

Dry Streams *in an* Ocean of Eucalyptus

Aperam BioEnergia's green steel and carbon removal illusion



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Executive Summary

This case study is an in-depth investigation into the impacts of Aperam BioEnergia Ltda., a leading producer of charcoal and biochar from industrial eucalyptus plantations in the Jequitinhonha Valley, Minas Gerais, Brazil.

One of the world's largest charcoal producers and carbon removal credit companies:

Aperam manages 150,000 hectares of land, with two-thirds covered by eucalyptus monocultures. It produces over 420,000 tonnes of charcoal annually for steel production, and has retired nearly 100,000 carbon credits based on biochar—which is produced in the same kilns through the same pyrolysis process.

Aperam's operations are promoted as sustainable solutions:

"Green steel" produced using "renewable charcoal" made from "sustainable forests", and now "carbon removal" offsets sold to buyers in tech and finance, are key terms used by the company to pitch itself as part of the solution to the climate and biodiversity crises.

Key findings challenge the narrative of sustainability:

Drawing on extensive interviews with members of traditional communities and public officials, the investigation examines the true impacts of Aperam's activities. It reveals an inherently unsustainable business model responsible for widespread and systemic social and environmental impacts on the region.

Industrial monoculture eucalyptus plantations are anything but sustainable:

The large-scale deforestation of the native Cerrado biome, starting in the 1970s, has led to significant loss of biodiversity. The

conversion of plateaus to eucalyptus monocultures has lowered the water table by an estimated 4.5 metres, which has dried up local springs and streams and undermined traditional agriculture and local food security.

Social and economic consequences for local communities are severe:

The loss of communal lands and traditional livelihoods and growing water scarcity have forced many to leave their communities in search of work. Due to this and the limited options for income, the traditional and Quilombola communities face an uncertain future.

Communities fear the health impacts of agrochemicals and air pollution:

Pesticide use and pollution from charcoal kilns are seen locally as likely contributions to increasing incidences of health problems such as cancer, for which local municipalities bear the costs.

Ongoing conflicts fuel community resistance:

Disputes over land rights persist, with reports of surveillance and intimidation by company security and large-scale police operations. Despite this, communities are organising, seeking legal recognition and building agroecological and water management alternatives. Women are playing a pivotal role in community resilience, turning traditional crafts into new income sources and fostering solidarity.

Institutional backing has played a critical role in Aperam's growth:

A huge new financing package from the International Finance Corporation (IFC) of the World Bank Group is funding significant plantation expansion, whilst voluntary certification schemes such as recently renewed Forest Stewardship Council (FSC) certification and Puro.earth biochar certification ignore ongoing controversies and legitimise the company's operations.

Carbon removal offsets are a lucrative but false climate solution:

The carbon sequestration benefits of biochar are highly contested and uncertain, and carbon credits generated by Aperam enable continued pollution elsewhere, rather than mitigating climate change at the source. On top of this, Aperam's biochar production is inseparable from its charcoal and plantation operations, with the income from carbon credit sales benefiting the entire operation.

The investigation concludes that Aperam's "green steel" and carbon removal model is fundamentally unsustainable, externalising social and ecological costs onto vulnerable communities. True sustainability cannot be achieved through models that sacrifice local livelihoods, water resources and ecological integrity for carbon credits or green labels. Justice for affected communities and the protection of the Cerrado's unique biodiversity must be prioritised over corporate profits.

Demands for Justice

To address the harms outlined in this investigation and move toward justice for affected communities, we make the following demands of key stakeholders:

To Aperam:

- Immediately halt the expansion of eucalyptus plantations and cease further acquisition of land that has historically belonged to traditional and Quilombola communities.
- Initiate a transparent, participatory process to return lands taken from communities, prioritising the restoration of the veredas and the Cerrado.
- End the use of hazardous agrochemicals, including glyphosate and sulfluramid, and fully disclose all chemicals currently and previously applied on company lands to the public.
- Compensate affected communities for the environmental, social and health damages caused by decades of eucalyptus production operations.
- Guarantee free, prior and informed consent (FPIC) for all future projects, respecting the right of communities to say no to plantations on their territories.

To the Government of Minas Gerais and relevant federal authorities:

- Launch an independent investigation into land acquisition processes by Acesita/Aperam, including allegations of land grabbing and fraudulent titling.
- Revoke or suspend environmental licences for further expansion of eucalyptus plantations in areas critical for water recharge and biodiversity.
- Prioritise and fund the demarcation and restitution of the lands of traditional and Quilombola communities, in partnership with the communities' associations.
- Enforce stringent environmental monitoring and regular, transparent water and soil quality testing in affected regions, with public disclosure of results.

To the International Finance Corporation (IFC), World Bank Group (WBG) and other financiers:

- Due to Aperam's inherently harmful *modus operandi*, all financial support and other incentives must be suspended immediately, contractual arrangements with the company ended and a commitment made by financiers and investors not to provide support to the company in future.
- More broadly, climate and development finance, whether from multilateral or privately owned banks and other institutions, should not support large-scale monoculture plantations or any carbon fuels for energy generation, such as burning charcoal for steel production.
- Redirect investments toward community-led restoration, agroecology and water security initiatives in the Jequitinhonha Valley, as well as the transition away from all carbon fuels and towards truly sustainable forms of energy.

To the Forest Stewardship Council (FSC), Puro.earth and other voluntary certification schemes:

- Immediately suspend Aperam's certification pending a full, transparent investigation into community complaints through in-field verification of impacts.
- Prohibit the certification of large-scale monoculture plantations, and the carbon removal processes dependent on them, many of which have been established through land-grabbing and without FPIC.

To global buyers and users of Aperam's products (including steel and carbon credits):

- Immediately halt sourcing and investment relationships with Aperam until it meets the above demands. Steel procurement should focus on recycled materials, and buyers of carbon credits should reduce their emissions rather than offset them.
- Publicly disclose supply chains and due diligence measures, ensuring that sourcing does not perpetuate land dispossession or ecological harm.

These demands are essential steps toward justice, ecological restoration and the recognition of community rights in the Jequitinhonha Valley and beyond.

1. Introduction: Eucalyptus monocultures and traditional communities in the Jequitinhonha Valley

Renewable energy, carbon dioxide removal and green steel: These are three terms that the steel industry is increasingly hiding behind to conceal the impacts of one of the world's most polluting industries.

Nowhere is this more apparent than the Jequitinhonha Valley (Vale de Jequitinhonha)¹ in northeastern Minas Gerais (MG), Brazil, where vast areas of eucalyptus plantations have fundamentally changed the way of life of traditional and Quilombola communities and the ecosystems they depend on. These plantations supply the raw material for the energy required to smelt steel: wood, which is turned into charcoal in large kilns.

A major player in this sector in the Jequitinhonha Valley is Aperam BioEnergia Ltda., one of the largest charcoal producers in the world. It produces [over 420,000 tonnes of charcoal from its industrial eucalyptus plantations](#) every year as an energy source for Aperam South America's "green steel" mill, over 300 km away, in Timóteo. In recent years, it has also begun selling carbon removal credits as carbon offsets in exchange for not burning a proportion of the charcoal it produces — the charcoal fines or "biochar" — and incorporating them into the soil of its plantations.

