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ROADMAP FOR THE DEVELOPMENT OF THE AGRO-ENVIRONMENTAL AGENDA OF TOCANTINS

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Product
Roadmap for the development of the agro-environmental agenda of Tocantins

Preparation
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EXECUTIVE SUMMARY

Problem: Tocantins seeks to boost sustainable development by promoting better integration between agricultural and environmental agendas. However, the low environmental compliance of rural properties creates obstacles to the growth of sustainable production, resulting in difficulties accessing demanding markets, embargoes, and legal actions.

What is expected: Given the increasing market and societal demands for fair agricultural practices, Tocantins needs to rapidly advance in the environmental regularization of rural properties, promoting sustainable production while improving income and quality of life for its population.

Objective: Opportunities and recommendations were presented, with guidelines for a roadmap to develop the agro-environmental agenda in the state of Tocantins. This document can serve as a foundation for structural adjustments to accelerate the sustainability of production chains in the state, enabling the advancement of environmental compliance for properties, boosting agricultural activities, and ensuring social, economic, and environmental benefits for society.

Themes and Topics Addressed: Two main themes and ten topics were addressed: (a) Sustainability and Agricultural Production Chains, including topics such as the adoption of good practices, rural technical assistance, traceability, and certifications; (b) Environmental Regularization, including topics such as the technical-operational capacity of environmental agencies and Ecological-Economic Zoning (EEZ). The roadmap was developed based on consultations with key stakeholders from different sectors of society through interviews and participatory workshops aimed at identifying opportunities, obstacles, and potential strategies to advance the state's agro-environmental agenda.

Recommendations: Based on the consultations and assessments, recommendations were made for all themes and topics addressed. Some of the recommendations developed for each theme are described as follows.

Sustainability and Agricultural Production Chains: Expand Technical Assistance and Rural Extension programs (ATER), especially for small rural producers; Promote the adoption of economically viable and environmentally sustainable practices and technologies in agricultural production and environmental conservation; Prioritize investments in sustainable use activities and practices; Seek, expand, and diversify economic incentive mechanisms for production traceability and sustainable practices;

Strengthen seed networks, including small producers, Traditional Peoples and Communities (PCTs), and settlers; Improve transaction and management conditions of REDD+ mechanism and carbon market; Establish clear incentive and transparency policies for agricultural product certification and traceability; Create incentives and programs aimed at family farming and medium-sized rural producers; Develop mechanisms to allow rural producers disqualified from the production chain to return to the formal market.

Environmental regularization: Approve and implement, by creating and/or finalizing essential instruments to expedite environmental regularization (e.g., EEZ, analysis module – preferably and automated one of the Rural Environmental Registry - CAR); Strengthen the analysis and management capacity of the environmental agency with technological infrastructure, staff increase and training; Ensure an inclusive environmental governance system involving different sectors of society; Quickly create and implement management plans and councils for Environmental Protection Areas (APAs); Communicate the set of agro-environmental regulations in an accessible manner that meets the peculiarities of each sector.

Contextualization

For a long time, the agendas of economic development and nature conservation had objectives that were perceived as opposed, and which often found themselves in conflict. However, it is increasingly understood that, to provide the necessary resources and ensure long-term economic growth and human well-being, these two areas must work together. This understanding is reflected in the United Nations (UN)1, 2030 agenda for sustainable development, signed by 193 member states in 2015, including Brazil. In this agenda, themes such as "zero hunger and sustainable agriculture" and "poverty eradication" stand alongside "life on land and water protection" and "climate action," as it is understood that all these aspects are essential to achieving the sustainability goals set for 2030.

In this context, the state of Tocantins is committed to promoting dialogue and collaboration between agricultural and environmental agendas to boost sustainable growth and development of the state, tackle uncertainties, and achieve its goals for 2030. For instance, as an initiative between the productive sector and the state government, the Pact for Zero Illegal Deforestation was recently signed, aiming to eliminate illegal deforestation within the territory by 2030, ensuring strict compliance with environmental laws and promoting sustainable practices in economic activities. Additionally, the Secretariat of Agriculture and Livestock (SEAGRO) prioritizes finding ways to facilitate and enhance agricultural activities for farmers, valuing their work and enabling them to remain in the rural area. As the state is currently seen as a region with great potential for agricultural growth, planning this growth in an organized manner and in compliance with environmental legislation is essential to ensure sustainable development, considering both social and economic aspects.

Consumer markets have been key allies in pursuing sustainability within production chains. The demand from these markets for proper environmental practices has led production chains to adapt their practices and those of their suppliers, making it urgent and a priority to identify opportunities and mechanisms for rural properties to achieve environmental compliance. This is an immediate need for rural producers and governments not to miss the opportunity to access these markets. However, achieving compliance remains a challenge. Therefore, coordination among various national and international actors is strategic to establish monitoring and traceability of products across production value chains.

In the case of the beef production chain, monitoring and traceability can operate through individual animal identification systems, such as ear tags, or by tracking the origin of livestock batches using combined information from the Rural Environmental Registry (CAR) and the Animal Transit Guide (GTA). The benefits of this type of traceability are numerous, including: i) increased productive management; ii) enhanced quality of sanitary aspects; iii) enables the assurance of compliance with environmental requirements; and iv) reduces risk of embargoes, facilitating access to international markets that demand sustainable production practices. Traceability contributes to greater operational efficiency, adding value to

1. https://brasil.un.org/pt-br/sdgs

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products, and promoting more sustainable livestock farming.

In a preliminary work aimed at strengthening the monitoring and sustainability of Brazilian livestock production, focusing on states located in the Cerrado and Amazon biogeographical regions, the International Institute for Sustainability (IIS) and the National Wildlife Federation (NWF) identified that one of the main challenges in monitoring the cattle supply chain and achieving environmental compliance, for direct suppliers and for meatpacking plants, is the implementation process of the Native Vegetation Protection Law (NVPL or New Forest Code - Law No. 12,651/2012). The validation of CAR records for rural properties has been slow overall, accelerating only in cases requiring licensing, embargo clearance, or credit approval linked to environmental compliance requirements. This situation has hindered the regularization of rural properties, even preventing producers from participating in the Environmental Regularization Program (PRA) and from developing their Degraded and/or Altered Area Recovery Project (PRAD). As a result, it complicates meeting criteria for integration with monitoring and traceability programs for production value chains, and, for instance, with the Livestock Supply Chain/Beef Conduct Adjustment Agreement/Term (TAC Pecuária).

In order to find direction to advance in this scenario, this work presents the **guidelines of a roadmap for developing the agro-environmental agenda in Tocantins,** outlining stages and steps to support decision-makers in the implementation of structural adjustments to catalyze the sustainability of Tocantins' production chains and enable the progress of the environmental compliance agenda of rural properties. This study primarily addresses issues related to land use and the state's green agenda, with structural pillars focusing on the impacts of advancing the agro-environmental agenda on social, environmental, and economic aspects. While the research team acknowledges the importance of the blue agenda (related to the protection and management of water resources) and the brown agenda (related to monitoring, reducing, and/or controlling polluting activities, as well as urbanization and industrialization activities) for Tocantins' agro-environmental development and improvement, these aspects were addressed only briefly due to the study's timeline.

PARTICIPATORY APPROACH

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The roadmap was built through a consultative process involving key stakeholders from different sectors of society with the goal of identifying opportunities, obstacles, and potential strategies for various aspects of Tocantins' agro-environmental agenda. The consultation process began in April 2024, with in-person meetings held in Brasília and Palmas. These meetings involved government representatives from state and federal levels of the Secretariats of Agriculture and Livestock (SEAGRO) and Environment and Water Resources (SEMARH), the State Public Prosecutor's Office (MPTO), the Federal Public Prosecutor's Office (MPF), the Ministry of Agriculture and Livestock (MAPA), the Ministry of Management and Innovation in Public Services (MGI), as well as representatives from the private sector. These initial discussions were conducted in an unstructured format, during which the objective and scope of the work were briefly presented, the main themes and topics to be addressed by the team were debated, and a list of potential interviewees was proposed. From these conversations, **10** topics were identified that, according to the participants' assessment, could unlock the state's agro-environmental agenda. These topics were later organized by the technical team into **two** separate themes:

- **Sustainability and Agricultural production chains:** i) Adoption of good practices and Rural technical assistance; ii) Traceability and certifications; iii) Native vegetation restoration; iv) Payment for environmental services (PES), carbon credits, and other financial mechanisms.
- **Environmental regularization:** v) Technical and operational capacity of environmental agencies; vi) Native Vegetation Protection Law (NVPL-New Forest Code) and environmental compliance; vii) Ecological-Economic Zoning (EEZ); viii) Rural environmental licensing; ix) Deforestation; x) Environmental Protection Areas (APAs).

During the preliminary consultations, 37 key stakeholders were identified as potential interviewees. From these, the technical team selected 20 individuals to contact for interviews, and 14 agreed to participate (35% of whom were women). Semi-structured remote (online) interviews were conducted between May and June 2024, each lasting approximately one hour. In this format, the interviewer followed a pre-prepared script of questions while maintaining some flexibility to add, complement, or restructure questions based on the context, to maintain smooth flow in the interview. The questions addressed the two identified themes and their respective topics and were tailored according to the sector represented by the interviewee.

The interviewees represented different sectors of society, of which seven from the state public sector, five from the private sector—including one representative from the beef supply chain and one from the soybean supply chain—one from academia, and one from the third sector. Participants received and signed a Free and Informed Consent Term (FICT) to participate in the interview. All interviews were recorded, documenting the acceptance of the FICT, to support the detailed collection of information beyond the notes taken during the interview. Most interviews were conducted with three researchers present, where one led the interview while the others took notes and provided logistical support for the meeting.

To broaden the participatory process and gather additional contributions, an in-person workshop was held in Palmas in August 2024. The first version of the produced material was shared with registrants about 10 days before the event. The workshop began with a presentation of the main results obtained so far, followed by group discussions and interactive activities to collect complementary information and recommendations from participants. Approximately 40 people from different sectors attended, being represented by the following institutions: SEAGRO, SEMARH, the Secretariat of Planning and Budget of Tocantins (SEPLAN), the Secretariat of Indigenous and Traditional Peoples of Tocantins (SEPOT), the Tocantins Institute of Nature (Naturatins), the Rural Development Institute of Tocantins State (Ruraltins), the Tocantins Court of Justice (TJTO), the State Public Prosecutor's Office (MPTO), the Brazilian Association of Soybean Producers (APROSOJA), the Association of Environmental Consultants (ASCAM), the Brazilian Association of Meat Exporters (ABIEC), the Regional Engineering Council (CREA), Niceplanet, Conservation International (CI), MAPA, Black Jaguar Foundation, Earth Innovation Institute, representatives from rural unions, and the Federation of Agriculture and Livestock of Tocantins State (FAET).

Following the workshop, the participants present in the event, people appointed, and the interviewees from the first phase were given a one-week deadline to contribute to the produced material. To structure the results, content from the in-person meetings, remote interviews, the workshop, post-workshop contributions, and, when necessary, secondary data from official documents, scientific publications, and grey literature were used, always properly referenced (either through hyperlinks or listed in the references section at the end of the report).

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RECOMMENDATIONS

The interviewees highlighted the significant expectations for agricultural growth in Tocantins, a key region within Matopiba (Maranhão, Tocantins, Piauí, and Bahia). This expansion is driven by several competitive advantages in the state, such as favorable edaphoclimatic conditions and lower land costs compared to neighboring states, attracting producers from other regions. Similar to other states in Matopiba, Tocantins has greater water availability, partly due to its proximity to the Tocantins-Araguaia basin. Currently, areas near the Tocantins River have been viewed as potential sites for livestock expansion, while areas near the Araguaia River are in a more advanced stage of consolidation, where pastureland is being converted into grain cultivation.

