by the dynamic analysis system. A substantial number of registrations in Pará, Acre, Amazonas, Mato Grosso, Paraná, Rondônia, and São Paulo are awaiting a response from landowners or possessors. As such, a nationwide campaign must be undertaken to facilitate communication with landowners and possessors and refer them to the owner/possessor hub to respond to notifications sent by state authorities.

4 Cancel and/or suspend registrations that overlap with federal public lands

The CAR was designed and implemented from the perspective of private rural properties, leaving it exclusively up to the states to analyze the information reported by producers. However, the land tenure situation in Brazil is rather complex, as the country contains vast stretches of federal and state public lands and different forms of land use, such as the collective use of land by traditional peoples and communities. Eventually, the CAR came to be used illegally for land tenure purposes (including land grabbing) and, as a result, thousands of registrations overlap with federal public lands, such as Indigenous Lands, Conservation Units, settlements, and undesignated forests. These registrations are irregular and need to be either cancelled or, in cases where rectification is possible, suspended. Delays in the analysis stage, however, enable (and to some extent validate) such illegal practices. The SFB has added filters to SICAR with geospatial

data from public lands to detect overlaps. However, filters containing cartographic data on federal lands can be “switched off” by the states, which means that overlaps are no longer automatically detected.

Concurrent failures and regulatory gaps compound the situation. The federal legislation currently in effect does not provide satisfactory solutions for the states to regulate and/or execute concrete actions to resolve the overlap of registrations with federal public lands. Most states have neither regulation to suitably address CAR registrations overlapping with public lands nor procedures for canceling or suspending such registrations. Some states are already canceling registrations that overlap with TIs, as is the case of Acre, Pará, Rondônia, and Mato Grosso, regardless of having regulations in place to that effect. The actual procedures to do this vary across states, but one point in common is the fact that the states were notified by the Federal Prosecution Service to proceed with the cancellations.

The Federal Government and federal public land management agencies should not wait for state initiatives to use the filters or to cancel/suspend these registrations. Regulations, procedures, and tools must be implemented to: (i) automatically prevent new registrations of rural properties that overlap with non-registrable public areas; (ii) mandate the states to use filters to prevent new registrations of that nature and suspend existing ones; (iii) keep the cartographic databases of federal public lands up to date; (iv) standardize operations across states; and (v) cancel and/or suspend registrations that unlawfully overlap with federal public lands.

5 Support the regulation and execution of Environmental Compliance Programs (PRA)

Implementation of PRA by the states depends not only on the regulation of each state’s PRA, but also on criteria and metrics used for the restoration of liabilities in APP and Legal Forest Reserves. Eight states, however, still lag far behind in terms of passing legislation for ensuring compliance by rural properties: Alagoas, Paraíba, Piauí, Rio Grande do Norte, Rio Grande do Sul, Roraima, Sergipe, and Tocantins. Support from the federal government, by means of the SFB, would be advisable to help these states build a minimum set of regulations capable of guaranteeing the implementation of the PRA. There are several successful experiences of regulations implemented by other states that can be adapted and replicated, in addition to reference manuals and norms on modalities and parameters used in the environmental regularization of liabilities in APP and Legal Forest Reserves. This is also an opportunity to move forward in terms of regulation, by providing for restoration through productive systems and multifunctional forests.

Regulation, however, is just the first step. The states need to develop and adopt a system to execute the PRA—i.e., an IT platform with features to help producers formulate their PRADAs, through which the agency in charge can analyze and validate the project and even draw up TCs for environmental compliance for signature. Many states are awaiting for the deployment of the MRA developed by the SFB and integrated into the WebAmbiente platform, which is an interactive information system developed by EMBRAPA to assist rural producers in making decisions in the process of ensuring the environmental compliance of their properties. The SFB released the first version of the MRA in December 2021 but no states use the system except for São Paulo, which uses a customized version of the module. A more complete and modern version of the MRA was expected to come out late 2022 but has not yet been released. The SFB needs to

make the MRA available in its most complete and updated version, including a feature to enable TCs to be signed within the system itself and to allow for the rectification of liabilities incurred before and after July 22, 2008.

