Partnerships for Forests

Unlocking realistic opportunities for forest restoration in Brazil by applying innovative technologies and conflict resolution strategies

The case of Hub AgroAmbiental (H2A) and the Jusambiente platform in the State of São Paulo

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This report presents information about business solutions that are expected to accelerate forest restoration in Brazil. The findings come from a set of collaborative projects supported by Partnerships for Forests (P4F) in three phases as follows:

a) Preliminary study: Investigating the realistic market for restoration in Brazil (January-September 2020);
b) Phase 1: Developing the Jusambiente platform, aimed at increasing transparency of restoration-related lawsuits in the Brazilian legal system and a business model hypothesis for the Hub AgroAmbiental (H2A) (January-December 2021); and
c) Phase 2: Piloting restoration implementation with clients selected by H2A (April 2022-April 2023).

The project aims to expedite judicial and extrajudicial restoration processes by facilitating connections between landowners, investors, service providers, lawyers, government agencies, and other key players on win-win arrangements tailored for each stakeholders' demands.

To achieve that, the project developed the Jusambiente platform to increase transparency of the Brazilian legal system for restoration-related lawsuits, providing real-time data on restoration cases. These cases generally originate from voluntary private initiatives and activities related to environmental compensation. The Hub AgroAmbiental (H2A) was then set-up to connect demand for restoration services with potential suppliers of such. H2A was launched in November 2021.

Partnerships for Forests (P4F) partnered with a team of three experts and two organisations to design and deliver the Jusambiente Portal and H2A. The experts included: André Lima from AL Advogados, a law firm specialised in environmental legislation in Brazil; Ludovino Lopes from Ludovino Lopes Advogados, an environmental law office, and; Carlos Scaramuzza, from Flexus Consulting in Sustainability and Biodiversity. The team worked with Imaflora, a Brazilian NGO that promotes solutions for conservation, carbon market and sustainable forest management, and Jusbrasil, Brazil's largest online host of judicial cases, which Jusambiente spun-off from. The goal of this joint collaboration has been to tackle restoration processes of environmental compensation originating both from extra-judicial and judicial sources, while also considering projects coming from voluntary private initiatives for restoration of the native vegetation in rural properties.

Photo: Project archive

Why is H2A needed?

Currently, restoration in Brazil is hampered by a lack of technical expertise and cost of restoration. Additionally, producers and landowners who breach the Native Vegetation Protection Law (Law No 12651/12) – commonly known as the new Forest Code - frequently opt for taking a judicial route instead of adhering to legally prescribed changes to their property.

Restoration processes in Brazil may occur in two spheres: administrative and judicial. Administrative measures might result in warnings and fines and, if those are not respected, judicial actions might apply. Such judicialization is very context and case-specific, according to the state, biome, size, and type of degradation.

We have landowners who have inherited farms from the 70s and 80s. Legislation from 1965 was never implemented. In 1989 there was the first law that released specifications about Legal Reserve areas. The 90s did not have any programmatic action by the state to make that happen. Between 2005-2010 a more rigorous imposition of that legislation began, then the [Forest Code] changed. There was a great reaction from the agribusiness sector when the CAR started to be implemented, as it showed that few were abiding by the law. Jusambiente shows that only after 2010 there were a greater number of cases for restoration of Legal Reserves and against deforestation.

– **Andre Lima**, H2A Project Coordinator, AL Advogados

Restoration processes under those two spheres demand a broad range of expertise in forest management, including knowledge of national, state, and municipal legal protocols. Restoration implementation furthermore requires alignment between judicial, technical, and financial specificities as determined by: i) public attorneys or environmental authorities, ii) restoration technicians, and iii) financial specialists.

The preliminary study that gave rise to H2A found that restoration processes could take between 10 and 15 years to be solved due to the inefficiency of the judicial system in Brazil.

What are H2A's solutions?

When selecting judicial and extra-judicial cases with which to work, H2A focuses on owners and producers who are in breach of the law or who are putting-off their environmental obligations of restoring parts of their properties.

A core principle is that H2A does not compensate the landowner/producer for lost money. Rather than seeking to shorten the judicial process and making restoration happen through philanthropy or incentives, H2A offers landowners and/or producers: a) a business through which they will acquire a debt, with credit, which may or not be subsidised, and b) technical assistance to implement models that may become profitable for them in the future.