This shift from livestock to grain production occurs due to favorable environmental and infrastructure conditions in some areas. Additionally, Tocantins has received investments and technology aimed at increasing agricultural productivity, such as pasture recovery initiatives. For instance, the state is a reference in funding for low-carbon agriculture (former ABC Plan, and ABC+, and current funding through the Program for Financing Sustainable Agricultural Production Systems - Renovagro), promoting sustainable practices. According to the interviewees, Tocantins still has massive areas available for agricultural expansion which attract investors from other parts of Brazil where land is saturated or more expensive. However, agricultural expansion in the state must be balanced between grain production and livestock agendas, coupled with environmental policies that ensure legal certainty, preventing conflicts and promoting the sustainable management of natural resources.

Future scenarios suggest that agricultural growth in Tocantins will significantly affect territorial organization and the state's agenda for socioeconomic development. Clear and well-structured policies (e.g., EEZ), and strengthened governance, will be crucial to managing the expansion in a way that ensures sustainability within production chains while fostering coexistence among large, medium, and small producers. This expansion may lead to greater professionalization of the sector, attract new agribusinesses, and promote regional development, particularly through the export of agricultural products and reaching more demanding markets.

In this context, careful planning to mitigate potential environmental impacts and ensure that growth is inclusive and benefits the local population is essential. Given the increasing market demands, Tocantins will capture a larger share of investments and economic growth benefits by defining and enforcing clear environmental regulations that are aligned with federal laws and international regulations that affect traders and the export market for commodities, which is expanding in the region.

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THEME 1: Sustainability and Production chains

The main production chains in Tocantins include soybeans, corn, livestock (beef, poultry, and pork), rice, aquaculture, and forestry. The state ranks among the top ten producers of rice and soybeans in Brazil and is among the top fifteen producers of beef, fish, poultry, and pork (Federation of Industries of the State of Tocantins, 2018). Among these chains, poultry and pork production are more concentrated among small rural producers (Federation of Industries of the State of Tocantins, 2018). Although the state has high expectations for agribusiness growth, particularly in grain production, some links within the production chains are still in the early stages of development due to their recent establishment. Strengthening these links requires strategic efforts from both public and private actors.

According to the Federation of Industries of the State of Tocantins (2018), these strategic efforts include: i) Strengthening agricultural production to sustain growth, employing field management practices, technologies, and diversifying funding and production sources; ii) Strengthening cooperatives and associations to develop governance, which remains underdeveloped across all production chains in the state; iii) Encouraging the development of agribusiness to enable raw material processing within the state; iv) Promoting the production within the crop-livestock integration system, which can foster more sustainable and efficient livestock farming while simultaneously boosting other production chains; v) Improving logistics, such as access roads, and grain drying and storage; vi) Promoting sustainability across production chains; and vii) Enhancing communication with key stakeholders.

Half of Tocantins's territory is composed of areas with agricultural potential (Fragoso & Cardoso, 2022). Interviewees generally expect agribusiness to grow, with part of this growth driven by the expansion of soybeans and corn over pasturelands, and another portion by the conversion of native vegetation into pasturelands. However, challenges such as water capacity, the need for investments in soil preparation and infrastructure, and the opening of new areas continue to cause disagreements among stakeholders. Below are general recommendations that are transversal to this theme and should integrate and connect all topics addressed.

Recommendations

- Promote the adoption of productive practices and technologies aimed at soil management and conservation, water preservation, and native vegetation restoration, ensuring they are economically viable and environmentally sustainable. This can be achieved through partnerships and external investors. Rural landowners need incentive programs for sustainable production chains, including scientific knowledge, technology dissemination and access, training, and technical assistance. For instance, this could promote the implementation of projects that allow the economic use of poorly managed or degraded areas by restoring them through integrated production systems (Crop-Livestock-Forestry and Agroforestry Systems – SAFs), thereby generating greater social, economic, and environmental benefits.
- Advance with improvements in traditional production systems and with the implementation of integrated production systems. To achieve this, the state should promote actions focused on diversifying production that benefit all rural producers and prepare production chains for the demands and requirements of the coming years, including small and medium-sized producers who still need to improve their income. It is important to promote research and innovation projects that highlight aspects already implemented by producers, related to good practices.
- Create programs of economic development models that foster growth hubs that serve as catalysts for productive practices and technologies tailored to local strengths. The goal is for these local hubs to facilitate scale economy, attract investment, and production specialization, e.g., through agribusiness and value chains, benefiting small, medium, and large producers.
- Develop programs and incentives particularly focused on medium-sized producers. The profile of medium-sized producers must be understood to design and implement incentives and environmental compliance initiatives due to their operational scale (which may or may not align with small producers) and to their limited access to rural credit and financing lines. For small producers and settlers, incentives may include better access to ATER services and public policies that enable traceability infrastructure. Examples cited include the Sustainable Calf initiative in Mato Grosso. Tocantins has logistical and access advantages that could facilitate scaling a traceability initiative.
- Expand support programs for family farming that offer incentives, training, and technological innovation transfer to enable small rural producers to promote sustainable practices. For example, combine ATER actions with support for the National School Feeding Program (PNAE) and the Food Acquisition Program (PAA) to access local markets.

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a. Adoption of good practices and technical assistance and rural extension services (ATER)

The adoption of good agricultural practices was a recurring theme in the consultations conducted. In addition to state government programs, the private sector has also been promoting sustainable management practices on a case-by-case basis, such as traceability, restoration of degraded areas, and crop-livestock-forestry integration. There are initiatives with more intensive and sustainable practices, such as the Caaporã Agrosilvipastoril group, the work of the Novilho Precoce Program encouraging productive improvement, and SEAGRO's support for bovine insemination and improved production quality. In the past years, the state of Tocantins had been standing out when compared to other states regarding the ABC Plan agenda, having developed and institutionalized the ABC-TO Plan. This plan, coordinated by SEAGRO, presents seven programs, six of which are related to mitigation technologies, and one is focused on climate change adaptation actions.

Many actions have been carried out within the scope of these programs, and the Brazilian Agricultural Research Corporation (Embrapa) has played a significant role. For example, in establishing the technological learning unit and technological reference units whose basic principle is to promote good practices within these units by offering continuous training in these spaces, thereby bringing producers closer to good practices, thus multiplying these actions across territories. As a result, there are currently examples of good productive practices being replicated on rural properties in the state.

Recently, the Ministry of Agriculture and Livestock (MAPA) and Embrapa held a meeting in Palmas as part of the National Program for the Conversion of Degraded Pastures into Sustainable Agricultural and Forestry Production Systems (PNCPD). This program aligns with the Sectoral Plan for Adaptation to Climate Change and Low Carbon Emission in Agriculture 2020–2030 (ABC+ Plan). The program aims to foster and coordinate public policies to convert degraded pastures into sustainable agricultural and forestry production systems. The meeting will provide subsidies for the Program's implementation in the state, aiming to increase producers' profitability without compromising environmental conservation.


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The actions planned among the Program's activities are, among others: i) adoption and maintenance of sustainable technologies; ii) mapping of priority areas for the development of productive chains aligned with the local and regional socio-bioeconomics; iii) funding for rural producers; and iv) developing business plans based on databases about suitability for priority agricultural regions and culture/practices. Programs focused on improving pasture management will bring multiple benefits (social, economic, and environmental) to properties. These programs should include alternative practices that avoid the use of fire, reduce pressure on the remaining vegetation, and aim to integrate legally protected areas into productive landscapes, conserving natural resources such as water and soil. Therefore, these incentives provide opportunities for expanding good practices, as do differentiated credit lines and the growing market for traceable/certified products, which can benefit producers adopting conservation practices. Furthermore, there are already initiatives bringing resources for sustainable practices in Tocantins.

The importance of Technical Assistance and Rural Extension Services (ATER) in supporting productive efficiency and environmental compliance was emphasized by interviewees. This service is carried out by Ruraltins, a SEAGRO agency that currently faces limited resources (human, equipment, and structural) to meet high demand. In this context, the Federation of Agriculture and Livestock (FAET-TO) and the National Rural Learning Service (SENAR) could partner with state and municipal agricultural secretariats to expand outreach, promote professional education, and provide technical assistance. These partnerships could contribute to the increasing development of sustainable production, competitiveness, and social progress in rural areas.

Despite its relevance, the training of technicians still lacks a holistic approach that integrates efficient production methods with the promotion of good practices and environmental compliance of rural properties, considering, for example, native vegetation restoration as a strategy combining production and conservation. The integration of sustainable and regulatory practices within ATER services is seen as essential, though its implementation remains unclear. The private sector has highlighted challenges when dealing with environmental agencies and when adapting services for small and medium-sized producers. Currently, according to interviewees, those who can afford it have access to these services.

Another challenge is the disparity in technical capacity and incentives for small producers and traditional communities. To engage local communities in adopting sustainable agricultural practices, programs like bovine semen distribution and livestock financing are mentioned as examples of government support, although the private sector has criticized these efforts, as they are insufficient. For instance, the "Strategy: Tocantins Competitive and Sustainable 2030–2040" aims to integrate small producers into the state's development. However, the strategy is still being negotiated among the various sectors involved (for several years now), and its structure is not yet well understood by the consulted sectors. According to SEMARH, this strategy was created to promote the socioeconomic development of Tocantins competitively, aiming to improve the population's quality of life and ensure the rational use of natural resources based on four development pillars: social, environmental, economic, and infrastructure.

RECOMMENDATIONS

- Increase the visibility of properties adopting good practices, proposing and scaling initiatives such as the creation of demonstrative units or technological reference units to promote and engage more producers and properties in these practices. Additionally, establish tax incentives and certifications to add value to the products from these properties. An example of a tax incentive that could be expanded in Tocantins is the one proposed by the Novilho Precoce Program.
- Expand ATER programs by restructuring, strengthening, and increasing investments in Ruraltins, aiming to integrate good practices with sustainability, environmental compliance of properties, and native vegetation restoration. That is, this approach should adopt an integrated landscape planning vision, particularly for small and medium-sized producers who currently have limited access to these services. Investments in Ruraltins should also include the expansion and continuous training of its technical staff to enhance the capacity and quality of service delivery (e.g., reducing the number of families served per technician to improve the quality of service offered). In this context, Ruraltins' actions should be expanded and strengthened

by integrating efforts and initiatives with SEAGRO, which should be seen as a direct partner regarding challenges and opportunities. SEMARH, municipal secretariats of agriculture and environment, FAET, and SENAR are important recommendations to broaden actions and improve the quality of technical assistance.

- Create incentives and promote the state's agribusiness to increase the added value of products across various chains and actors (medium and large producers). The integration of small farmers into larger value chains through agricultural contracts and technical assistance can ensure greater income stability and productivity. For instance, in Rondônia, the dairy industry reinvests part of its revenue into its suppliers to ensure quality supply and collective benefits, such as refrigeration and adequate logistics. Similar initiatives exist in Mato Grosso and Tocantins to support the production of fruits and vegetables (e.g., pulping machines) that supply schools through PNAE/PAA. Incentives for on-farm processing and the development of specialized products can increase farmers' incomes. Additionally, access to financing and markets for products adapted to Cerrado's unique conditions, such as drought-resistant crops and soil management, can boost long-term agricultural sustainability and economic growth in the region. Thus, the agribusiness with diversified products creates local food security for food supply.
- Include universities, Embrapa, and third-sector organizations in the discussion about adopting good practices and rural technical assistance. These institutions can play a fundamental role in generating knowledge, supporting the promotion and implementation of recommendations, and finding solutions for bottlenecks identified here. In this context, creating dedicated spaces for these discussions, such as technical discussion chambers or plans and/or programs (e.g., ABC Plan), that involve these institutions can foster this environment and strengthen joint actions.

b. Traceability and certifications

Market incentives for environmental compliance and achieving environmental goals, such as traceability, certifications, and good practice protocols (e.g., Carbon Neutral Beef - CCN - and Low Carbon Beef - CBN), are recognized as important for addressing sanitary concerns, adding value to products, and accessing more demanding markets. These certifications emphasize the good origin of the product, with sustainable work practices and adherence to good agricultural practices. Among the main certifications are organic product, which verify the conservation of native biodiversity, sustainable planting and production practices, animal welfare, meat origin, and/or guarantees of worker welfare (e.g., Rainforest Alliance, Fair Trade, Global Map, ISO certifications, among others).