It is also paramount to monitor the environmental regularization of rural properties, and, to this end, platforms must be developed or deployed to monitor the restoration of forests and other types of native vegetation. The SFB is also committed to making a monitoring module integrated with SICAR available to the states, but there are also other platforms and monitoring systems that can help the states in this task, such as AgroTag, from EMBRAPA, and MAPBIOMAS and the Restoration Observatory of Coalizão Brasil Clima, Florestas e Agricultura, which are platforms developed and maintained by civil society.

6 Improve the alignment of the Forest Code with initiatives to combat deforestation and other environmental policies

Improving integration among existing registries to facilitate cross-referencing of CAR data with other databases should be a priority measure. Information on licensing, authorizations, embargoes, and deforestation in rural properties, once cross-referenced with the CAR, will make the federal and state governments' actions more effective in fulfilling their environmental mandates.

This is evidenced by the fact that some states are in the process of aligning the CAR and PRA agenda with other forest law instruments. Such is the case of Amazonas, which created a routine to curb illegal deforestation in the state and to also charge for the environmental regularization of these areas. The state cross-references deforestation alerts from the National Institute for Space Research (*Instituto Nacional de Pesquisas Espaciais* - INPE) with data from rural environmental registrations and, when it determines that vegetation has been suppressed without authorization, the environmental agency in charge immediately suspends the property's CAR registration. More than 3,000 registrations have been suspended due to deforestation alerts and, according to state representatives, the suspension of CAR registration is a more effective measure than field incursions, as producers are left unable to obtain credit, animal transport documentation (*Guia de Transporte Animal* - GTA), and other administrative authorizations without it. Before a CAR registration can become active again, a producer will need to submit a project for the environmental regularization of the property and sign a TC, which can be done as part of the administrative process of environmental assessment.

In several states, environmental licensing requires a prior analysis of CAR records and, if forest environmental liabilities are found, the resolution of such liabilities becomes part of the licensing conditions. The same applies to authorizations to suppress vegetation (*Autorização de Supressão de Vegetação* - ASV)—the competent body only issues an ASV after analyzing the CAR and verifying that there are no liabilities in the APP or Legal Forest Reserves and that the area where suppression has been requested is eligible for alternative land use. In Mato Grosso do Sul, data reported in the CAR are analyzed in the advent of an ASV request, and this is only granted after the Legal Forest Reserve is determined to be compliant. Though many states have routines in place to cross-reference and align policies, an important step forward is to ensure that all states actually implement these procedures.

In some states, programs to encourage the restoration of native vegetation have contributed, albeit indirectly, to the resolution of liabilities on rural properties, as is the case of the Reflorestar Program in Espírito Santo and of the Nascentes Program in São Paulo. São Paulo has recently launched the Refloresta SP program with the aim of restoring 1.5 million hectares of native vegetation in the state by 2050, complementing the actions of the state PRA and the Agro Legal Program for regularizing Legal Forest Reserves. Despite the synergy between the restoration and PRA agendas, there is little coordination and cooperation between the agencies in charge. In some states, the environment and agriculture agendas are in the hands of separate state secretariats, but even in states where the programs are run by the same secretariat, managers do not work in alignment with each other.

Pará is one of the states at the forefront of implementing the Forest Code, having adopted strategies to align the CAR and PRA agendas with other environmental and land ownership agendas, including specific procedures for traditional peoples and communities. The state has cancelled or suspended more than 4,000 CAR registrations in Indigenous Lands and Conservation Units and helped in the preparation of 27 CARs for traditional peoples and communities based on its own registration methodology, by means of the Regulariza Pará Program, and implemented the Selo Verde platform for traceability information on the livestock production chain.

7 Improve the integration of the Forest Code with other public policies to support and develop agribusiness, such as rural credit and other economic instruments, and engage with the private sector

The enactment of measures that encourage rural producers to abide by the law and regularize their properties by providing benefits for compliant producers is extremely important, especially for small-scale producers. The Forest Code devotes an entire chapter to an incentive program for the preservation and recovery of the environment. This program provides for the establishment of economic and financial instruments to help rural producers conserve native vegetation and encourage the environmental compliance of their properties. However, due attention has never been paid to regulating these mechanisms and making them operational.