H2A offers an innovative solution that aims to:

- Reduce land use change related CO2 emissions;
- Aid the proper implementation of the Native Vegetation Protection Law;
- Avoid further prolongation of judicial processes;
- Promote land under administrative or judicial sanctions regularisation;
- Fund high costs of implementing restoration; and,
- Offer technical expertise needed for successful restoration.

The project, therefore, helps to advance restoration cases by offering legal consultancy for conflict resolution, financial consultancy for negotiation with investors or suppliers of credit, legal consultancy for design of contracts between interested parties and, finally, restoration implementation services by specialised companies.


Photo: Project archive


Photo: Project archive

What did the project accomplish to date?

Restoration in Brazil is regulated by a combination of global and local policies, including environmental compensation for infrastructure projects and other private and voluntary restoration initiatives.

The legal framework of restoration in Brazil includes: Law No 12.651/12 - Native Vegetation Protection Law (LPVN, in its Portuguese acronym), which substituted the Brazilian Forest Code (enacted in 2012); the Brazilian Nationally Determined Commitments (NDC) as part of the UNFCCC (last updated in November 2021); legal precedents from infrastructure projects that involved environmental compensations; and other private and voluntary restoration initiatives. In the most recent policy, the Brazilian NDCs, updated in April 2022, the government has committed that, by 2030, Brazil should "reforest and restore 18 million hectares of forests, for multiple uses" and "restore 30 million of degraded pasture areas" (MMA). Many environmentalists, however, have scrutinised this target considering them too ambitious and unrealistic given the current state of environmental governance. Also, failure to accomplish requirements does not necessarily result in sanctions, as some of these recommendations are not legally-binding.

The LPVN "governs the use and protection of private lands in Brazil. It is one of the most important pieces of legislation with the potential to drive efficient land use in Brazil and become an effective tool against climate change" (Chiavari and Lopes). It does so by establishing Permanent Preservation Areas and Legal Reserve areas. It is an important piece of legislation whose implementation was made possible thanks to information gathered by the Rural Environmental Registry (CAR), a database which also allows landowners to enrol in Rural Regularisation Programmes to ensure compliance with environmental regulations (Chiavari and Lopes).

Although analysing Brazilian NDCs and the LPVN requirements might give a general idea of the restoration market in Brazil, greater accuracy and better analysis of market demand is only possible when mapping forest restoration which is more likely to materialize, the so called 'firm' restoration need.

P4F's initial support involved funding and offering assistance to a preliminary study that provided the first sets of data about restoration demand in Brazil. The study tested the hypothesis that the judicial and administrative spheres could serve as enforcement mechanisms for forest restoration. In addition, the project sought to answer the question 'What is the realistic market for restoration in Brazil?'

The question was inspired by the Seed Paths Initiative – also supported by P4F - which promoted the market for native seeds in Brazil through muvuca, a restoration technique based on the direct seeding methodology, which required a large quantity of seeds from specific ecologic and economic value. The Seed Paths team identified the need to map demand for seeds to be used in direct seeding methods used in projects such as: soil restoration for forest or agriculture, reforestation for timber or non-timber uses and restoration of biodiversity and ecosystem services.

Particularly in the Seed Paths project, we were developing a business plan. Within the business plan, the basic question was: what is the market for my product? And the answers that we got were that the market was the restoration liabilities of Permanent Protection Areas, Legal Reserves and the Brazilian NDCs, at least 12 million hectares. Then we realized that this was an imaginary demand. The Forest Code exists, but it is not being implemented, it is not being requested. What is the real market demand?

- Marcio Stzutman, P4F Latin America Programme Director

The preliminary study was carried out by members from the Brazil Climate, Forest and Agriculture Coalition (Conservation International, The Nature Conservancy and Agroicone) in consortium between AL Advogados, Flexus, and Ludovino Lopes Advogados.

The proponents of the study were selected due to their prior experience working with executive governments, states' environmental institutions, and federal and state


Photo: Project archive

associations of public attorneys. This meant they had relatively ready access to public databases. They also used innovative methods such as artificial intelligence to search databases and aggregate data.

The study mapped more than 1.3 million hectares of forest restoration demand, 800k of which were subject of binding commitments with environmental agencies and 500k that were defendants in legal environmental allegations in Brazil (P4F and Brazil Climate, Forest and Agriculture Coalition). As a result, the H2A project had the opportunity to go beyond the preliminary study and deepen the assessment of restoration in the state of São Paulo, inviting actors to participate in a joint effort to obtain financial resources destined to accelerate restoration processes within that state.