The European market has recently approved regulations regarding products originating from illegally deforested areas, and China has signaled an increase in environmental requirements for Brazilian beef and soy. Traceability along the production chain is an important sanitary requirement for monitoring and controlling the suitability of food for human consumption (e.g., pesticide levels in vegetables), meeting specific demands for production chain control, and fulfilling the requirements of importing countries. Traceability was highlighted as a tool to enable more transparent, efficient, and sustainable production, meeting the demands of increasingly conscious consumers and strict regulators. However, the use of traceability instruments is still limited in Tocantins and generally directed to medium and large producers. The adoption of these resources can be encouraged by different links in the livestock production chain, such as tanneries and meatpacking plants, to demonstrate to producers and other stakeholders the added value generated by this good practice. Some initiatives are already seeking to meet these growing market demands, especially regarding the quality and origin of meat, such as the Primi Protocol and Novilho Precoce.

Some private sector interviewees indicated that they are developing traceability systems to ensure the quality and sustainability of their products. Additionally, there is an expectation for the creation of a new public traceability system by MAPA. Although the traceability system offers significant advantages for producers, it may exclude small rural landowners from accessing credit. This is because banks use information from the traceability system to evaluate the environmental compliance of rural properties, and only medium and large landowners can afford the costs associated with obtaining traceability. As a result, small producers are unable to access credit and other benefits derived from this system. Therefore, before implementing a traceability system, it is important to direct efforts to gradually and constantly improve the sustainable management of rural properties and of producers, considering good practices, in order to scale the system.

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RECOMMENDATIONS

- Define strategies and seek incentives for traceability and sustainable practices (e.g., meeting market demands, differentiated credit, and blended finance programs). For example, partnerships with sustainability initiatives of major meatpacking industries, such as JBS's Green Offices Program and Minerva's Renew Program.
- Establish clear policies for incentives and transparency for certification and traceability of agricultural products, such as reducing fees and taxes in the state. The Novilho Precoce initiative is a good example of an incentive to increase productivity through tax reductions in Mato Grosso do Sul. Alternatives to tax reduction could be further explored. Additionally, rural credit can already support regenerative agriculture through constitutional funds and specific credit lines, such as Renovagro (former ABC Program).
- Create mechanisms to enable rural producers to return to the formal market, similar to the Commercial Requalification Program in Pará or the Reinsertion and Monitoring Program (PREM) in Mato Grosso. Producers with environmental compliance issues may be blocked from selling their products. In this context, to requalify producers so they can resume commercial activities, they must, in addition to having the Rural Environmental Registry (CAR), prove the isolation of deforested areas after July 22, 2008, to allow the beginning of the forest regeneration process.
- Ensure accessibility to vector database information. For instance, technologies and practices used in Mato Grosso, Pará (SISFLORA), and Tocantins (PRIMI) by private initiatives were mentioned as potential models to be replicated with necessary adaptations to the state's peculiarities.

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c. Native vegetation restoration

The native vegetation restoration (NVR) chain has the potential to generate ecosystem services that are essential for agriculture (e.g., pollination, biological control, soil protection, and hydrological regulation), in addition to providing food, improving water quality, and other resources. The positive economic impacts are linked to income and job creation (direct and indirect, permanent and temporary), which can contribute to locally eradicating poverty. According to the Restoration Showcase of the Brazilian Society for Ecological Restoration (SOBRE), NVR can create up to 0.42 jobs per hectare (depending on the method used), while soybean production generates one job per 10 hectares. The restoration production chain can also be an opportunity to ensure the economic inclusion of vulnerable groups and ensure gender equity. Currently, there are good examples in Brazil of seed networks generating jobs and income for Indigenous and *Quilombola* communities, and rural settlements through sustainable management of preserved ecosystems, with significant participation and leadership by women.

Strategies for NVR with productive purposes can promote efficient and profitable systems, adapted to different landowner profiles, from small to large rural properties, while also ensuring food security and restoring the ecological functionality of areas. Examples of these strategies include: i) Agroforestry Systems; ii) Forestry with highly profitable native species; iii) Enrichment and management of secondary forests; iv) Integrated productive systems; v) Low-carbon agriculture; and vi) Other approaches.

In this context, in July 2024, the Ministry of Agrarian Development (MDA) and the Ministry of Environment (MMA) launched the National Program for Productive Forests. This program aims to restore degraded areas for productive purposes and the environmental regularization of family agriculture, contributing to increased capacity to produce healthy foods and sociobiodiversity products. The program targets family farmers, including those in agrarian reform settlements and territories of traditional peoples and communities. The program's foundation is ATER (Technical Assistance and Rural Extension Services) for the beneficiary families, combined with sustainable agro-food production and collective equipment for production chains formation. Another aspect is the *Pronaf Floresta* credit line, which facilitates productive restoration with quality and efficiency by increasing the financing limit from R$80,000 to R$100,000 and reducing the interest rate from 4% to 3% per year.

On rural properties of small producers in Tocantins, the restoration chain can serve as an alternative source of income through the creation of seed collectors/suppliers for ongoing projects. In this inclusion process, participants are trained in techniques for identifying seed sources, collecting and storing seeds, and increasing their knowledge about the environmental and social importance of NVR in the territories. This practice is currently on a small scale in the state, but it shows significant potential.

The state of Tocantins provides a handbook and a native vegetation restoration manual to guide the restoration process step-by-step in the Cerrado and Amazon[2]. However, restoration actions occur in a very limited manner and often rely solely on assisted natural regeneration as the primary recovery strategy. Natural regeneration is a very interesting strategy, which reduces restauration costs, but its potential varies depending on several physical and environmental factors. Therefore, this strategy should be recommended when its potential at the site is well understood (assessed through spatial modeling to analyze natural regeneration potential). If the potential is low, alternative strategies should be adopted based on local needs.

Initiatives for NVR were rarely mentioned by interviewees, possibly due to the lack of regulation of the PRA (Environmental Regularization Program) and PRAD (Degraded Area Recovery Program), the formalization of terms of commitment (when necessary), and ways/tools for monitoring these projects. The lack of land and environmental regularization for rural producers (mainly smallholders and settlers) was identified as an additional risk, preventing access to RNV initiatives and market incentives. As a result, nowadays ongoing NVR projects focus on large producers who have regularized land situation with the support from NGOs, such as the Black Jaguar Foundation, which operates in the Araguaia Basin.

RECOMMENDATIONS

- Implement the use of the PRAD manual (regulated by IBAMA's Normative Instruction (IN) No. 14/2024), to enable rural producers to restore their areas. Formalize PRAD implementation in a standardized manner regarding the approval of CAR analysis, establishing deadlines and commitments as outlined in the terms of commitment (as specified in Joint IN No. 1/2024). Create a Normative Instruction to standardize the monitoring of ongoing NVR projects.
- Launch a communication campaign for various audiences using the state's native vegetation restoration handbook and manual. Additionally, restoration projects need to account for different producer profiles, for large producers have better access to resources for implementation, small producers have more recovery options (including exemption from Legal Reserves – RL, while respecting existing remnants), while there is a lack of clarity regarding the feasibility of implementation for medium-sized producers.
- Develop programs to promote productive recovery methods (respecting the minimum richness and biodiversity required) and encourage the NVR chain as an income source for small and medium-sized producers, such as the PRO-SAF initiative in Pará. Associating restoration efforts with strategies that generate income and Payment for Environmental Services (PES) mechanisms (restoration modality) can help scale and accelerate implementation actions.
- Create systems to speed up NVR implementation connecting beneficiaries, implementers, and funders in the state through mechanisms like a database system for service providers, and supply and demand of recovery areas. This approach would facilitate connections between those needing restoration, those with financial resources, and those with the expertise to execute it. Motivations among stakeholders in this matchmaking process vary and include compliance with NVPL due to RL or APP deficits, fulfillment of TACs, demand for agroforestry products, PES like carbon and water availability, availability of areas for restoration with economic goals or advanced-stage natural regeneration, etc.
- Expand existing initiatives to structure the restoration chain, including small rural producers and traditional communities, enabling them to access incentives and investments in this area (e.g., ABC Credit and Constitutional Funds) and receive training on the subject. Additionally, existing incentive mechanisms (such as jurisdictional REDD) can be structured to reach small producers in Conservation Units engaged in NVR.

2. https://www.to.gov.br/naturatins/restauracao-de-vegetacao-nativa-do-estado-do-tocantins/4vomzd340iet

d. Payment for Environmental Services (PES), carbon credits, and other financial mechanisms

Environmental protection can be achieved through the implementation of economic instruments that promote the reduction of environmental degradation by transferring costs to the agents causing the degradation. In other words, funders from the public, private, or mixed sectors can make payments to projects that preserve natural resources in a specific region. Examples of such instruments include Payment for Environmental Services (PES) and the carbon market. For instance, in a PES project, rural landowners can receive additional income for protecting native vegetation on their properties. On the other hand, incentives like REDD+ (Reducing Emissions from Deforestation and Forest Degradation) aim to financially compensate regions contributing to greenhouse gas emission reductions originating from areas that will not be deforested or degraded (MMA, 2016), ensuring the conservation of native vegetation areas.

Tocantins is implementing a jurisdictional REDD+ mechanism, which would be the first program of its kind for the Cerrado. The implementation of this program is enabling the state to enter the international voluntary market, a pioneering initiative among Brazilian states and the third of its kind globally. To achieve this, a regulatory framework is being developed to provide the necessary legal certainty while encompassing various subprograms. This will allow standing forest carbon to become financial assets that can be used to subsidize socio-environmental programs[3]. Tocantins holds significant potential in the carbon market, with an average stock of 117.49 tons C/ha in the Amazon and 96.82 tons C/ha in the Cerrado (Instituto Ecológica, 2019a).


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Public sector interviewees highlighted the high expectations for advancing important environmental agendas for the productive sector, such as expediting environmental compliance and adaptation of properties, and creating incentives using REDD+ resources. For example, these resources are expected to finance the strengthening of Naturatins. There is also an expectation that these funds will reach landowners conserving native vegetation. However, some believe that negotiations should remain bilateral. On the other hand, some express concerns about the uncertainties surrounding the volume and timely arrival of these resources due to the urgency of supporting the environmental regularization of properties and rural activities, and the distribution of resources to local actors due to the high transaction and management costs this may generate for the state. It is important to highlight the risks of relying excessively on this strategy and becoming overly dependent on external resources, such as REDD+ funds, particularly for conservation financing. These resources can be volatile and subject to international political changes and potential crises in national and international markets.

The government acknowledges the need to improve the carbon market and certification use; however, it does not present concrete examples of operational incentives associated with existing public policies. Finally, other financial mechanisms to promote the agro-environmental agenda in the state were mentioned by interviewees and during the workshop, such as PES for small producers, other incentives to maintain vegetation surpluses, and the carbon market to promote low-carbon livestock farming. However, these types of incentives remain incipient in the state and initiatives are lacking. Regarding carbon credits for regenerative agriculture, a project was mentioned by the private sector, but it is still in its initial stages and depends on the approval and/or implementation of a legal framework to provide legal security to the process, such as EEZ and the implementation of Joint IN nº. 1/2024, environmental licensing, and carbon market regulations.

RECOMMENDATIONS

- Ensure that financial incentives, such as REDD+ and the carbon market, are distributed fairly and transparently through participatory governance mechanisms and concrete practices. Leveraging the potential of resources from incentives (e.g., REDD+ and low-carbon livestock farming) as well as exploring new mechanisms and creating markets for sustainable and certified products, can increase the global competitiveness of the producers benefiting from these incentives and attract new investments into the private sector.
- In the context of jurisdictional REDD+, it is essential to consider that incentives for environmental compliance and sustainable production depend on a combination of instruments that mitigate risks of losses and enable access of different groups and activities. Diversifying funding sources to finance the state's environmental agenda is a crucial strategy, given that the carbon market is a volatile and potentially unstable resource.
- Analyze and create PES policies, following the example of other states, such as Espírito Santo's Reflorestar Program (whose funding is connected to the brown agenda—resources from fines—and the World Bank), which combines payments for environmental services with a focus on water quality, native vegetation restoration, and income generation opportunities in areas of productive restoration.
- Develop financial incentives (such as PES, carbon credits, biodiversity credits, certifications, and other voluntary mechanisms) that stimulate good agricultural practices, such as the ABC+ Program, generating benefits for rural producers in Tocantins who choose to implement these practices on their properties.