Biochar is one of the most popular carbon dioxide removal (CDR) strategies, and [Aperam claims](#) that this climate "solution" helps to lock carbon into soils for over 100 years. At best, it gives another polluter somewhere else the licence to keep polluting. At the time of publication, Aperam BioEnergia² was the [fourth largest CDR company globally](#) in terms of "delivered" carbon removals on the voluntary carbon markets, with

banking and tech multinationals being the main purchasers of the credits.

Aperam currently manages around 150,000 hectares of land³ in the municipalities of Capelinha, Carbonita, Itamarandiba, Minas Novas, Turmalina and Veredinha, MG, [two-thirds of which are eucalyptus plantations](#).



The majority of its plantations were first established decades ago by its predecessor, Acesita,⁴ on the common lands of traditional communities in the region through a process involving [deforestation and major biodiversity loss](#). The company has six "renewable energy production units", or "UPEs", distributed through the plantations. It also supplies eucalyptus seedlings to other companies, which it grows at its [17.6-hectare nursery in Itamarandiba](#).

The following case study focuses on the impacts of Aperam's large-scale

production of charcoal and biochar from eucalyptus monocultures in the Jequitinhonha Valley, as told by communities that have the misfortune of having Aperam as a neighbour. The research presented below is based on interviews with affected community members conducted in August 2025⁵ and a review of publicly available documentation. We contacted Aperam several times with detailed questions and requests for additional information throughout the research period, but did not receive the information requested.

As we will see below, our research found that while Aperam profits from its operations, local communities suffer. Both the municipalities dominated by its monocultures, in general, and the traditional and Quilombola communities⁶ literally fenced in by its plantations, in particular, pay a very high socioeconomic and environmental price and fear that they may even face desertification in a not-so-distant future.

In addition, Aperam is moving forward with its plans to expand its operations and plantation areas, with backing from the International Finance Corporation of the World Bank Group (IFC-WBG), despite the IFC's recognition of the risks involved. The resulting increase in charcoal production capacity will also offer another financial incentive in the form of carbon offset sales, putting ever greater pressure on communities living near its plantations.

¹ "Vale de Jequitinhonha" or the Jequitinhonha Valley is a region located in northeastern Minas Gerais along the Jequitinhonha River, which is divided into three micro-regions: upper, middle and lower. Our research focused on the Upper Jequitinhonha micro-region, where Aperam's eucalyptus plantations are located.

² We will refer to "Aperam BioEnergia Ltda." as "Aperam" in the rest of the publication.

³ The number of hectares cited in several sources (including company documents) varies, and there is no clear information on how much land is owned by Aperam BioEnergia Ltda. or another member of the Aperam Group.

⁴ Acesita (Companhia Aços Especiais Itabira) was originally founded as a private company in the 1940s, turned into a state enterprise in 1951, privatized in 1992, became part of the Arcelor Group in 2001 and, in 2011, ArcelorMittal decided to spin off its stainless and specialty steel segment to create Aperam South America, with Aperam BioEnergia Ltda. as its "forestry and renewable energy" subsidiary.

⁵ We would like to thank the Centro de Agricultura Alternativa Vicente Nica (CAV) for its invaluable support during the field research.

⁶ Quilombola communities are [ethnic-racial groups](#) who identify themselves as descendants of those who resisted the brutality of the slave regime (primarily people of African origin) and rebelled against those who believed they were their property by escaping and forming their own clandestine communities.

"Sustainable" charcoal production for "green" steel

Across Latin America, [10 million tonnes of charcoal are produced annually](#), predominantly for the steel industry. Brazil is the world's largest charcoal producer, producing around [seven million tonnes each year](#), nearly all from eucalyptus plantations. Ninety percent of the charcoal produced is [used by the country's iron and steel industry](#), much of which they produce themselves using wood from their own eucalyptus plantations.

Over two thirds of Brazil's iron and steel mills are [located in southeastern Minas Gerais](#), which also has the largest plantation area of any state in the country. Eucalyptus plantations [are among the top three drivers](#) of the destruction of the highly biodiverse Cerrado biome. A [recent study found](#) that 55% of the Cerrado's vegetation cover has already been destroyed, resulting in rivers and streams running low and springs drying up. The destruction of the Cerrado is also linked to [disruptions in rainfall over the Amazon Basin](#) and other regions.

Historically, charcoal has been used in pig iron and steel production in Brazil because of a lack of coking coal deposits and easy access to wood. In recent years, steel production using charcoal has been referred to as "green steel", as charcoal is considered a renewable energy source. While carbon emissions from burning coal in steel mill blast furnaces are accounted for, a carbon accounting loophole allows [carbon emissions from "sustainable" charcoal production](#) (such as using wood from certified

eucalyptus plantations) to be ignored on the assumption that new tree growth will reabsorb these emissions. This is the case for other forms of bioenergy generation globally, such as burning wood in power stations, and permits steel producers to claim that their operations are green and renewable, when in fact [burning wood emits more carbon dioxide per unit of energy than burning coal](#). In fact, this very same accounting loophole is also applied to biochar production.

Most charcoal produced in Minas Gerais is made in brick kilns, where workers are often exposed to serious health risks; [evidence links occupational exposure in charcoal production](#) to respiratory illnesses, physical injuries and other adverse health outcomes.

Charcoal production for "green" steel in Minas Gerais.
Federica Giunta/GFC



What about the impacts of mining?

Steel production in Minas Gerais relies directly on intensive open-pit iron ore extraction from the heavily mined [Quadrilátero Ferrífero \(Iron Quadrangle\) region](#), which is responsible for [severe environmental and social impacts](#). Iron mining requires [massive landscape alteration](#), causing extensive topsoil removal and forest destruction. Processing iron ore to meet high-purity steelmaking standards also generates [millions of tonnes of fine tailings](#). This toxic sludge is stored in vast tailings dams that permanently threaten communities and regional watersheds with heavy metal contamination, siltation, and [catastrophic structural failure risks](#).

Like eucalyptus plantations, iron mining has a [high water demand](#), which competes directly with municipal supplies and local needs, lowers groundwater tables and dries out springs. Particulate dust from mining operations and rail transport networks also severely impacts the respiratory health of nearby communities.

Even if charcoal production were truly sustainable, "green steel" would still remain fundamentally tethered to a highly destructive mining footprint, which cannot be "greened".

An iron ore mine in Minas Gerais. *Planet Labs Inc.*



2. Biochar: From “renewable energy” to “carbon removal”

Corporations and investors alike are [pouncing on carbon removal technologies](#) as an easy “solution” or “quick fix” to the climate crisis. This is being driven by the voluntary carbon markets, where companies see the potential to make millions while prolonging the use of fossil fuels and deferring emission reductions into the future.

Whereas some CDR technologies are still at an early stage of development, biochar can be produced quickly and easily using low-tech methods, providing companies with “[convenient new PR and revenue streams](#)”. The number of biochar production facilities around the world is growing rapidly as a result, and biochar now accounts for [80% of “delivered” carbon credits](#) sold on international voluntary carbon markets.