Photo: Envato elements

Developing Jusambiente

Following the findings of the preliminary study, Phase 1 of the project tested the hypothesis that a technological tool could help locate restoration cases in Brazil and develop a system that enabled restoration-related information to be mapped, selected and transferred.

The key part of this is the Jusambiente portal, hosted by Jusbrasil, Brazil's largest host of judicial processes' covers and first pages, which are available to any citizen, but are particularly used by lawyers and others that work in the legal sector.

In order to create a database, Imaflora and Jusbrasil partnered with Partnerships for Forests (P4F) to develop IT systems for locating information on the Jusbrasil system and then transferring it to the Jusambiente Portal. The process was piloted in the state of São Paulo because it has certain existing infrastructure that lowers the costs of restoration including: a) a digitalised record of judicial cases; b) a well-established restoration value chain, and c) a very good transportation network.

"We understood that Jusambiente itself would be an interesting product because it brings an unprecedented clarity and transparency to the judicial system", mentioned Iara Basso, former Landing the Real Restoration Project Coordinator. The Jusambiente Portal, Brazil's socio-environmental radar, is now able to host and gather São Paulo data on: a) the number of cases per year; b) the location of these cases; c) stage of the process within the legal system; d) number of cases by theme; and e) number of cases per authors in judicial processes related to restoration issues. Jusambiente figures from May 2022 show that São Paulo state alone has 7,424 lawsuits related to restoration covering just over 24,000 hectares (Jusambiente).

Jusambiente was developed using data mining technology, which could be applied to many other subjects, e.g. fauna, environmental crime, water etc. Additionally, it opens up the doors of using this kind of tech solution to provide transparency to not only the environmental field, but also to any other one related to the judicial system.

- Iara Basso, Results Manager, P4F


Photo: Project archive

Testing H2A

The project's second phase identified 12 properties where the conflict resolution hub strategy could be tested. These cases came from five sources: five came from direct contact with landowners; additional five came from the dialogue with restoration companies within H2A's network; one came as a result of the H2A event launch during the first phase of the project; and one was recommended by a holding company. These properties are located across 10 municipalities in São Paulo.

After minor adjustments made to contracts for the implementation of the pilot restoration cases, restoration procedures started in December 2022 and the last plantings are expected to be initiated by February - the end of the rainy season in the Southern region of Brazil - accounting for more than 210 hectares.

As the initial plan to find clients by mining Jusambiente remains a challenge, largely due to transaction costs, H2A team is also actively prospecting cases via: a specialised communication and lead generation company; contact with public attorneys, municipal governments, and secretaries; governmental platforms such as the Ecological Restoration Support System (SARE/SIGAM), and; alongside ongoing artificial intelligence mining of cases from Jusbrasil.

What have been H2A's main findings so far?

The preliminary study provided unprecedented data about restoration. It showed that the state of São Paulo has an extremely active environmental public attorney system, with good levels of personnel per population and land area. This means that the number of cases is much higher there than in much larger states with significant environmental liabilities, such as Pará and Amazonas, as shown in the aforementioned study.

H2A identified that, in most cases, there was unnecessary spending with proponents' lawyers because landowners and producers thought it is best to prolong the judicial process rather than to restore part of their land, as required. As the practice of conflict resolution has been gaining grounds in the environmental sector, it was identified as a possible solution to the intricacies of restoration-related judicial processes.

Extra-judicial cases are those where landowners or producers have not yet been contacted by the judicial system but have been administratively notified or fined by their states' environmental agency. They may choose to sign the Term for Adjustment of Conduct (TAC), commit to restoration and be interested in investigating the best technical and financial solution. In contrast, judicial cases may involve landowners or producers who have been notified by the judicial system or had an unfavourable response and decided to appeal. In other cases, landowners or producers have been contacted by the justice system but yet have no legal decision and use H2A to find a solution alongside the public attorneys. Yet others find the H2A solution interesting but prefer to insist on appealing, avoiding restoration.

In Phase 1, consultations were held with key financial institutions in Brazil about possible lines of credit for restoration projects, potential restoration service providers about conditions and service costs, and landowners and producers with liabilities, to investigate their interest in the service. If interested, landowners and producers were consulted about how much they would be willing to pay for restoration services. These consultations found that some lines of credit which may be used for restoration purposes are available, restoration service providers are interested and well-equipped, and some landowners are willing to commit to such arrangements, depending, of course, on the contracts' specificities.