3. https://www.to.gov.br/semarh/redd/4axfztcknoi3


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THEME 2: Environmental regularization

Environmental regularization is a theme of great relevance for advancing the agro-environmental agenda of Tocantins, part of which is carried out by Naturatins and SEMARH. Based on the results of all consultations conducted, several challenges, progress points, and opportunities for environmental regularization in the state were identified.

According to information from the *Termômetro do Código Florestal*, most rural properties in the state are currently registered in the Rural Environmental Registry (CAR - 85.5%). The estimated vegetation liabilities for rural properties in the state amount to approximately 837,500 hectares of Legal Reserve (RL) and 121,400 hectares of Permanent Preservation Areas (APP), with the largest deficits concentrated in large rural properties. Regarding overlaps, it is known that about 593,000 hectares have overlaps, most of which are associated with Conservation Units (excluding APAs) (81.7%) and Quilombola territories (10.8%). For Settlement Projects (PAs), the RL and APP liabilities are 29,000 hectares and 3,600 hectares, respectively (*Termômetro do Código Florestal*, 2024).

Among the challenges mentioned in this theme, the most cited were: i) delays in validating the CAR and advancing to subsequent stages, such as the PRA; ii) slow licensing processes; iii) bottlenecks in land use within APAs; and iv) the approval of the EEZ. Additionally, some factors may create instability in the formulation and application of legislation, including actions by legislators (who may sometimes create unconstitutional laws); Misinterpretations by unqualified environmental agency managers; Instability among hired, but non-tenured, staff with low commitment, analyzing and issuing opinions inconsistent with regulations.

On the other hand, the workshop identified concerns about the possible economic impacts on rural landowners in complying with environmental requirements established by current legislation. These policies may significantly affect rural landowners, as compliance can be financially unfeasible without clear incentives. Finally, the workshop also highlighted the need to recognize the role of rural producers in environmental conservation, as they are essential to maintaining forests and protected areas within their properties.

In various dialogues, a general perception was noted that many environmental issues in the state result in legal disputes. This symptom may be linked to several causes, including: The formulation of legislation and/or associated regulations; Issues with interpretation and/or application; Lack of resources and adequate conditions for implementation; Insufficient consideration of all stakeholders and their specificities; Challenges in balancing incentive measures with command-and-control approaches, among others.

Acknowledging the importance of the environmental regularization theme, a technical cooperation agreement was signed between COMUNITAS, Naturatins, and SEMARH, with the goal of mapping and optimizing procedures at Naturatins, especially those related to the Directorate of Environmental Management and Regularization. This directorate addresses aspects of environmental licensing, authorization for forest exploitation, and CAR analysis. As part of this partnership, a workshop was held to diagnose the situation with agency staff. Subsequently (at the end of August 2024), the results of this diagnosis were presented by the responsible consultant, and recommendations are expected to be developed to expedite processes within this agenda. Further progress directly related to the topics addressed is described below. General recommendations transversal to the theme, which should integrate and connect all topics addressed, are presented next.

Recommendations

Collaboration between government agencies, the private sector, and society is regarded as crucial to fight environmental and productive challenges. Strengthening agro-environmental governance by involving sectors at different stages—building, implementation, and monitoring—can ensure more streamlined and integrated application of regulations. Establishing a more robust environmental governance system that includes different sectors of society (e.g., service providers from CREA, the private sector, and the third sector) and supporting the creation of regulations aligned with local needs can reduce the judicialization of processes and ensure the implementation of public policies. This can be achieved through the State Environmental Council (COEMA) and other coordination and communication mechanisms among stakeholders. However, it is essential to ensure commitment to participate in discussions to advance the agro-environmental agenda. Successful examples include the Sustainable Landscapes project, the task force for controlling forest fires and deforestation, and progress in integrating collective efforts through initiatives such as MapBiomas.

Create and implement better communication and dissemination methods about legislation, public policies, government programs, etc., for stakeholders. Designing communication campaigns about agro-environmental regulations with accessible materials tailored to the needs of each sector (rural producers, service providers and consultants, settlers, Indigenous peoples, and traditional communities) can improve societal understanding and engagement. This includes informing producers not only about the regulations but also about the importance of environmental regularization and licensing for long-term production, such as how property environmental compliance can add value to production, and other benefits. SEAGRO and SEMARH have a key role in engaging the various stakeholders.

Offer ongoing training to individuals interested in the environmental regularization process, such as external consultants, service providers, municipalities, cooperatives, and associations, providing certifications for this training.

Promote the integration of state systems with the federal system, including various state agencies such as ADAPEC, Ruraltins, SEMARH, SEAGRO, Intertins, Naturatins, and SEFAZ. System integration is fundamental to speed up analyses and achieve integrated management of different aspects of territory and rural properties. For instance, the state should integrate systems like CAR, PRA, and environmental licensing. This will support not only SEMARH, Naturatins, and SEAGRO but also credit and rural financing implementers, such as banks. This integration will help avoid unnecessary on-site validation processes and avoid the risk of irregularities in property regulation. Additionally, the Geographic Intelligence Center for Environmental Management (CIGMA), currently being structured (detailed in the topic on deforestation), has the potential to improve governance and information exchange among state environmental agencies, reducing access issues and integrating environmental information.

Need for clear and stable legislation, guaranteeing transparency and accessibility to information (e.g., land, environmental, and other). Strengthening and clarifying regulations, with predefined and well-established routines to expedite necessary analyses, combined with technical implementation capacity, will accelerate activities and the environmental agency's processes. This will provide greater legal and institutional certainty for advancing the state's agro-environmental agenda. Overall, systematically adopting a monitoring and evaluation approach for public policy implementation—from federal to municipal levels—promoted by governments, structures and governance, and civil society organizations, would improve trust among stakeholders with divergent interests and enhance the effectiveness of applying instruments.

To expand the hearing processes, it is advisable to maintain active communication with rural producers, cooperatives, and associations of different producers (e.g., rice, eucalyptus, corn, etc.) through regional workshops within the state or other effective participatory processes. It is also recommended to develop mechanisms for disseminating legislation in a didactic manner to all stakeholders (e.g., guides, field workshops, etc.). The private sector (including producers, associations, cooperatives, and other components of production chains) and the third sector must be familiar with policies related to the agro-environmental agenda and actively participate during the formulation, implementation, and monitoring stages of these policies.

e. Technical and operational capacity of environmental agencies

Naturatins is the technical agency responsible for executing environmental preservation and conservation policies, as well as promoting actions aimed at socio-environmental well-being in the state of Tocantins. Among its functions are: i) continuing the analyses and validation of the Rural Environmental Registry (CAR) and adherence to the PRA and the term of commitment (the latter two when necessary), and ii) analyzing all environmental licensing procedures. SEMARH, on the other hand, is the government agency of Tocantins that coordinates the revision of the state's policy for the environment and water resources and its instruments. Among its functions are: i) coordinating the councils and technical chambers where regulations are addressed to clarify the rules required by the sector; ii) promoting CAR registration; iii) encouraging and strengthening municipal environmental management; iv) assessing the state's environmental assets; v) implementing climate change adaptation projects; vi) managing the state's natural resources, among others.

Interviewees pointed out that Naturatins currently has few technical staff, and CAR analysis is carried out manually by just over 10 people, within a universe of approximately 95,000 CARs for analysis in the state. Additionally, during the workshop, it was emphasized that the last public hiring process for the agency was held more than ten years ago. The scarcity of staff affects both CAR analysis and the implementation of public policies in the state. Furthermore, it was reported that there is little effective integration between Naturatins and other agencies, which represents a risk to environmental regularization and biodiversity conservation in the state. The lack of integration among agencies can lead to conflicts in policy formulation and implementation, as the different objectives, resources, and information already being developed by each agency are not considered, which, combined with political instability, can affect the implementation of environmental policies.

Between 2012 and 2014, Naturatins was involved in irregularities in processes for deforestation authorization and environmental compensation in LR areas in different municipalities of the state, such as Gurupi[4], Lagoa da Confusão[5], and Araguaçu[6]. In this case, the MPTO has worked with criminal cases focused on the managers and technicians responsible at the time. These cases have resulted in criminal convictions and restitution for environmental damage by the former employees, companies, and/or individuals involved. Currently, efforts are being made in this case to regularize the liabilities with landowners, to repair the damage and qualify these converted areas, generating RL liabilities.

RECOMMENDATIONS

- Establish clear processes and procedures (with well-defined steps for all procedures carried out by the agencies), ensuring transparency for society to provide legal security to the environmental agency, its employees, and other involved sectors, such as rural property owners, service providers, among others.
- Create and expand reinforcements of qualified personnel to handle the high demand. Investing in increasing technical capacity by expanding the permanent technical staff with more employees and/or hiring specialized technical support services, as well as providing continuous training and a career and salary plan, are crucial actions.
- Create and expand reinforcements in modernization and transparent, efficient technological resources to handle the high demand. Implement geotechnology systems to expedite the process and implement the analysis module.

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4. https://clebertoledo.com.br/tocantins/justica-de-gurupi-condena-ex-servidores-do-naturatins-e-empresario-por-desmatamento-ilegal-a-pagarem-r-69-milhoes-de-ressarcimento/

5. https://mpto.mp.br/portal/2023/02/17/apos-acao-do-mpto-justica-reconhece-fraudes-em-licencas-para-desmatamento-expedidas-pelo-naturatins-e-condena-empresa-beneficiada-a-pagar-multa-milionaria
https://conexaoto.com.br/2023/02/17/justica-reconhece-fraudes-em-licencas-para-desmatamento-e-condena-empresa-a-pagar-multa-milionaria

6. https://mpto.mp.br/portal/2020/10/07/mpto-ingressa-com-acoes-por-fraudes-em-processos-do-naturatins-para-autorizacao-de-desmatamento-em-area-de-reserva-legal

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f. Native Vegetation Protection Law (NVPL) and environmental compliance

The Native Vegetation Protection Law (LPVN)/ New Forest Code establishes general rules on the protection of vegetation, Permanent Preservation Areas (APP), and Legal Reserve (RL) areas, as well as forest exploitation and the control of the origin of forest products, among other provisions. Rural producers must follow a process to achieve environmental compliance for their properties and align with the law. Compliance is essential for producers, as it allows access to rural financing lines, better conditions for rural credit, increases the added value of production, and is a prerequisite for certification and production traceability.

To achieve environmental compliance, rural landowners, according to the Forest Code Observatory, must first register with the CAR. Following this, an analysis of the registry must be conducted by the environmental agency (in this case, Naturatins, upon the owner's request) for validation. This analysis evaluates documentation and potential overlaps between the properties and other rural properties, Conservation Units (UCs), areas of traditional peoples and communities, unallocated public lands, and settlements. If there are no overlaps, the next step is permitted. If there are pending issues, the registry must be corrected, requiring personalized technical work and contact with the person who registered the property, which slows down the process. In summary, landowners are responsible for registering with CAR and maintaining native vegetation assigned to APPs and RLs (Forest Code Observatory, 2024). If native vegetation restoration is required, subsequent steps for these properties include: a) adherence to the PRA for environmental liability regularization, implemented directly after electronic CAR registration, b) signing the term of commitment, which outlines the project indicating how compliance with legal rules will be achieved, c) implementing the term of commitment and monitoring compliance, and finally, d) environmental compliance of the rural property.

The environmental agenda in Tocantins faces significant challenges in implementing the NVPL (New Forest Code) and, consequently, in achieving the environmental compliance of rural properties, as pointed out by all sectors interviewed. Until now, no procedural routines have been established through the Integrated Environmental Management System (SIGAM), and there is difficulty standardizing the reviews from CAR analyses conducted by Naturatins. As a result, the state's current approach does not follow the guidelines set by the Forest Code Observatory, as described above, and lacks a standardized routine. This causes delays in advancing CAR analyses and subsequent steps (PRA/PRAD), which should be faster.