Aperam began [selling CO₂ Removal Certificates \(CORCs\) in 2021](#) and quickly became one of the top-ranking global carbon removal credit suppliers, having [now retired nearly 100,000 credits](#). Information on the company’s biochar production methods is limited and often contradictory, but [according to audit reports](#), up until December 2023, Aperam’s biochar and charcoal were produced in the same pyrolysis process in the same charcoal kilns, and biochar was the “fine char” (*moinha* or charcoal dust) that was separated from the “coarse char”.

The audit reports state that in December 2023, the corporation began using forestry residues (branches and roots) for biochar production as well. It is not clear if these residues are burnt separately or together with the tree trunks, nor is it clear how much of the total biochar produced comes from these residues. In any case, prior to Aperam’s entry in the CORC market, the “fine char”—and indeed the forestry residues—were likely seen as a waste product and had little value. The only [publicly available information](#) on what the company used to do with the waste from its kilns indicates that it was sold to cement industries and used for energy purposes. Community members also report that Aperam spreads it on plantation access roads alongside gravel.

Aperam has referred to biochar as the “[black gold of the circular economy](#)”. Its target is to produce 40,000 tonnes per year, which would represent annual revenues of [R\\$40 million](#) (approximately 6.4 million euros). By comparison, 40,000 tonnes of

charcoal fines would be worth around one million euros⁷ in other markets, showing how much more profitable the “biochar” label makes this by-product. Considering that on a global level, the operating profits of Aperam BioEnergia’s parent company in 2025 were [10 million euros](#), it is no surprise that it has embraced the voluntary carbon markets as a new source of income.

Regardless of the increasing questions around the effectiveness of carbon offsets and removals as a genuine climate change solution, Aperam’s biochar production is inseparable from the devastating impacts of its eucalyptus plantations and charcoal production. It is essentially re-marketing a waste product to access significant new revenue while claiming to be pioneering another climate “solution”. The harm caused to the local environment and communities by the company’s operations should be enough to debunk this claim, but as Aperam continues to pursue this kind of business, they clearly are not.

⁷ According to [Brown et al. \(2020\)](#), Brazilian eucalyptus charcoal fines (*moinha*) sell for around R\$150 per tonne, equivalent to 25.42 euros. At this price, 40,000 tonnes of charcoal fines would be worth 1.02 million euros.

Charcoal fines left in piles alongside a road in an Aperam plantation. *GFC*



What is biochar?

Biochar made from wood is “[essentially a fancy new name for charcoal](#)”. It is produced in the same way as charcoal, by heating biomass to high temperatures in the absence of oxygen—a process called pyrolysis. The resulting char contains black carbon, which is also left behind after wildfires, and is generally considered much more stable than organic carbon compounds. Biochar advocates point to this as evidence that it will persist in soils for hundreds, if not thousands, of years.

The reality is far more complex. Adding biochar or other carbon to soils can unpredictably increase or decrease CO₂ emissions, depending on soil microbes and local ecosystem conditions. [Recent studies indicate](#) that black carbon can decompose and emit CO₂ if soil temperatures rise due to climate change. Scientists also lack a full understanding of the global black carbon cycle. Much black carbon disappears from soils and is believed to reach the oceans, where microbes [may convert it to CO₂](#).

Despite these concerns, regular soil carbon testing is not a widespread requirement for biochar projects and has faced resistance from advocates. Most carbon in the feedstock is released as CO₂ during production, not retained as char, and isn't accounted for in any certification methodologies. Additionally, environmental impacts—such as emissions from converting biodiverse land to monoculture plantations for biomass—are often overlooked.

There is also increasing evidence that biochar can introduce harmful pollutants—such as polycyclic aromatic hydrocarbons (PAHs), dioxins, PCBs and heavy metals—into soils. These contaminants pose cancer risks to humans and can impact soil organisms.

Biochar. GIZ Bush Control and Biomass Utilisation Project/Wikimedia Commons



3. Voices from the Communities

3.1 “Big tractors and chains came and flipped the forest upside down”⁸: The violent arrival of eucalyptus plantations

The occupation of the Jequitinhonha Valley in northeastern Minas Gerais by plantation companies dates to the mid-1970s, when the area became the target of the military dictatorship’s policies to “modernize” it by integrating it into the iron and steel complex.

The military regime offered incentives to companies interested in “occupying” the vast swaths of “*terras devolutas*” or “vacant lands”—despite their collective use by traditional ‘*groteira-chapadeira*’⁹ and Quilombola communities for centuries—to plant eucalyptus monocultures to produce energy for the steel plants in the Vale do Aço (Steel Valley).¹⁰ The regime also saw the rural poor as a source of labour for these companies.

With the military government’s financial support and endorsement, Aperam’s predecessor, Acesita, initiated an intense process of appropriating land and natural resources, primarily on the “*chapadas*” or plateaus. The local customary system stipulated that families who owned land in the “*grotas*” (small valleys below the plateaus) jointly held the right to use the plateau. Community members interviewed for this case study recall that Acesita sent local people from the municipality of Turmalina to try to convince them to give up their rights by selling their land for “bags of rice”, “rolls of barbed wire” or some other derisory amount. They say that even those who agreed have never received payment. Some managed to successfully resist, while “many others who refused to concede their right to land had their property expropriated anyway.” But “for the most part, the areas were simply taken over by the company without any discussion or negotiation with the surrounding communities.”

Community members vividly recall when Acesita arrived with its large machinery and “*correntões*” (massive chains hooked up to two tractors) to clear the land. “We saw the machines coming. I’d never seen anything like it before. And it was awful. The big tractors and chains came and flipped the forest upside down. It was the saddest thing I’ve ever seen. It seemed like the world was coming to an end,” explained Oswaldo,¹¹ an older member of one of the traditional communities.

They also recall rushing to fence off their land before the company arrived. “The company came and anyone who didn’t have barbed wire to close off a piece of land was left with nothing—like an actual invasion. ‘This is yours, right? But if you don’t fence it off, the company is going to take it,’” recalled Geraldinha, a member of another community. Others shared stories of direct confrontation with the company when it attempted to “build their fence

through our backyard”, affirmed Beto, an elderly community member

After the tractors passed, the company had workers gather the wood that could be used for charcoal, which it would send off to the steel factories. Fire was then used to burn the remains and make way for planting, causing a drastic reduction in biodiversity. Acesita also built roads for its trucks and machinery on top of the “*veredas*” (swampy plains or wetlands) on the plateaus, which had devastating impacts on water sources. It then proceeded to build dams for its own use, restricting access and “privatising the remaining water on the plateau.”

It was through this process that Acesita gradually took over more than 125,000 hectares of land on the high-land plateaus of the region, which are responsible for recharging water sources of over 250,000 hectares of land.

A “correntão” in Brazil, where forests are cleared with chains pulled by bulldozers. Otávio Nogueira/Wikipedia Commons



⁸ The quotes used in titles in this section are direct quotes from interviewees.

⁹ “*Groteira-chapadeira*” refers to traditional communities who use (or would use, before the arrival of the plantation corporations), the “*chapadas*” or highland plateaus communally for cattle grazing, fishing, gathering fruit, wood, medicinal plants, etc. and who live in the “*grotas*” or valleys below the plateaus.