On the other hand, in the last two years, institutions and entities in the financial system introduced initiatives that can help stimulate and accelerate the implementation of the Forest Code. For example, with a view to encouraging the completion of CAR data analyses and to boosting the environmental regularization of rural properties, the National Monetary Council (CMN) issued CMN Resolution no. 5,021/2022, which increases the credit limit by 10% for producers whose CAR registration has been analyzed and whose properties were found to either be compliant with the law or to be undergoing environmental regularization. This proposal offers improved subsidized funding conditions for this group of producers. It also encourages states to move forward with the analysis of registration records so their producers may enjoy the benefit.

The Central Bank of Brazil (*Banco Central do Brasil* - BCB) has also announced a sustainability dimension to its Agenda BC#, with directives that can refine the targeting of public funds and prioritize sustainability in agribusiness activities. In 2021, the BCB issued Resolution no. 140/2021 to create a new section in the Rural Credit Manual, in addition to stating that access by companies to rural credit may be restricted due to legal or infra-legal provisions related to social,

environmental and climate-related issues. Use of these incentives has been systematic and tends to be expanded to incorporate criteria that prioritize the flow towards the analysis stage of CAR registrations and subsequent obligations tied to it.

Payment for Environmental Services (PES) programs can also significantly contribute to the implementation of the law. Espírito Santo's Reflorestar program rewards rural producers who conserve or restore priority areas for water security in the state. More than 11,000 hectares of forests have been planted so far under the program, of which around 50% are in APP. There are several other PES programs available with public, private, or blended finance that can accelerate the recovery of environmental liabilities, mainly by small-scale producers. In the state of Acre, international cooperation funds are being used to restore two hectares with agroforestry projects (*Sistemas Agroflorestais* - SAFs) in 80 rural properties in municipalities with low forest coverage, including rural settlements. The idea is to show that production systems can help regularize environmental liabilities and even become a source of income for producers.

Finally, the engagement of sector entities is essential for the Forest Code to become effective at the national level. In the current scenario, with restrictions imposed by a few markets that account for a significant percentage of Brazil's exports, this agenda is mostly of interest to the agricultural sector. Assistance and partnerships are urgently needed to provide the states with the technical and political support they need to advance in the implementation of the law.

CPI/PUC-RIO AND THE FOREST CODE

CPI/PUC-Rio has a line of research aimed at monitoring the implementation of the Forest Code, which includes the annual publication of the report **Where Does Brazil Stand with the Implementation of the Forest Code? A Snapshot of the CAR and PRA in Brazilian States**. The information and analyses are the result of a project for the continuous and permanent monitoring of the implementation of the Forest Code in the states of Brazil, which relies on the contribution of state environmental and agricultural agencies to collect data and information on each state and to exchange experiences with managers and technicians working in state-level agencies. In May 2022, CPI/PUC-Rio launched the **Forest Code Implementation Monitor (*Monitor da Implementação do Código Florestal*)**, a platform that brings together, in one place, information and analyses on: the protection rules of the Forest Code; instruments for managing and monitoring native vegetation; the procedure for the environmental regularization of rural properties; the regulation of instruments of law; relevant court decisions; legislative activities that affect the law; and the progress and challenges of implementing the law in all Brazilian states, with data, maps, graphs and indicators showing how the law is advancing throughout the country. The platform features links to all the publications released by the institution on the Forest Code. It can be accessed (in Portuguese only) via this link: bit.ly/MonitordeImplementacaoCF. To monitor and measure the pressure exerted by legislative changes on the Forest Code, CPI/PUC-Rio launched the **Forest Code Barometer in the Legislative Branch (*Barômetro do Código Florestal no Legislativo*)**, an online tool (in Portuguese only) to monitor bills of law devoted to the subject: bit.ly/BarometroCF.

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