In this regard, the Joint Normative Instruction (IN) No. 1/2024 was recently published by Naturatins and SEMARH, establishing procedures for Rural Environmental Registry – CAR registration and analysis processes and for drafting Terms of Commitment for Adherence to the Environmental Regularization ProTgram – PRA. The CAR and PRA Analysis Module will be implemented soon, standardizing registry analyses and, consequently, the issuance of technical reviews. All registry analyses will be conducted within the system, which, while not fully dynamic/automated, will provide greater efficiency for technician analysis. Currently, a Naturatins technical analyst reviews one registry per day. With the new system, it is expected that three to four registries will be analyzed daily.

From the perspective of the productive sector, there is a divergence in NVPL implementation due to legal uncertainties regarding the definition of coverage for Cerrado or Amazon biomes within rural properties. However, Naturatins' IN No. 4/2015 establishes norms and procedures for determining RL percentages based on Tocantins's **vegetation typologies**, following criteria set by the Brazilian Institute of Geography and Statistics (IBGE). According to this IN, the RL percentage for properties with forest typology must maintain 80% of their coverage protected, regardless of the biogeographic region ("biome") in question. In this case, the divergence arises because the Cerrado biome includes forest typologies in its composition; however, as defined by the NVPL/Forest Code, rural properties in the Legal Amazon (north of the 13th parallel) must maintain 80% RL, as reinforced in IN No. 4/2015. Additionally, MMA IN No. 2/2014 specifies that in transitional biogeographic areas ("biomes"), RL indices for rural properties must consider the vegetation typology characterized in IBGE phytogeographic maps.

Tocantins is in the process of defining a new state Forest Code to align with current federal legislation, aiming to foster the development of activities based on forest and the sustainability of agricultural practices[1]. Currently, two drafts of the Forest Code have been completed: one was presented to the Legislative Assembly in 2017 (approved by COEMA), and the other is being prepared and reviewed among government departments (initiated from discussions with the agricultural parliamentary front in the Assembly). However, interviewees expressed that implementing clear and operational rules is more critical than creating new state-specific regulations. Additionally, when asked about the state Forest Code, it was noted that few people understood what additional benefits it would provide compared to the existing federal NVPL/New Forest Code regulations or other related instruments. Other interviewees commented that the state code can provide a regulatory framework better adapted to local specificities, facilitating the implementation of sustainable environmental practices, harmonizing the interests of different key stakeholders, and simplifying restoration practices. However, creating state laws without proper consultation with key stakeholders could increase legal uncertainty. For example, Law No. 3.804/2021, which regulated environmental licensing in the state, was declared unconstitutional by the MPTO for being considered a setback in environmental protection.

With progress in environmental regularization, it will be possible to promote the use of environmental easements and Environmental Reserve Quotas (CRAs). Environmental easements are areas where, with the consent of the competent environmental agency, rural landowners can establish easements, in which they voluntarily renounce, permanently or temporarily, partially or entirely, the right to use, exploit, or remove natural resources on the property. These areas do not apply to RL and APP areas, but are surplus areas. CRAs are an economic instrument designed to encourage both the preservation of existing native vegetation areas and the restoration of new areas. They can originate from RL and APP surplus areas (such as easements), protected areas registered as Private Natural Heritage Reserves (RPPNs), or areas located within public conservation units that have not yet been expropriated and are pending land tenure regularization.

These two instruments can complement each other, as landowners can use easements to ensure the environmental preservation of their area while simultaneously issuing CRAs to compensate those lacking sufficient native vegetation. Combined, these instruments can increase the economic value of preserved areas, promote greater native vegetation conservation, and make the compensation options more flexible for different producer profiles. CRAs present an opportunity to expand compensation and conservation options through market mechanisms, maximizing incentives for environmental preservation. For small properties, for example, it is possible to issue CRAs on the percentage of vegetation within these rural properties as RL, regardless of their size, even when below the percentages established by the NVPL/New Forest Code. Thus, using these instruments can provide opportunities to generate income, environmentally regularize rural properties, and conserve native vegetation areas.

RECOMMENDATIONS

- Create tools for the analysis, integration, and sharing of data and high-resolution image databases—such as reference bases (2008/2012/ current year)—that determine the timeframe for analyzing conservation and/or deforestation information for properties. These tools should also provide clarity on regulations and technical training for their use and application in CAR analyses. Currently, a reference database for CAR

(digital CAR) is being developed. Additionally, some interviewees highlighted the need for an updated hydrographic database at an appropriate scale for CAR analysis.

- Base efforts on successful experiences that have expedited CAR analysis and validation processes, as some producers rely on compliance to sell their products at higher added value, as well as to access rural credit. To this end, the public sector can draw on experiences from other states (e.g., Pará and Mato Grosso in the Amazon) and private institutions (e.g., NicePlanet) that have acted efficiently.
- To further expedite the CAR analysis process, ensure the module includes automated analysis stages (as implemented in Pará and detailed in IN No. 2 of 2023 under the *Regulariza Pará* Program). After an initial filter, only cases where issues such as overlaps are identified, would require professional analysis. It is critical that the entire system is based on geotechnology and algorithms to enable these automated analyses. When necessary, analyses should be carried out by Naturatins without requiring a request from the property owner.
- Opportunity for the use of environmental easements and CRAs with advancements in environmental regularization in the state as an opportunity to generate income, achieve environmental compliance for rural properties, and conserve areas of native vegetation.
- Clarify the additional value of the State Forest Code and differentiate it from federal legislation (which is mandatory regardless of a specific Forest Code for the state).

Table 1: Distribution of allocated and unallocated areas in the state of Tocantins by land tenure status (modified from Almeida et al., 2021).

Land tenure status		% of the state	hectares
Conservation Units		4	1,068,788
Indigenous Territories		9,5	2,586,337
Settlement Projects		4	1,142,725
Private Property		26	7,030,755a
Unallocated Areas	with CAR	37	10,060,094
	without CAR	19	5,149,342
	in the process of regularization	0,5	148,103

g. Ecological-Economic Zoning (EEZ)

The Ecological-Economic Zoning (EEZ) is an instrument to guide decision-making and aims to enable sustainable territorial development by balancing socioeconomic development with environmental protection. To achieve this, it involves a diagnostic assessment of the physical landscape, as well as of the socioeconomic and legal-institutional means, to implement territorial environmental planning actions. The EEZ should be used by government secretariats and society as a tool to guide the formulation and structuring of public policies and incentives that enhance the agricultural production potential, industrialization, or conservation of territories, thereby achieving greater social, economic, and environmental benefits.

In Tocantins, actions related to Ecological-Economic Zoning began in 1992 through State Decree No. 5,562/1992. SEPLAN is responsible for managing and executing activities planned under the EEZ Program of Tocantins. Currently, documents related to EEZ are complete and were prepared under the Integrated and Sustainable Regional Development Project (PDRIS), as stipulated by State Law No. 2,656/2012. The EEZ was cited by all interviewees as a guiding document for land use, either to enhance production in areas with higher potential for it, or to guide the creation of conservation units, making its approval and wide dissemination crucial. However, the final version has been debated within the EEZ State Commission and still presents points of disagreement among sectors. Resolving these disagreements, the final document needs to be approved at the state level by COEMA and, subsequently, at the federal level by the National Environmental Council (CONAMA).

The state of Tocantins is covered by the biogeographic regions ("biomes") of Cerrado and Amazon, with its forested area composed primarily of native vegetation (47.17%), as well as natural non-forest formations (13.5%), and agricultural land use (37.42%). The state is divided into 13 Macrocompartments of landscape, comprising

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72 compartments and 161 landscape units. Macrocompartments A and B are in the Amazon in the northern part of the state, encompassing the Araguaia River basin, with a humid climate and minimal water deficiency. Macrocompartments C to M are in the Cerrado biome, within the Tocantins (C-I, K-M) and Araguaia (J) river basins. All macrocompartments have a humid climate with varying degrees of water deficiency (Secretariat of Finance and Planning, 2020). Natural areas have been decreasing over the years, giving way to agricultural land, particularly in Cerrado areas (MapBiomas, 2024a).

The state has 56.5% of its territory classified as areas without land tenure designation or information about their allocation (Almeida et al., 2021). The remaining 43.5% is divided among private properties (26%), Indigenous Territories (TIs - 9.5%), Conservation Units (UCs - except Areas of Environmental Protection - 4%), and settlement projects (PAs - 4%) (Table 1). According to the EEZ, 21.46% of the state corresponds to Conservation Units (Integral and Sustainable Use) and Indigenous Lands. The Extreme North, North, and Northwest regions have the highest rural population densities in the state, where agricultural activity is stronger and generates the most jobs. The most representative agribusiness activities are cattle ranching (with 40% of cattle concentrated in the Araguaína region) and associated activities (e.g., slaughtering and manufacturing of meat and leather products, among others) as well as soybean, rice, and corn cultivation (Secretariat of Finance and Planning of Tocantins, 2020).

The EEZ is viewed by the private sector as a tool for defining RL percentages in each region, supporting the application of the LPVN/ New Forest Code and guiding the vocation of the state's territories. However, this interpretation of the EEZ is incorrect, as RL size is determined by the LPVN, by IN No. 4 of 2015 from Naturatins, and by IN No. 2/2014 from MMA. One aspect the EEZ can contribute to this topic, if explicitly supported by technical justification, is to propose the reduction of RL from 80% to 50%, as detailed in item I of article 13 of the NVPL, which states:

> Art. 13. When indicated by the state Ecological-Economic Zoning (EEZ), conducted according to a unified methodology, the federal government may:
>
> I - Reduce, exclusively for regularization purposes, through recomposition, regeneration, or compensation of the Legal Reserve of properties with consolidated rural areas located in forest areas within the Legal Amazon, to up to 50% (fifty percent) of the property, **excluding priority areas for the conservation of biodiversity and water resources and ecological corridors; ...**

It has been reported that, currently, it has become common for rural property owners to seek technical reports on vegetation typology identification prepared by private technical consultancies to prove the existence of a specific typology. In some cases, these reports are of low quality, leading to questioning by the MPTO. This slows down the process and increases costs for both property owners and the state. If the state is interested in reducing RL areas in certain locations, these areas must be clearly identified in the EEZ and excluded from areas considered priorities for biodiversity conservation.

RECOMMENDATIONS

- Accelerate the approval of the EEZ and other instruments that bring stability to legislation, ensuring transparency and accessibility to information on land tenure, environmental, and territorial aptitude.
- Define and establish prior institutional agreements (among the different involved and interested sectors) to expedite EEZ approval at COEMA.
- Create, implement, and enhance public policies to strengthen the vocations determined by the EEZ, whether productive or conservation-focused.

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h. Rural environmental licensing

Environmental licensing is an extensive topic that must be approached with caution. Here, some of the most relevant aspects reported during the consultations will be addressed. However, fully characterizing this topic would require more time and in-depth research into the intrinsic details of the issue. Rural environmental licensing is a legal instrument that allows for the regulation and monitoring of natural resource use on rural properties. Property owners must complete this process to utilize the natural resources on their land and, as a result, receive resources from federal and state government projects, such as rural credit or financing.

Currently, Naturatins uses the SIGAM system as the entry point for licensing processes. This system has been updated to provide agility in initiating environmental analysis and licensing processes to establish businesses and agribusinesses, as well as to standardize the internal procedures for licensing, monitoring, and enforcement activities carried out by the agency. However, during consultations with key stakeholders, issues that contradict the potential of the system functionalities were raised.

During interviews, private sector representatives pointed out a lack of alignment between current legislation, agricultural realities, and the low number of professionals with technical qualifications to address specific demands related to this topic. Additionally, rural environmental licensing (as seen by the same sector) is complex in both its understanding and application due to fragmented responsibilities and a lack of integration between licensing and permitting processes. During the

workshop, it was noted that licensing issues currently represent the biggest barrier for rural producers to access credit compared to issues related to CAR. For example, the high complexity of licensing with requirement for Environmental Impact Assessments/ Environmental Impact Reports (EIA/RIMAs) for small-scale agricultural areas with low-impact activities was cited. This complexity leads to inconsistencies in the state's environmental policies, high costs for producers, and delays in processes.