¹⁰ Spanning 28 municipalities in the state of Minas Gerais, the “Vale do Aço” or “Steel Valley” region got its name from the fact that it is home to one of the largest steel industry parks in Latin America.

¹¹ We have altered the names of the community members to protect their identities for security reasons.

Sustainable forestry or ecological disaster?

Despite [Aperam's claim](#) that “The plantation was established decades ago on infertile land, avoiding deforestation” (p. 62), academic studies and the accounts of people who witnessed Acesita's arrival provide strong evidence of the contrary: they report that Acesita [destroyed highly biodiverse native vegetation](#) across large swaths of land to make way for its eucalyptus plantations. [Historical data on land use](#) for one of the plateaus in the region—Chapada das Veredas—show that in 1973, 86.1% of the area was covered by native vegetation. By 2018, this percentage had fallen to 24.6%; the other 61.5% had been converted to eucalyptus monocultures.

A [more recent report](#) confirms that “[o]ver time, 60% of the native vegetation in this expanse of Cerrado savanna was replaced by sprawling plantations of eucalyptus trees.”

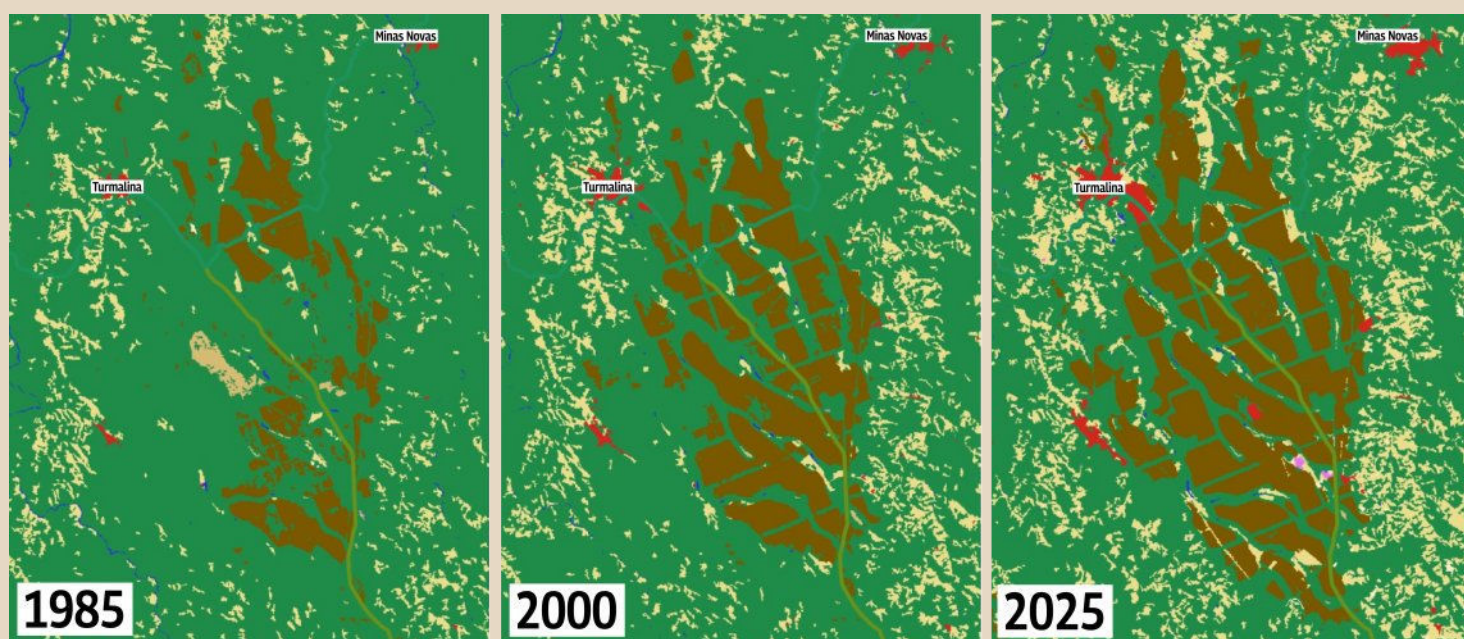


Figure 1: The expansion of monoculture eucalyptus plantations (brown) in the Chapada das Veredas region, at the expense of native vegetation types (green). Urban areas (red) and other land uses (yellow) are also shown. Images sourced from [Map Biomás](#), and show the first year for which data is held (1985) through to the most recent data (2025).

As [Galizoni et al.](#) explain, “One consequence of this process was the drastic loss of biodiversity. The flora and fauna that lived on the plateau were reduced, killed or expelled by the occupation of the eucalyptus monocultures.” (p. 41). Our interviews with community members corroborate this statement. In addition to the dozens of native fruits that they would gather on the plateaus, “the fauna was really amazing. You’d run into animals all the time while out walking on the plateaus.” But with the arrival of Acesita, “the animals that weren’t killed by the tractors and chains and the fires must have gone to other places with forests”, Geraldinha explained.

The Aperam Group's [2024 Sustainability Report](#) recognises the harm that BioEnergia's operations, primarily its water use, can have on “silent users”—i.e., the fauna living in or along the banks of the streams, rivers and *veredas* in the surrounding areas. According to [Aperam's 2025 annual report](#), the company preserves more than 33% of its land area. The company [also states that](#) its wildlife monitoring projects recorded 277 bird species and 35 mammal species, and identified areas of high conservation value—so rich in diversity that one of them reached a score of 3.82 on the Shannon diversity index.¹²

While it is undoubtedly important to preserve these areas, this information gives an indication of the size and extent of the ecological disaster that Acesita inflicted on the region to establish the plantations. Prior to its arrival, this diversity of species was not confined to a mere 33% of its land. They would have been free to exist and roam across all 120,000 hectares, where they could have found an abundance of food, habitat and water. Nowadays, in the eucalyptus monocultures occupying the other 66%, one likely finds cutter ants, termites and maybe the odd animal or bird passing through. This raises the question: are they really “sustainable forests” or “green deserts”, as they are more accurately described?

¹² The Shannon diversity index ranges typically from 1.5 to 3.5 and rarely reaches 4.5.

3.2 “There’s no water anymore”: The plantations’ impacts on water

The most severe impacts of the eucalyptus monocultures have been on the region’s water sources. Various studies and community members confirm that prior to the plantations’ arrival, there was an abundance of water in the region.

“On every slope, there was a stream, a spring. We’d get water from the spring, make a trench (...) There were no hoses back then. So, the water would flow down, by gravity, to people’s homes and everyone had a tap near their door... You had water whenever you needed it,” explained Geraldinha.

This abundance of water is primarily thanks to the “*veredas*” or wetlands on the plateaus. Typical of the Cerrado biome, these “water collection basins or a kind of lagoon (...) function as a ‘storage water tank’ that supplied water to the springs and streams in the valleys below”. Residents of communities from the Chapada das Veredas, where much of Aperam’s plantations are located, described them as “the river ‘embedded’ in the plateaus.”