H2A team is currently structuring the project governance as well as consolidating its business plan. Additionally, the team is operationalising bi and tri-lateral agreements between landowners, ESG and climate clients and restoration service companies, considering additionality claims. These agreements involve identifying investors who might offer financial incentives to cover costs related to legal transactions and restoration services. In São Paulo state, and possibly elsewhere, the assumption is that most landowners and producers that appeal do so because of the high costs of restoration.

Current arrangements have considered two types of restoration: ecological restoration, which seeks to restore the area as closest as possible to its primary habitat, and productive restoration, which is based on species with economic value - as in agroforestry arrangements. For both cases, H2A is also evaluating the potential for carbon credits.

H2A has also developed strategic maps to identify where landowners are located, which could be useful information for public policy in the future. This is strategic information that governments could use to learn about the challenges related to degradation and deforestation, and to understand the size of the problem. As mentioned by H2A Contracts Coordinator, Ludovino Lopes, "one thing is to have a satellite image which shows deforestation, but quite another one is to be able to identify the landowner or producer, learn about their situations and help them find a solution for their problems".

What have been the greatest challenges encountered so far?

The main technical challenge faced during Phase 1 of H2A was that not all of the information needed about cases in the Jusambiente system could be mined automatically. Currently 95% of the process is automated and 5% needs to be manually authenticated. This has resulted in what the H2A's technical coordinator Carlos Scaramuzza has called "shortcuts":

> ***We are using shortcuts for the proof of concept. Because it has been hard to find the producers using the algorithm and we were able to map suppliers along the way, we have taken this route so there is more time to mature and clarify what can motivate this leap in scale to a greater group of small, medium and even large producers.***
>
> **-Carlos Scaramuzza,** H2A Technical Coordinator, Flexus

The second ongoing challenge has been identifying potential clients for the H2A business arrangement. This requires geospatially identifying land involving extrajudicial or judicial matters and locating landowners who might be open to conciliation. Throughout this process, H2A aids clients in overcoming any concerns that they might have about the proposed solution, hires companies to implement restoration, finds potential investors, and binds landowner, company and investor by context and situation-specific contracts.

Once the contracts are established, the other challenge is nature itself. Droughts and intense rainfall may affect soil quality and unpredictable temperature changes may impact the quality and viability of restoration itself. In a nutshell, restoration is time, weather, context and biome specific, as expressed by H2A Contracts Coordinator Ludovino Lopes, "You can only plant at particular time of the year and you depend on having seedlings that are appropriate to that specific region. So logistically it is incredibly challenging."

Institutional Arrangement

Phase 1:

Jusbrasil

JusBrasil was in charge of **generating data mining for environmental processes** which resulted in the Jusambiente Portal.

JusAmbiente
DATA PROVIDER

P4F resources contributed to building the Jusambiente Portal and H2A business and provided the funds for conducting research and testing hypotheses while supporting it's institutional creation.

The team worked closely with organisations to develop a business plan by assessing the economic viability of the offer.

Phase 2:

ANDRÉ LIMA
AL Gestão, Política e Legislação Socioambiental

LUDOVINO LOPES ADVOGADOS

Flexus
Consultoria em Sustentabilidade e Biodiversidade

imaflora

Coordination of the project has been led by André Lima from AL Advogados, a law firm with a background in environmental legislation in Brazil.

• Ludovino Lopes, from Ludovino Lopes Advogados, is responsible for coordinating **contracts between the landowners/producers**, the company that can implement the restoration, and investors.

Carlos Scaramuzza, from Flexus, is in charge of the **Technical Coordination of restoration activities.** Additional partners have been as needed.

IMAFLORA is an institution with over 25 years of history. Its role has been to **execute the general and financial management of the project, to oversee activities related to forest restoration monitoring and the evaluation and mapping of potential carbon credits** from forest restoration.

H2A HUB AgroAmbiental

The support of P4F was fundamental as it brought oxygen for the proper implementation of the project and for gathering all of these actors. We could not have gathered all of the legal, financial, technical and institutional expertise if it had not been for P4F.

- Ludovino Lopes, H2A Contract Coordinator, Ludovino Lopes Advogados

P4F demonstrated a lot of flexibility from the standpoint of adaptive management. I am very satisfied with the relationship with them. They were willing to invest in something new, which requires boldness.

Carlos Scaramuzza, H2A Technical Coordinator, Flexus

P4F is much more than a simple financer. It also guarantees the quality of the deliveries, gives support in solution seeking, adaptation or pivoting, being super flexible, but also always guaranteeing the quality of the deliveries, the targets, the project's timing. A real partner.