So, one can identify an issue regarding procedural flow and regulation of environmental licensing in Tocantins that seems misaligned with the state's needs. These challenges create uncertainty and insecurity in the approval of licenses by the environmental agency, despite rural producers understanding its importance and, in some cases, relying on such approvals to sell their products. Finally, there is an issue regarding irregularities related to the issuing of deforestation licenses in the state (see the section on the Technical operational capacity of environmental agencies for more details) that needs to be addressed.

In the current regulation (COEMA-TO Resolution No. 7 of 2005), licensing imposes different requirements depending on the classification of the agricultural business activity (for example), and the size of the area subject to licensing (for areas up to 20 hectares, between 20 and 999 hectares, and over 1,000 hectares, the requirements vary). Currently, COEMA-TO is discussing a new resolution that does not overlay federal laws, following rulings that deemed some articles of a law passed by the Legislative Assembly unconstitutional. Linked to the EEZ and the recommendations it will provide regarding the determination of local vocations, licensing rules may be revised to expedite processes.

RECOMMENDATIONS

- All sectors recognize the importance of updating and approving a more assertive legal framework for environmental licensing aligned with territorial realities[7]. Clarifying the licensing process and reducing bureaucracy in some aspects can simplify the process and speed up the processing time for applications by the agencies involved. For example, reviewing and reformulating COEMA-07 in compliance with CONAMA regulations and listing activities that may have simpler terms of reference and EIA/RIMAs for being in consolidated areas (which can be indicated by the EEZ, for example).
- Ensure the effective participation of all interested sectors in discussions and forums on environmental licensing, generally conducted by COEMA (which, according to many participants, has been holding frequent meetings), where the private sector has representation.
- Finally, identify and diagnose the challenges faced by different profiles of rural producers, such as small and medium-scale producers. This is because public policies tend to focus on either small or large producers, while medium-scale producers have specific challenges that are poorly understood when implementing environmental compliance. These challenges include their scale of operation and, in some cases, limited access to various forms of resources, such as equity and blended finance.

7. For example, Ordinary Law No. 3,804, dated July 29, 2021, was revoked by the Supreme Federal Court (STF) due to inconsistencies with federal regulations. This led to a setback in state regulations. A constructive discussion with the participation of multiple stakeholders and the involvement of COEMA could address the risk of this happening again.

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i. Ilegal deforestation

The state of Tocantins has 9% of its area covered by the Amazon biogeographic region ("biome"), and 91% by the Cerrado (MapBiomas, 2024a). Both regions experience high anthropogenic pressure and have been among the most deforested in recent years (MapBiomas, 2024b). In 2023 alone, Tocantins ranked third among the most deforested states in Brazil, with 230,253 hectares deforested (MapBiomas, 2024b). The cumulative deforestation increase for the Cerrado was 16.2%, making it the state with the largest deforested area compared to other biomes. This upward trend has been ongoing since 2018. In the Amazon areas within the state, the cumulative deforestation rate was 0.56%, showing a reduction compared to the previous two years (INPE-PRODES, 2023). The decrease in the deforestation rate can be attributed to cumulative deforestation from previous years (e.g., there is little forest left standing; thus, deforestation decreases). It is important to note here that the data mentioned do not distinguish between legal deforestation, where an environmental license was issued, and illegal deforestation.

Currently, Tocantins uses a panel developed by the MPTO to report on deforestation[8]. Additionally, the state is establishing the Geographic Intelligence Center for Environmental Management (CIGMA), an integrated geospatial information system to monitor deforestation and fires. This center will be an important tool to support the implementation and monitoring of various processes. According to state technicians, this system will incorporate images from the National Institute for Space Research (INPE), MapBiomas, and private data, enabling multiple agencies (such as SEMARH, Naturatins, Incra, the state land Institute, Public Prosecutors, and Environmental Police) to access this information to act when necessary. The system's operation will resemble a situation room, where information is systematically analyzed by a technical team to characterize the situation.

In addition to the theme of native vegetation use/ conversion, issues related to Law No. 1,959 of 2008,

8. https://storymaps.arcgis.com/stories/ca3768747cdc4274bade5ed9179bed0d

which regulates the use of the babassu palm, were reported. According to SEAGRO, the presence of a single babassu palm tree has made it unfeasible to establish enterprises and activities, although it is allowed in specific cases as outlined in Articles 1 and 3 of the law.-

RECOMMENDATIONS

- It is important that the system under development be integrated with existing systems, such as SIGAM and the Information System for CAR Management in Tocantins (SIGCAR), using high-resolution image databases to establish the timing of information analysis—whether related to conservation or deforestation. This would allow for a broader understanding of land use dynamics, such as whether deforestation is occurring in RL, APP areas, or in areas without proper licensing, or whether it is being carried out legally. In other words, it is crucial that the information used allows for an assessment of whether native vegetation suppression is occurring legally or illegally and that necessary measures are taken.
- Currently, there is an opportunity in the state due to a favorable political climate, where there is integration and collaboration between SEPLAN, SEMARH, SEAGRO, and the MPE. In this context, the Zero Deforestation Pact in Tocantins has been signed, in which the public and productive sectors commit to a series of measures aimed at reconciling environmental conservation and economic growth. Leveraging this moment to develop policies and programs to reduce deforestation could be key.
- Regarding the law regulating the protection of the babassu palm and its implications for the licensing process, it is recommended to conduct a study to evaluate the impact of this legislation and the use of corresponding technical criteria in its application for unit suppression, conservation of species populations, and compensatory restoration measures. The study should also include recommendations for improving the legislation.

j. Environmental Protection Areas (APAs)

According to the National System of Conservation Units (SNUC):

> "The Environmental Protection Area is generally a large area with a certain degree of human occupation, endowed with abiotic, biotic, aesthetic, or cultural attributes that are especially important for the quality of life and well-being of human populations. Its basic objectives are to protect biological diversity, regulate the occupation process, and ensure the sustainable use of natural resources".

The State System of Nature Conservation Units of Tocantins (SEUC), established in April 2005, serves as a legal instrument to promote biodiversity protection. Currently, the state has three state parks, nine APAs, and one natural monument at the state level. At the municipal level, there are four APAs, one park, and two natural monuments. In addition to state and municipal conservation units, Tocantins is home to federal conservation units governed by SNUC.

Despite efforts to maintain APAs, significant institutional challenges remain. This topic was frequently mentioned by interviewees and has been the subject of intense debate among producer associations, the state government, the MPTO, and the judiciary. Interviewees reported some lawsuits involving rural producers living within APAs without management plans, who face licensing issues for activities inside their properties. From the judiciary's perspective, it is essential to avoid judicialization whenever possible. Ideally, regulations should be well-established and clearly communicated to ensure compliance.

After more than two decades, issues related to land tenure, the implementation of sustainable socioeconomic alternatives in areas of sustainable use, and the organization of services of public use, particularly in areas with tourism potential, remain unresolved. Interviewees did not notice efforts to address these issues, even though APAs were identified as important tools to guide land use within these territories.

RECOMMENDATIONS

- It is necessary to have a permanent and effective technical team to manage the state's system of conservation units, particularly for managing and protecting APAs.
- Expedite the process of creating and approving management plans for APAs to promote sustainable economic practices for resident or surrounding populations, based on activities that increase income with minimal environmental impact. It is important for these management plans to establish guidelines tailored to the realities of the territories, providing legal security and fostering sustainable regional development. The plans should also include mechanisms for periodic review to update guidelines in line with legislative advances and regional development.
- Create and maintain the deliberative and consultative councils for APAs working. These councils should include representatives from all sectors involved in the debate. Imazon provides a proposal on how to create these councils, including their definition and importance for managing conservation units such as APAs. This material can serve as a guide to help the state establish these councils, as required by SNUC.

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OTHER RELEVANT TOPICS

During the workshop held in Palmas, participants raised several issues not addressed in this report but deemed critical to advancing the agro-environmental agenda in Tocantins. These include undesignated public lands, land regularization, Indigenous territories, and Quilombola territories. The following paragraphs outline bottlenecks, opportunities, and recommendations related to these topics.

The overlap of undesignated public lands (Type B Public Forests) with areas that encompass private rural properties awaiting land regularization is a severe issue, especially in the Legal Amazon. Since the enactment of Law 11.952/2009 on land regularization of properties within public lands, Incra had been issuing definitive property titles. However, this was altered by Decree 11.688/2023, which prohibits land regularization in the name of private rural properties overlapping, totally or partially, with these areas. Such regularization is now allowed solely for creating conservation units, Indigenous territories, Quilombola lands, or lands for other traditional peoples and communities. Processes underway for regularization were suspended or rejected after the publication of decree 11.688 publication. Additionally, changes to the Rural Credit Manual in July 2023 imposed new rules barring rural credit for enterprises in rural properties partially or wholly located on undesignated public lands unless they have property titles or for those with up to 4 (four) fiscal modules with approved land regularization requests analyzed and approved by Incra. Complementary to this, the Federal Public Prosecutor's Office recommended that various banks identify ongoing rural credit operations intended for properties partially or entirely located in undesignated public areas and that these banks determine the disqualification and early settlement of such credit operations. In this scenario, the occupation and permanence of rural properties in undesignated public areas have become highly complicated.

Land regularization represents a bottleneck in advancing environmental regularization, not just in Tocantins, but across Brazil. Land tenure regularization provides legal security to producers and/or rural property owners, enabling progress on environmental compliance across territories. Tocantins' government is currently negotiating with the Ministry of Agrarian Development (MDA) to establish a partnership aimed at expediting land tenure regularization in the state, particularly in areas subject to Original Civil Action (ACOs). Legal security will facilitate environmental compliance and enhance access to rural credit for producers. Strengthening the actions of the Tocantins State Land Institute (Intertins) is crucial to accelerate these processes, bringing legal security to rural properties and advancing environmental regularization.

Regarding Indigenous peoples, the inclusion of aspects from the National Policy on Territorial and Environmental Management of Indigenous Lands (PNGATI) was highlighted to allow management, cultivation, and production by Indigenous communities within their territories. Tocantins has 11 Indigenous territories, two of which are declared, while the others are registered either in the Land Registry or with the Federal Heritage Secretariat. Recent MapBiomas data show Indigenous territories play a vital role in preserving areas with native vegetation in Brazil and are notable for their low deforestation rates. Indigenous communities' ancestral techniques harmonize production with conservation, causing negligible impacts on remaining vegetation. However, it is vital to ensure these territories have access to rural technical assistance and training tailored to their needs, as well as financing mechanisms, REDD+ initiatives, and payments for environmental services for production and environmental compliance when necessary. An important opportunity to consider is that these territories could also supply seeds and propagules of native species for projects restoring native vegetation in areas requiring PRADs or adjustment Agreements that require restoration.

The importance of demarcating Quilombola territories in Tocantins was also emphasized. Addressing this issue requires hiring specialized technical staff to advance studies on the demarcation of these territories. Tocantins currently has 40 Quilombola communities, only four of which are titled by Incra until July 2024, with 33 undergoing the titling process. The legal characterization of Quilombola territories recognizes the effective occupation of the land by the remaining communities, ensuring the preservation of these communities along with their values, practices, and cultural and ideological characteristics. Additionally, the lack of demarcation of these territories has been generating conflicts, harming these communities and rural producers. This is due to overlapping properties with Quilombola territories that are frequently undergoing the tenure process or are poorly demarcated. In some cases, rural property owners are denied access to rural credit. Recommendations to mitigate these bottlenecks include review and update information on these territories with specialized technical teams for it and consider officially titled territories in land-use policies and decisions.

The Rural Environmental Registry of Traditional Peoples and Communities serves as a planning tool for the environmental management of these territories that holds collective management of natural resources. In this modality, the application of the NVPL/Forest Code is developed and discussed with the communities, ensuring that environmental management is conducted collectively, considering the territory as a whole rather than as fragmented, while respecting the ancestral and territorial rights of Quilombola and traditional communities. This process should be led and conducted by the State, following the example of the initiatives undertaken in the state of Pará.