“Here, where I live, there used to be a lot of water. Our boys would play in that *vereda* there. I’d have to put one bamboo pole down after another so the kids could cross without getting stuck (*laughs*) (...) There always used to be water in that stream. We’d have water throughout the entire dry season ... and we’d catch a lot of small fish (...) and we didn’t have to buy meat. Now, there is no more water, no more small fish. You have to build dams and wells. Even in summer, there’s no water anymore”, affirmed Beto, whose community is completely surrounded by Aperam’s plantations.

Water problems began to emerge as early as the 1980s, as families living in the “*grotas*” (valleys) started noticing their springs drying up. Women were affected the most, since the responsibility for organising the household water supply and defining priorities for its use fell mainly on their shoulders. Several women interviewed

water truck, it was because I already needed it and it’d take 30 days to come. I’d look in the water tank and there’d be just a little bit left, and I’d only be able to wash clothes or clean the house, but what about for cooking and drinking? There was nowhere to go to get some. It was really hard.”

Several studies corroborate the communities’ observations. A survey conducted through interviews with residents by the Turmalina City Council in 2019 identified that by then, 89% of water springs had dried up. Another study also noted significant reductions in runoff in water basins since the 1980s, which is affecting rivers in the region. Their analysis of data for the Fanado River revealed that the maximum flow rate of over 300 m³/s in the 1980s had fallen to less than 1.0 m³/s during the dry season and remains low for an increasingly longer period of the year; as a result of this process, it has become intermittent. The researchers attributed this to a decrease in underground water recharge, since they did not find abnormal variations in data on precipitation that would explain such a large alteration in the water levels. They also calculated that between 1974 and 2019, the region’s water tables dropped by 4.5 m and established a direct relation between the eucalyptus monocultures and this change (see box).



A community member shows one of many dry streams in the region. GFC

recall having to travel longer distances to find and fetch water. Domestic chores had to be reorganised. One woman from the Campo Buruti community said it was nothing to stand four to five hours in line to wash clothes, waiting for others to finish and for the local well to fill up again. Another woman from the Gentio community told us:

“I’d only wash the clothes that they’d use for school. And when I’d request a

The impacts of eucalyptus monocultures on water sources: is the tree species to blame or the large-scale extractivist industrial model?

A [2022 report by CAV and the Consumer Defence Institute](#) (Instituto de Defesa de Consumidores, IDEC), prepared with the support of 26 researchers from various universities and federal institutes, provides an in-depth analysis of the impacts of eucalyptus monocultures on the region's water sources. Based on the findings of Lima (2013), which demonstrated an annual average drop of 10 cm in the water table in areas dominated by eucalyptus monocultures in the Upper Jequitinhonha Region, they calculated that in the 45 years since the arrival of eucalyptus monocultures in the region (1974-2019), the water table had dropped 4.5 m.

The researchers attribute this mainly to the high evapotranspiration rates of eucalyptus monocultures and their demand for water year round. The native Cerrado vegetation, on the other hand, which is adapted to the seasonal climate, consumes less water and has lower evapotranspiration rates during the dry season (approximately eight months of the year).

Therefore, as agricultural engineer and professor at the Federal Institute of Northern Minas Gerais (Instituto Federal do Norte de Minas Gerais, IF-NMG) [Vico Mendes Pereira Lima explains](#), replacing native vegetation with eucalyptus monocultures reduces groundwater recharge and the soil's capacity to store water. In areas of the Cerrado biome covered by native vegetation, approximately 50% of annual rainfall infiltrates the soil and recharges the water table, whereas for eucalyptus monocultures, this falls to only 29%, leading to a cumulative water deficit.

Aperam refutes these findings by [citing publications](#) that affirm that eucalyptus consumes the same amount of water as native species. The company also states that it concentrates [planting in the rainy season](#) to reduce the need for irrigation and that its clones [do not have pivotal roots](#) capable of penetrating groundwater tables, and only access surface water. This does not mean, however, that they do not dry out the soil. Trees do not necessarily need to be in direct contact with groundwater to access it, as the capillary action of their roots draws water up through the soil, against gravity, supplying them with water.

A dry stream bed (left) and an Aperam eucalyptus plantation (right). [GFC](#)



But arguments that focus on specific characteristics of eucalyptus trees skew the debate, as they fail to give due importance to the differences between the dynamics of a native forest and those of a monoculture of trees. For one, adult specimens of the same species of emergent trees (in this case, eucalyptus) are found much further apart in their native forests than the trees in eucalyptus plantations. This greater distance between adults favours the natural regeneration of other species that require the shade of other trees to protect them from the sun, rain and strong winds. This means that in its native forest, eucalyptus plays a positive role in forest succession.

Secondly, the structure of a native forest is made up of different layers and a diversity of species of different shapes and sizes, giving it a greater capacity to intercept rainwater and slow down runoff, which helps water infiltrate the soil and replenish groundwater levels. The combination of a dense canopy and a variety of species occupying the lower layers of the forest also helps lower the temperature, including that of the soil, and retain moisture in the forest. In a eucalyptus monoculture, though, since the canopy layer is less dense and there are practically no other species under it, as the trees grow, wind tunnels form. This leads to less humidity within the plantation and greater evaporation of water from the soil upwards and out of the system.

Thirdly, the quantity and diversity of organic material decomposing on the ground tends to be greater in a native forest, which also increases the soil's water retention capacity, provides food for the micro-fauna and helps fungi and bacteria to thrive. [According to Fernando Rebello](#), from Cepeas, trees planted in monocultures do not form associations with mycorrhizae, which act like a sponge and are crucial for tree nourishment and the health and resilience of the forest in general.

Finally, native forests provide food and habitat for wildlife, which play an important role in seed dispersion and planting and, thus, forest regeneration, whereas eucalyptus monocultures are known for the near absence of other forms of life. For this and many other reasons, monocultures of eucalyptus (or other fast-growing tree species) dry out the soil, contribute to the depletion of water sources and, more importantly, will never fulfill the natural functions of a native forest.

Not only are Aperam's arguments questionable, but they also divert attention from the real culprit: the corporation's extractivist *modus operandi*, which consists of intensive, non-stop cultivation of monocultures of fast-growing emergent trees, on over 100,000 hectares, that are replanted and harvested every five to seven years,¹³ with no significant pauses between cycles, according to residents of the area. This process extracts a huge amount of soil and water resources on an ongoing basis, with no end in sight.

So this raises another important question: is the tree species to blame, or the industrial tree plantation model and the company deploying it?

¹³ [Aperam says](#) that it harvests the trees every seven years, but local residents report that with the new clones, they harvest every five years.

A dry wetland area (*vereda*) on a plateau near eucalyptus plantations. **GFC**





Aperam's water use is not limited to how much its plantations consume. The company also uses water to irrigate its seedlings, cool its kilns, put out fires and dilute the chemicals it sprays on its plantations. Several [news agencies](#) have [reported on](#) excessive extraction by Aperam's water trucks, and one resident of Itamarandiba shared a similar account:

"The company built dams in the headwaters on the plateau, where there was a good little river, in Lagoa do Bonga, but at the end of the dry season, they haul away the little water that's left'. (...) The company's water trucks draw water from the dam and the river day and night. (...) The big dam that could supply the community, the company goes there all the time and leaves it dry, just the dirt."