Andre Lima, H2A General Coordinator, AL Advogados

P4F has a very close relationship with the project. In IMAFLORA's history, there has been few funders that were so close in helping design the project's milestones, the big deliveries of the project and the weekly monitoring of the project activities in order to guarantee that we are meeting indicators as planned. P4F is in the everyday life of the project.

Leonardo Sobral, Forestry Engineer, IMAFLORA

Moving forward:

What are the technical and technological challenges for expanding beyond São Paulo?

H2A will need to overcome a series of technical and technological challenges before seeking expansion beyond the state of São Paulo.

Implementation

For restoration activities to commence, economic considerations regarding credit, production-type and method of restoration needs to be designed on a case-by-case basis. This requires understanding the motivations of different actors in the value chain as well as the level of liability. For example, if investors use second-party land to generate carbon credits for themselves, landowners, producers and investors will have a long-lasting relationship. This means that accountability in the event of a fire or infraction needs to be agreed upon, as do the different responsibilities for restoration activities. These need to be factored as part of the contract design.

As a delivery of the project, restoration activities started in December 2022 in more than 210 hectares. It is expected that clients and the H2A team generate a track-record of lessons and challenges to be used in future endeavours also considering experiences from different restoration models. As H2A Technical Coordinator Carlos Scaramuzza highlighted, "in the case of relationship products, like coffee and cocoa, when you add value, the client may want to pay more for knowing the product's origin. For the soybean producer that would not be the same. For sugar, it might be certification. Each sector will have their approach; this is one of the great challenges [to understand]".

Technology

One of H2A's main technological challenge is designing a fully automated system that is able to recognise data in judicial processes. This has been part of Jusambiente's remit given the gap in process digitalisation. The artificial intelligence bots were programmed to extract data from Jusbrasil on a daily basis but most states in Brazil are not fully digitalised. In São Paulo, for example, processes only started to be digital since 2010 and older cases are still being digitised, which generates a continuous growing number of potential cases for Jusambiente.

As a second challenge, the H2A team is also assessing the viability of creating a pipeline of cases straight from the Jusambiente system. Handling individual cases from Jusambiente database instead of locating them through the H2A's network might impact H2A's business model feasibility due to high operational costs.

Judicial system governance structures

H2A will need to consider the varying levels of institutional maturity of public attorney structures before moving to other states in Brazil. Therefore, factors that influence whether or not landowners and producers in the judicial system choose to adopt conflict resolution solutions need to be better assessed. H2A can help identify bottlenecks of the environmental judicial system in Brazil by sharing lessons learned from the first set of settled cases.

Communication

Communication for H2A needs to destigmatise the current agro-environmental market in Brazil by focusing its message on how standing forests can be productive and economically viable options for landowners. H2A, therefore, will focus on clearly communicating which and why different institutions need to be involved and how restoration efforts can help landowners and producers generate new outputs as a strategy to attract new clients.


Photo: Project archive

Current Developments and Next Steps

As a development of this project, H2A team has partnered with the NGO Instituto Democracia e Sustentabilidade and IMAZON to design an even more sophisticated system to identify restoration judicial cases in the entire Amazon region, called JusAmazônia.

Jusambiente's long-term goal is to update data and gather more information about mapped lawsuits. Their plan is to generate a typology for the different land profiles and design a sophisticated jurismetric system that can support research and public policy. The Jusambiente team also wants to expand the restoration scope to other environmental cases related issues such as sanitation, pollution, and residues among others.

While H2A continues to implement restoration activities in the first selected properties, the team is consolidating a business strategy for a commercial sustenance beyond April 2023. This will also require building the project's governance structure and developing a solution for agribusinesses in Brazil.

Moving from "being a project to becoming a business", as Leonardo Sobral from Imaflora suggests, will require restoring up to 4,000 hectares by 2025, that includes:

- By 2022/23: between 225 and 500 hectares (10 - 15 properties) – already initiated;
- By 2023/24: between 500 and 1000 hectares (15 - 30 properties);
- By 2024/25 between 1000 and 2000 hectares (30 - 50 properties).

While H2A plans to expand beyond the state of São Paulo, the project team also wishes to promote a paradigmatic shift where socio-environmental liabilities can become potential economic, social and environmental assets. The project also seeks to promote a more positive perception about the judiciary system in Brazil, as an institution that is able to provide unique and strategic information about restoration in the country. Ultimately, H2A's success in shifting producers and landowners under judicialization from outcasts to law abiding citizens should inspire other countries to adopt similar strategies.

Photo: Project archive

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