ROADMAP

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To construct the Roadmap, a participatory process was established, based on listening to actors from different sectors of society to incorporate their perspectives, along with gathering secondary information available. From this process, ten topics were selected, organized into two main themes, and discussions were held regarding what is currently being done. Additionally, recommendations on what needs to be done, as well as risks and opportunities within these themes, are detailed throughout the text and summarized in Table 2.

Furthermore, to illustrate the Roadmap, two flowcharts were created. The first maps the connections between factors that represent barriers to the growth of the agro-environmental agenda in the state, while also pointing out pathways that should be followed to minimize market risks and the lack of compliance with laws (Figure 1). The second outlines steps that should be taken to accelerate the advancement of the agro-environmental agenda in the state of Tocantins (Figure 2).

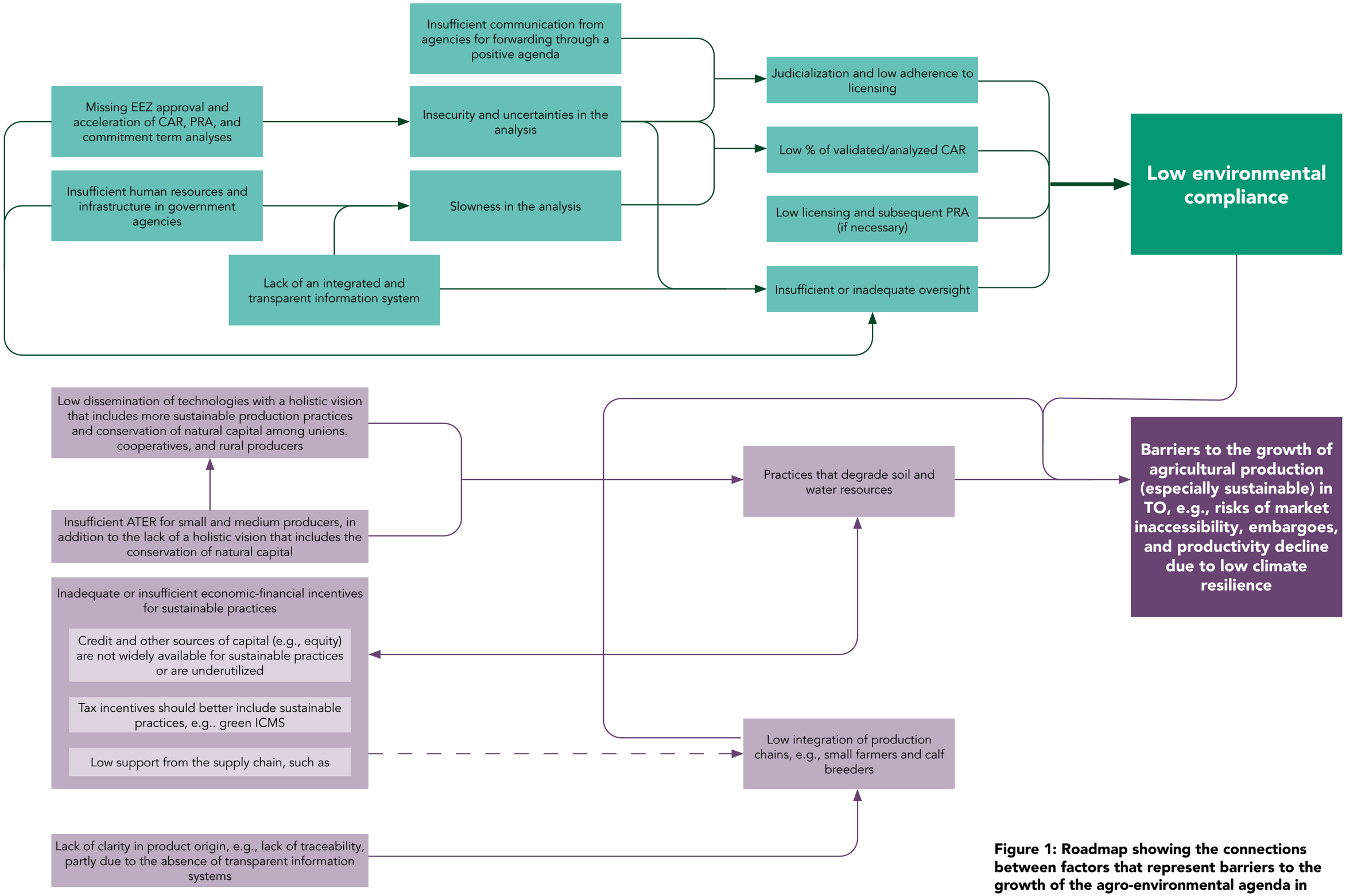

Figure 1: Roadmap showing the connections between factors that represent barriers to the growth of the agro-environmental agenda in the state of Tocantins, highlighting the steps to be followed to minimize market risks and non-compliance with laws.

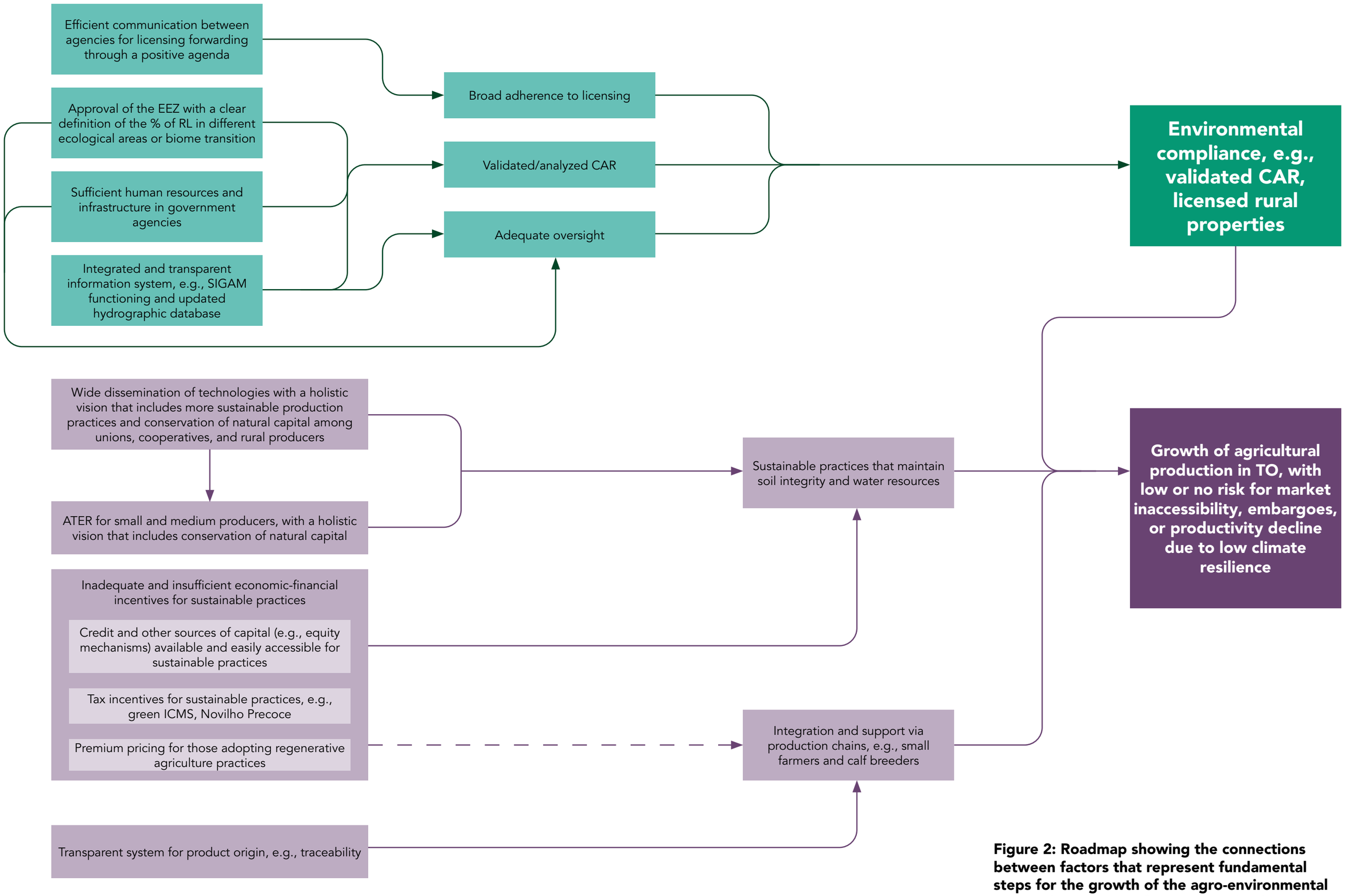

Figure 2: Roadmap showing the connections between factors that represent fundamental steps for the growth of the agro-environmental agenda in the state of Tocantins, highlighting the steps to be followed to reach the market and achieve legal compliance.

FINAL CONSIDERATIONS AND NEXT STEPS

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This work was conducted over a six-month period in contact with SEAGRO and key stakeholders in the state, which is a short timeframe given the complexity of the topics addressed. The technical team collectively agrees that we have highlighted some of the most relevant aspects of Tocantins' agro-environmental agenda, guided by the consulted stakeholders, representing an initial starting point for advancing this agenda. However, the state's productive agenda is vast, with many active representatives from the productive sectors who, unfortunately, could not be consulted at this moment.

We recognize the importance and necessity of further exploring the identified aspects, including more research, consultations, and debates with stakeholders, focusing primarily on diagnosing bottlenecks and opportunities and making recommendations to advance the agenda, with broader validation consultations with the productive sector. These could be conducted through in-person or remote workshops involving key actors from the state's production chains, union representatives, cooperatives, municipal secretariats, and others. Additionally, an important next step would involve conducting a financial impact on implementing these recommendations, estimating the costs and returns for the sectors involved. Another critical aspect is to formulate monitoring instruments for the actions and promote communication as a way to mobilize, engage, and promote the long-term success of the actions.

It is expected that, based on the work developed here, the state and the various sectors involved in Tocantins' agro-environmental agenda will remain committed to developing, implementing, and monitoring clear and targeted actions to advance the agro-environmental agenda, gaining a clearer understanding of the steps that need to be taken. Aspects such as strengthening governance, integrating systems, collaborating among key stakeholders, and improving communication (to engage and mobilize more sectors) should be transversal to all actions. Opportunities and recommendations have been presented, which can serve as the foundation for structural adjustments to catalyze the sustainability of the state's production chains and enable the advancement of the environmental compliance agenda for rural properties, with the potential to facilitate and enhance agricultural activities for farmers in the state of Tocantins.

The opportunities and challenges posed by the natural diversity and land use in Tocantins enable SEAGRO, SEMARH, SEPLAN, the Executive Secretariat of the Governorship, the Civil House, Naturatins, Ruraltins, and Itertins to reflect on the convenience of creating a public policy aimed at coordinating actions in the state's agro-environmental agenda and scaling up an integrated rural landscape management approach for sustainability along agribusiness chains. This policy could utilize instruments, sectoral targets, and programs supported by governance structures. These structures could be organized hierarchically, at various levels of operation, such as APAs, biogeographic regions/"biomes," basin committees, municipalities, etc.; and around specific themes, such as livestock chain traceability, agroindustry, low-carbon agriculture, climate change mitigation and adaptation, ILPF (crop-livestock-forestry integration), agroforestry, sociobiodiversity chains, bioeconomy, and native vegetation restoration.

The initial process of discussing this roadmap and the potential establishment of a public policy for advancing an agro-environmental agenda in Tocantins positions the state leadership uniquely. Coordinating efforts and institutional development among different state agencies would enable the promotion of sustainable agricultural production linked to nature conservation and its benefits for people.

As for the next steps, in addition to encompassing new actions to deepen diagnostics and engage regional actors, discussions have been underway about conducting visits and events to present and discuss the roadmap with the federal government, funders, and key national and international leaders and stakeholders in the environmental and agricultural sectors. Scaling up the implementation of related public policies requires strengthening partnerships and mobilizing financial resources for their execution, whether through public initiatives or civil society actions.