In the face of growing water scarcity, residents of rural communities have had to resort to a variety of strategies – some collective, others individual – to secure enough water for their needs. In some places, the people and the local government built systems that drew water from the Fanado River

without treatment. Many communities were eventually forced to request municipal water trucks. Interviewees complained about both delays in delivery (anywhere from two weeks to a month) and water quality. One woman from the Gentio community stated that "the other day, the Secretary of Agriculture himself said that the water they bring is terrible. It's not drinking water!"

Wells are another option: some are private and others, public; some find water, others do not provide enough to meet the needs of all the families that they serve. Digging wells is a costly operation, and the onus falls on the families and the municipalities. In 2018, [the municipality of Turmalina spent nearly R\\$1 million](#) (around 170,000 euros¹⁴) on digging and operating 13 wells.

In the area affected by Aperam's plantations and operations, the communities went from living in the "grotas" or lowlands where they had fresh, good quality, mineral water at their doorstep to a situation where water now needs to be transported

several times a year, contributing to fossil fuel emissions. These communities have lost their autonomy and become dependent on public authorities to assist them with their water supply. This created new and intricate relationships of dependency to gain access to water in these communities: dependence on energy (pumps, water transport), public policies, financial resources (to cover costs) and political mediation (city councillors, mayors, sanitation companies, NGOs, etc.).¹⁵

It has also fostered inequality in access to water: between families (those who had money for wells and those who did not); between rural and urban areas (urban areas do not experience water shortages) and between the rural poor and the corporation. In Turmalina, one federally-funded programme implemented by the Articulação do Semiárido Brasileiro (Coalition for the Brazilian Semi-arid Region) built 192 cisterns to capture and store rainwater for the communities' use. [EPF da Silva et al. \(2022\)](#) calculated that on the Chapada das Veredas alone, the

¹⁴ Using the exchange rate on 10 August 2026, which was R\$1 = 0.1695 euros.

¹⁵ For a more complete analysis of how the impacts of the eucalyptus plantations led these communities to develop relations of dependency and undermined their autonomy, see [De Paula Simão, 2021](#), p. 127.

eucalyptus monocultures consume the equivalent of nearly two million of these cisterns: 31.9 billion litres per year. In other words, the capacity of all the communities' cisterns together is not even 0.1% of the water that the eucalyptus monocultures on the Chapada das Veredas consume every year.

The Centro de Agricultura Alternativa Vicente Nica (Vicente Nica Centre for Alternative Agriculture, or CAV), a local organization founded in 1994 to contribute to the development of family farming in the region, has played a key role in bringing relief to the affected communities through social technologies.¹⁶ A member of Articulação Semiárido Brasileira (ASA or Coalition for the Semi-arid region of Brazil), it has mobilized to have rainwater harvesting cisterns built in the communities to guarantee access

to drinking water for cooking and eating. Residents affirmed that the cisterns help ensure a supply for longer periods and can be used to store water from water trucks, when necessary. Even so, they are still forced to ration and prioritise domestic use of water. Another more recent option is small dams that have the capacity to store up to one million litres of water. The rural families interviewed who have benefited from this technology say that they hold enough water to get them through the entire dry season.

Even with these alternatives, the water issues are far from being resolved. Many people, especially youths, are moving away because of the lack of water. Renato Alves de Souza, an agricultural engineer at CAV, explained that the organisation does this work to help farmers, knowing that it is only a

temporary response. As long as the eucalyptus monocultures occupy the recharge area, natural water sources will remain dry or continue drying up.

"The small dam, the water tank... here, at CAV, we are aware that these things help, but do not solve the whole problem. (...) We have to do it, because it's the alternative we've got, but as long as no intervention is made in the real water reservoir, which is the plateau (...) the water problem will never be fully resolved," Renato affirmed.

One resident told us that when the company's employees came to propose a "partnership" to plant trees in the community, he challenged them to do an experiment. He proposed that they remove the eucalyptus from at least one entire vereda and restore the area with native forest. "They've never been back", he said.

¹⁶ The term "social technologies" in Brazil refers to transformative techniques and methodologies aimed at contributing to social inclusion and improving living conditions that are developed and/or applied collectively, with the active participation of the population and/or communities in the organisation, development and implementation process, while combining popular knowledge, social organisation and technical-scientific knowledge.

A small dam constructed to alleviate water scarcity for local residents. **GFC**



3.3 “Squished together like a banana in its peel”: The loss of common lands on the plateaus

“The plateau belonged to no one and everyone at the same time.” Oswaldo

Another major impact was the [abrupt loss of access to the “chapadas”](#)—the communal lands on the plateaus that traditional and Quilombola communities had been using for centuries for a wide range of activities, such as livestock grazing, fishing, gathering fruit, medicinal plants and wood, leisure and transit, among other essential uses. Residents confirm that prior to the arrival of Aperam’s eucalyptus plantations, the plateaus were areas of abundance.

“There were lots of pequi trees, araticum, lots of animals. (...) There was a forest where when you looked up, like this, all you could see was the sky. The forests on the plateau were very thick. And full of fruit, of everything,” said Geraldinha.

Members of other communities in the region gave similar accounts:

“Before, life was like this: we lived in the valleys and the plateau was our haven. Up on the plateau, we’d raise our cattle, harvest pequi, bananas (...) We’d get everything there. (...) In September, we’d let out the cattle. (...)

When we’d go to gather pequi, we’d leave home at four in the morning and wouldn’t take food or water with us (...) because we’d find everything there, on the plateau - good, high quality water. For food, araticum, little coconuts, mangaba, murici (...) We’d come back at around two in the afternoon, with pequi, we’d make pequi oil. Nowadays, you’ve got mum, dad, son, grandson, great grandson, bulls, donkeys, dogs, pigs - all on this little piece of land.”

As this account from Oswaldo shows, when the families lost access to the plateaus, it confined them to smaller areas. A member of another community described a similar situation: “now, we’re all squished together, like a banana in its peel.” They were forced to raise their animals in the same area where they grew gardens and crops. The year-long presence of animals led to overgrazing, soil compaction and consequently, land degradation. Due to the lack of grazing areas and sufficient feed and water for the animals, many families were forced to sell them, leaving them in an even more vulnerable situation. They also

lost other sources of income, such as selling fish and fruit from the plateaus.

“I remember when there was still a lot of water. When I was little, we planted everything we need, ate food from the garden. When the company came and the water dried up, we were left without an income. My father would harvest food and then, go sell it. Nowadays, there’s none of that anymore. There’s no jobs, no alternatives,” João said.

Due to the lack of water, especially during the dry season, many families have been unable to maintain vegetable gardens and continue producing traditional products, such as the corn flour that the Gentio Community is famous for. According to one community leader:

“We used to make corn flour. Then, even for that, there were times we couldn’t make any to sell at the market because if we didn’t have water, we had to save water... But to use that corn to make flour, you have to wash it first. And if you didn’t have





An ocean of eucalyptus. GFC

water, then what would you do? (...) Now, our work is uncertain.”

These changes have obviously affected food security in the communities as well. The results from the interviews and [the literature](#) both confirm that in the past, they used to plant a wider variety of vegetables and tubers, but now, they grow fewer varieties, often opting for more drought-resistant plants, which they grow in lower quantities and only during the rainy season. As a result, not only have they lost income from sales at local markets, but they must also now buy most of their food. Some expressed concerns about pesticides in the food that they buy.

Severed from the plateaus by the plantations, the families have also been deprived of access to the

medicinal plants that they would traditionally use to resolve most health problems.

“Medicine? No one used to go to the pharmacy. You’d just get it from the plateaus! (...) When I was a boy, I would take a small hoe and go and get medicine from the plateau. I’d come home with an armful of stuff, make tea and the kids would drink it and get better,” explained Beto. His wife added, “I hadn’t been to a doctor in over 30 years. Now, I go all the time”.

In sum, all these difficulties combined, but primarily the lack of water and loss of access to their communal lands, have made it extremely difficult for the communities living near Aperam’s plantations to maintain their traditional way of life. The kind of [“agriculture, established with](#)

[government support](#) on the Chapada das Veredas (...) based on the expropriation of common lands, the implementation of eucalyptus monocultures, and an industrial and technological ‘package’ imposed radical changes on the traditional communities’ way of life in a relatively short period of time”. This observation was confirmed by the current vice-mayor of Turmalina, Warlen Francisco da Silva:

“the communities (...) used to have a communal relationship with nature, the Cerrado, the fruits of the Cerrado, and then, almost overnight, their reality changed. But changing a culture that had been passed down from ancestors for years and years does not happen overnight.”

Major expansion plans funded by International Finance Corporation (IFC)

The impacts described in this report will be compounded by the fact that Aperam [plans to expand its plantation operations by 20%](#), with the support of the IFC-WBG. On 14 February 2025, Aperam [signed an agreement with IFC](#) for a €250 million financing package for Aperam's plantation management programme. Of the total, up to €150 million are to come from IFC and up to €100 million in funds from other lenders, such as ING, a Dutch multinational banking group.

According to information on [IFC's Disclosure Portal](#), "the funds will be used for: the acquisition of 42,600 hectares (ha); the expansion of charcoal production capacity; improvements in kiln efficiency and gas burner enhancements; the establishment of a bio-oil business line utilizing by-products from charcoal production; and the expansion of seedling nursery capacity to meet the increasing demand for seedlings from other forestry companies."

Part of the financing is for 29,600 ha of land that the company had already acquired from two eucalyptus companies in Jequitinhonha Valley, Jôgil and SADA, [calling into question the added value of IFC funding](#). Approximately one-third of the already acquired area consists of established plantations and the remainder are legally required forest reserves or protected areas, as well as 5,000 hectares of "inactive lands under natural regeneration". As for the 13,000 hectares still to be acquired, the location had not been defined by the company at the time of appraisal, and there is still no publicly-available information as to their whereabouts.

What is worse, IFC decided to go ahead and approve the financing despite [its recognition](#) of the range of "significant adverse [environmental and social] risks and impacts that may be diverse and irreversible" that it may cause, which include: air pollution from the charcoal production sites; physical and economic displacement of communities on the newly acquired lands; potential impacts on water resources, ecosystem services and biodiversity priority areas, including habitats for globally threatened, migratory, and restricted-range species; community safety risks associated with wood transportation from new eucalyptus plantation areas to the charcoal production units and an increase in gender-based violence and harassment that may arise in neighboring communities and truck driver rest stops due to timber transportation.

Furthermore, IFC [operational guidance](#) states that plantation operators in receipt of IFC support "will not cause any conversion or degradation of critical habitat", and [policies include](#) not supporting "projects involving the significant conversion of natural habitats". However, the State Environment and Water Resources System for Minas Gerais (SEMAD) database lists recent applications submitted by Aperam for authorisation to suppress native vegetation cover for alternative soil use in five properties in [Carbonita](#) and [Minas Novas](#).

While the state's system provides no information on pending applications, it has disclosed information on one request that was rejected in April 2025. According to the [technical report by the State Forest Institute \(IEF\)](#) for the 2024 application for the Jiboia-Tamboril farm, Aperam had requested authorisation to suppress 2,962.94 hectares of native vegetation to use for silviculture. The application was rejected for several reasons, including "all the inconsistencies, errors, and discrepancies presented in the case in question, which compromise the validity of the data presented and violate legal provisions on the protection of native vegetation, preservation areas, and legal reserves, thereby precluding approval of the use of and intervention in the areas in question" (our translation, p. 8).





A pequi tree, endemic to the Cerrado and providing a vital source of nutrition and income to traditional communities. **GFC**

It is not clear what will happen with these applications, due, in part, to the lack of information currently available. It is possible that the company will obtain authorisation once it submits the documents necessary to meet the legal and technical requirements. Moreover, [Law no. 14,876 adopted in 2024](#) excluded forestry from the list of potentially polluting activities, thereby simplifying the environmental licensing process for planting pine, eucalyptus and mahogany trees for commercial purposes, such as charcoal production. In any case, the application reveals that on this property alone, the company plans to deforest nearly 3,000 hectares of native forest to plant eucalyptus, which clearly violates the IFC's "non-conversion" and "no deforestation" requirements.

It is worth noting that "inconsistencies and errors" and requests for authorization to remove native vegetation are not limited to the applications mentioned above. According to a [recent investigation by ICL Noticias](#), in 2017 Aperam was fined by the State Forest Institute (Instituto Estadual de Florestas (IEF)) in a case deemed "extremely serious" for "providing false information or tampering with a technical report in the inspection records". When IEF technicians conducted field visits, they observed that Aperam was using 40,000 hectares of land for charcoal production more than it was licensed to, for which it was fined, along with two other infractions, almost one million euros.

Aperam appealed the fine, arguing that it did not provide false information and that it was a "mere excusable error". Several years later, in 2025, the IEF Council absolved Aperam and withdrew the fine. The ICL report suggests that Aperam benefitted from this and other decisions issued by environmental bodies during Romeu Zema's two mandates as governor of the state of Minas Gerais; Zema—now a candidate in the 2026 presidential election—is said to have met with the company's leaders and visited its plantations several times while governor. Aperam denies having received favours from the state government. ICL reporters also identified another nine environment-related cases awaiting a decision, involving allegations such as deforestation, causing forest fires and unauthorised groundwater extraction.

3.4 “There’s no jobs, no alternatives”: Few employment options and the economic burden on the municipalities

One of the promises of the military regime’s modernisation plan was the creation of jobs and income for people in the region. Indeed, several interviewees confirmed that when Acesita first arrived, it did employ many local people to do manual jobs, such as planting trees (including women), preparing land (which included [spreading insecticides manually](#), coming into direct contact with the chemicals) and harvesting eucalyptus wood (originally with axes).

However, this job boom was short-lived, revealing the short-sightedness of the “developmentalist” model. The company mechanised most of its operations, and the number of employees fell.

Today, Aperam is not a significant source of employment in the region, especially for women: [women represented only 21.5% of Aperam’s workforce in 2023](#). Furthermore, if you consider the size of its plantations (approximately 100,000 hectares) and its number of employees (nearly [2,000 employees in the Jequitinhonha Valley](#) in June 2025), Aperam generates only 0.02 jobs per hectare. Family farming, on the other hand, is said to create an average of [five jobs per hectare](#). Put differently, Aperam generates one job for every 50 ha, whereas family

farming would generate 275 jobs on the same amount of land.