Additional points on the blue agenda – Water.

In general, the Brazilian Cerrado faces a critical challenge of water supply and governance due to the rapid agricultural expansion, particularly for soybean cultivation and cattle ranching, which drives vegetation loss in riparian areas and the intensive use of water resources. This pressure on water resources is exacerbated by insufficient regulatory and governance frameworks, leading to unsustainable water concessions and excessive groundwater extraction (Latrubesse et al., 2019). Furthermore, conservation efforts are undermined by inadequate enforcement of environmental laws and conflicting land-use priorities. The result is a growing risk to water security in productive areas, local communities, and downstream regions that rely on the Cerrado's hydrological systems.

Tocantins makes up the Tocantins-Araguaia Basin, holds competitive advantages compared to other states in the Matopiba region, a recent border of agricultural expansion. Due to activities such as soybean cultivation and the region's marked dry periods, water demand is rising, making water concession issues a recurring debate in the state. Some interviewees indicated problems with a lack of control over water concession authorizations, emphasizing the importance of encouraging, in productive systems, efficient irrigation systems (when necessary) and protecting springs and riverbanks (as already mandated by law). The state government also mentioned the implementation of an irrigation monitoring system for the Formoso River, which could effectively be replicated for integrated water management alongside rural area licensing.

Promoting the proper use of water resources is critical, also in light of the increasing frequency of extreme climatic events, such as heat waves driven by El Niño, which are expected to affect the productivity of agricultural crops in the near future within the Cerrado (Silva & Arima, 2023). Additionally, the importance of productive systems directly dependent on this resource, such as fish farming. Thus, it is essential to conduct diagnostics that consider and/or focus on these agendas to address these aspects and overcome recurring bottlenecks in these agendas.

Table 2: Key themes to unlock the agro-environmental agenda of the state of Tocantins and insights on what is being done, what needs to be done, and general recommendations, considering key points, risks, and opportunities.

	What is being done	Recommendations on what needs to be done	Risks and opportunities
Theme 1: Sustainability and production chains	• The private sector and some government programs are promoting sustainable management practices, such as the recovery of degraded areas and crop-livestock-forestry integration. • The government is resuming initiatives related to the ABC+ Plan with the support of Embrapa and MAPA. • The government is discussing ways with the MDA to streamline land regularization processes in the state. • There are some initiatives focusing on more intensive and sustainable practices that avoid pressure on natural water resources. • There is an initiative aiming to include small producers in the restoration chain as seed collectors/suppliers, which contributs to environmental awareness, training, and generating additional income for these producers. • Private initiatives are exploring mechanisms such as carbon and traceability, while the government pursues jurisdictional REDD+ with high expectations for funding to structure environmental policies, finance conservation practices, and mitigate emissions. • The private sector is developing traceability systems to ensure the quality and sustainability of products.	• Expand technical assistance and rural extension programs (ATER) to integrate better sustainable practices and native vegetation recovery, especially for small producers who currently have limited access. • Promote the adoption of practices and technologies in agricultural production and environmental conservation (water resource management and native vegetation recovery), ensuring they are both economically viable and environmentally sustainable. This can be achieved through partnerships and external investors. • Prioritize investments in activities and sustainable use practices, such as integrated systems (e.g., crop-livestock) and regenerative agriculture initiatives (e.g., cover cropping). • Seek, expand, and diversify economic incentive mechanisms for traceability and sustainable practices (e.g., meeting market demands, PESSA, differentiated credit, and blended finance programs) to attract greater participation from the productive sector, particularly small and medium producers. • For small producers, strengthen seed networks by including small-scale producers, traditional communities, and settlement residents. • Improve REDD+ and carbon market transaction and management conditions by developing incentives and concrete practices. • Establish clear policies for incentives and transparency in agricultural product certification and traceability, such as tax and fee reductions in the state.	• Risks include the lack of land and environmental regularization for rural producers, which hinders access to native vegetation recovery initiatives and market incentives. Additionally, there is an over-reliance on external resources, such as REDD+ funds, especially for conservation financing. These resources can be volatile and subject to international political changes. Diversifying resource sources is a critical strategy. • The issue about the promotion of proper water resources is important and poses a risk given the scenery of increasing occurrence of extreme events like El Niño. • Points of attention include the need to ensure financial incentives are distributed fairly and transparently, such as guaranteeing financial resources and ATER for small producers. • Opportunities include existing incentives for low-carbon agriculture, such as differentiated credit lines and the growing market for traceable/certified products, which can benefit producers adopting conservation practices. Furthermore, there are some initiatives already bringing resources for sustainable practices in Tocantins. • Opportunities related to REDD+ include potential funding from incentives, exploring new mechanisms, and creating new markets for sustainable and certified products, which can increase competitiveness in the global market and improve the image of Tocantins' agribusiness. Additionally, there is an opportunity to establish transparent policies and credit lines that support land regularization and technical assistance for small and medium producers.

	What is being done	Recommendations on what needs to be done	Risks and opportunities
Theme 2: Environmental regularization and conservation	• The government is mapping ways to optimize procedures at Naturatins through a partnership, focusing particularly on those linked to the Directorate of Environmental Management and Regularization. • The state government is developing a CAR analysis module associated with the PRA to expedite environmental regularization, with responsibilities shared between SEMARH and Naturatins. • Publication of IN No. 1/2024 regarding CAR and PRA. • Drafting of a state-level Forest Code. • The EEZ is finalized and under discussion within the technical chamber and COEMA. • COEMA holds regular meetings. • Development of the CIGMA platform—a situation room designed to improve governance and information exchange among agencies, aiming to reduce access issues and integrate environmental data. • COEMA is discussing a new resolution on environmental licensing.	• Approve the following instruments: EEZ and the CAR analysis module. • Implement an automated CAR analysis system to streamline the validation process. • Strengthen analytical and management capacities to streamline environmental regularization and licensing processes through integrated technological infrastructure, ensuring transparency and efficiency. This includes reinforcing agencies by increasing and training staff and implementing more robust imaging and information systems to avoid unnecessary on-site validation processes. • Establish a more robust environmental governance system, involving different sectors of society, to reduce litigation and ensure continuity in public policies. This can be achieved through COEMA and other mechanisms for coordination and communication among stakeholders. • Rapidly create and implement management plans and councils for APAs. The plans should provide greater legal security and sustainable development for these territories, and the councils should include representatives from all relevant sectors. • Develop communication campaigns about the set of agro-environmental regulations using materials that are accessible and tailored to the needs of each sector (rural producers, settlers, indigenous peoples, and traditional communities). Ensure clear and continuous communication and integration of key stakeholders, keeping them informed of progress and challenges in implementing the agro-environmental agenda.	• Points of attention include the need for clear and stable legislation, ensuring transparency and accessibility to land and environmental information. • Other risks involve: i) the lack of effective integration between agencies and political instability that may impact the implementation of environmental policies; ii) grants are a risk management issue amid increasing extreme weather events; iii) the lack of adequate management plans for APAs, with proper guidelines and zoning, causing instability and losses for existing enterprises in the regions, discouraging new investments, and devaluing properties. • Opportunities: a favorable political moment with integration and exchange among SEPLAN, SEMARH, SEAGRO, and MPE. Signing of the zero illegal deforestation pact, where public and productive sectors commit to a series of actions aimed at reconciling environmental conservation and economic growth.

REFERENCES

© Flávio André - Ministério do Turismo

Almeida, J.; de Andrade, R.A.; Brito, B.; Gomes, P. (2021). Leis e práticas de regularização fundiária no Estado do Tocantins – Belém, PA: Instituto do Homem e Meio Ambiente da Amazônia.

Embrapa (2024). Protocolo de produção de carne reduzem em até 15%a emissão de gás de efeito estufa. Available at: https://www.embrapa.br/busca-de-noticias/-/noticia/86471125/protocolos-de-producao-de-carne-reduzem-em-ate-15-a-emissao-de-gas-de-efeito-estufa?link=agencia. Accessed on: 04 jul.2024.

Federação de Indústrias do Estado do Tocantins (2018). Planos estratégicos para as cadeias produtivas do agronegócio no estado do Tocantins 2018-2027 – Available at: http://www.fieto.com.br/DownloadArquivo.aspx?c=8cdf7a14-84fe-489b-ac2a-7e00e8dda1f0. Accessed on: 31 jul. 2024.

Fragoso, D. A. & Cardoso, E. A. (2022). Expansão da agricultura no estado do Tocantins. Pp. 51-65. Em: Collicchio, E. & da Rocha H. R. Agricultura e mudanças do clima no estado do Tocantins: Vulnerabilidades, projeções e desenvolvimento – Palmas, TO: Editora Universitária – EdUFT.

Instituto Ecológica (2019a). Relatório contendo as informações sobre o estoque de carbono das diferentes fitofisionomias florestais do estado do Tocantins. Available at: https://www.to.gov.br/semarh/redd-jurisdicional-do-tocantins/5orjp0dnovd7. Accessed on: 16 jul. 2024.

Instituto Ecológica (2019b). Produto VII: Linha de Base Jurisdicional para REDD+ no estado do Tocantins. Available at: https://www.to.gov.br/semarh/redd-jurisdicional-do-tocantins/5orjp0dnovd7. Accessed on: 16 jul. 2024.

Instituto Nacional De Pesquisas Espaciais (2024). Coordenação geral de observação da terra. Programa de Monitoramento da Amazônia e demais biomas. Avisos – Bioma Cerrado – Available at: https://terrabrasilis.dpi.inpe.br/downloads/. Accessed on: 26 jun. 2024.

Instituto Nacional De Pesquisas Espaciais (2024). Coordenação geral de observação da terra. Programa de Monitoramento da Amazônia e demais biomas. Desmatamento – Amazônia Legal – Available at: https://terrabrasilis.dpi.inpe.br/downloads/. Accessed on: 26 jun. 2024.

Latrubesse, E. M., Arima, E., Ferreira, M. E., Nogueira, S. H., Wittmann, F., Dias, M. S., Bayer, M. (2019). Fostering water resource governance and conservation in the Brazilian Cerrado biome. Conservation Science and Practice, 1(9), e77.

Mapbiomas (2024a). Coleção 8 da Série Anual de Mapas de Cobertura e Uso da Terra do Brasil – Available at: https://brasil.mapbiomas.org. Accessed on: 26 jun. 2024.

MapBiomas (2024b). RAD2023: Relatório Anual do Desmatamento no Brasil 2023.154 páginas – Available at: http://alerta.mapbiomas.org. Accessed on: 16 jul. 2024.

MMA (2016). O que é REDD+ - Available at: http://redd.mma.gov.br/pt/pub-apresentacoes/item/82-o-que-e-redd. Accessed on: 17 jul. 2024.

Observatório do Código Florestal (2024). O código florestal - Available at: https://observatorioflorestal.org.br. Accessed on: 26 jun. 2024.

Scaramuzza, C. A. M.; Islas, C. A.; Castro, A.; Silva, D; Nogueira, P. S.; Almeida-Rocha, J. (2023). Oportunidades para monitoramento e regularização ambiental de fornecedores indiretos de frigoríficos: Promoção das boas práticas do grupo de trabalho de fornecedores indiretos na pecuária brasileira – Rio de Janeiro, RJ: Instituto Internacional para Sustentabilidade, National Wildlife Federation e International Wildlife Conservation

Secretaria da Fazenda e Planejamento (2020). Zoneamento Ecológico-Econômico do estado do Tocantins; Plano de Zoneamento Ecológico-Econômico. Governo do Estado do Tocantins. 468 p – Available at: https://central3.to.gov.br/arquivo/568891/. Accessed on: 01 ago. 2024.

Silva, D. S., & Arima, E. Y. (2023). Sustainability Consequences of Making Land Change Decisions Based on Current Climatology in the Brazilian Cerrados. Land, 12(4), 914.

Termômetro do Código Florestal (2024). Relatório do Estado do Tocantins – Available at: https://termometroflorestal.org.br/plataforma. Accessed on: 26 jun. 2024.

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