According to interviewees, Aperam employs few, if any, members of their community. When asked why, they said that most people from the community do not meet the company’s educational requirements. They also mentioned other farm owners in the area who create more jobs for them than Aperam does. Similarly, a public official in Turmalina informed us of the existence of smaller companies in the municipality that occupy less land, have less environmental impacts and create more jobs than the charcoal giant.

While Aperam portrays itself as a promoter of social and economic development in the Jequitinhonha

Valley, our research suggests that it costs the region more than it contributes. There is a shared sentiment among interviewees that the company is the only one that profits, as it ships all its revenues off to Timóteo, leaving the municipalities and the communities to foot the costs of its operations. In 2024 alone, the municipality of Turmalina spent R\$399,478.72 (around 67,700 euros) on sending water trucks mainly to rural communities. That same year, the municipality collected R\$98,118.26 (approx. 16,600 euros) for the ISS-QN tax (on activities related to eucalyptus) directly from Aperam, which does not even cover one quarter of the cost of the water trucks.¹⁷

¹⁷ Based on data obtained from the Municipality of Turmalina.



3.5 “The incidence of cancer in all these communities is a sad thing”: Health risks associated with pesticides and air pollution

During most of the interviews, local residents expressed concern about the growing incidence of cancer in the region, even among adolescents and children. Due to the lack of public cancer treatment facilities in the valley, municipalities must send people to the state’s capital, Belo Horizonte, nearly 500 km away.

In 2024 alone, the municipality of Turmalina spent over R\$2.2 million (372,863 euros) on transporting residents to and from Belo Horizonte for health treatment, mainly for cancer.¹⁸ At the time of our field research, the municipality did not have data on the number of cases and types of cancer, nor did it have a plan for identifying potential causes. It also does not test the water used in rural areas regularly.

Many people in the region (both interviewees and city residents with whom we had casual conversations) associate cancer with Aperam’s use of pesticides on its eucalyptus plantations because of their close proximity to the communities and the risk of contamination of the water and soil. However, no studies have been conducted in the region yet to prove this or to substantiate their suspicions, which many recognise. [Aperam reports](#) that it uses glyphosate and sulfluramid on its plantations, along with several other herbicides and pesticides (albeit in much smaller quantities), all of which are permitted under the Forest Stewardship Council (FSC) [Pesticides Policy](#). Sulfluramid is not, however, [licensed in the EU or the UK](#) because of its toxicity to humans and wildlife. Some interviewees believed that the use of ag-chemicals is linked to deaths of fish raised on small farms near plantations, when runoff from heavy rains drained into the farmers’ dams or lagoons.

An even more serious case involved the illegal disposal of Aldrin, a highly-toxic and environmentally-persistent insecticide used to kill ants and termites, which was [banned for use in](#)

[Brazil in 1985](#). According to our interview results, in 2017, in Itamarandiba, a group of youths discovered a 200 m² illegal landfill of Aldrin containers next to a stream that supplies water to the community of Mandingueiro. Local leaders were called to the area and when they arrived, they were confronted by Aperam’s private security team who refused to allow them to access the area and threatened to have them



arrested. One resident reported that for some time after the incident, these youths and local leaders received threats and were followed by men in unmarked cars.

The community reported the case to the state Public Prosecutor’s Office (PPO), urging it to launch an investigation. In 2019, when tests confirmed the contamination by Aldrin, the [PPO filed a public civil action](#), requesting that Aperam pay an environmental fine of R\$1.5 million (approximately 250,000 euros) to pay for the clean-up of the area. A preliminary injunction ordering the

company to deposit this sum was issued by a court in Minas Gerais, but it was overturned when the company appealed. [Aperam argued that](#) Acesita had disposed of a small number of used containers on one of its properties, that the company had stopped using Aldrin well before it was banned and that Aperam was in the final stages of the clean-up process. As of June 2024, the final ruling on this case was still pending. During our field visits, interviewees stated that they believe there are other sites contaminated with Aldrin and explained that local residents are unwilling to come forward to identify them due to fear of conflict.

There are also significant concerns about respiratory problems linked to air pollution from Aperam’s industrial charcoal ovens. During the winter months, thermal inversions cause the smoke to descend into the valley, [affecting air quality in some communities and in Turmalina](#), in particular, where the smog tends to hover over the city. Aperam has plans to phase out 121 older kilns, replacing them with more efficient ovens, which it was to have completed by 2025. However, [implementation of this plan was halted](#) when demand for steel fell in 2023. Aperam reported to the IFC-WBG that it now plans to complete the process by 2027. However, as it has interrupted the process before, one can only wonder if it will treat concerns about air quality control and emissions as a priority this time, or if there is a risk that current low demand and excess capacity for steel on the global market will once again lead it to put a freeze on these plans.

¹⁸ Based on data provided by the Municipality of Turmalina. Unfortunately, no data is available on the number of cases or types of cancer.

3.6 “People no longer have tranquility, peace”: Conflicts with communities, 51 years and counting

Aperam and its predecessor Acesita have been in conflict with the communities since the day it arrived in the region. As shown above, the communities of the Chapada das Veredas we visited associate the company's arrival with the violent destruction of the native vegetation and veredas on the plateaus, the loss of biodiversity (both flora and fauna) and the seizure of their land—a [process described](#) as one “based on fraudulent land negotiations and illegal land grabbing”.

According to a recent [news report by Repórter Brasil](#), “Aperam denies allegations of land expropriation, stating that the acquisition by Acesita in the 1970s was legal and authorised by the laws of the time” and “that the land was occupied illegally”. It is ironic that Aperam attempted to claim ownership of land in the region based on “usucapion”¹⁹—i.e., over 15 consecutive years of uninterrupted and unopposed occupation of the land—but alleges that the uninterrupted and unopposed occupation of the land by “certain individuals” (read traditional communities) for hundreds of years [was illegal](#).

Refuting [the company's narrative](#) of its “over 30 years of peaceful and uninterrupted possession” of land in the Jequitinhonha Valley is the series of lawsuits filed against it in the region. A study by Rodolfo Ribeiro, from the Núcleo PPJ/UFG, identified 70 court cases involving Aperam's economic group, of which 28 are land disputes, many of which were filed in the last 20 years. Interviewees shared accounts of overlapping land titles,

where the company obtained land titles for properties for which farmers already had a deed.

Legal challenges of land ownership are not the only ongoing conflict between the company and communities. Our field research confirmed the existence of more intense confrontations between residents and the company's security team, which have been documented in previous [news reports](#). Again, the company and the communities tell two very different versions of the story. [Aperam claims](#) to “support and monitor customary use [of wood], which is the removal of waste (branches) from forest areas by local residents”, but according to residents, this is not the case. Interviewees often spoke about how the company's security team stops community members from gathering the wood left on the company's land after harvesting, which they would use in their own ovens to make charcoal—for some, the only source of income they have. They explained that the company reports residents to

environmental police, which come and destroy their ovens.

Community members also complain of constantly being followed by Aperam's security team on the roads. “You can't leave here [the community] without going through the company's land”, one interviewee explained, which infringes their freedom of movement. Some residents affirmed that Aperam's security team is armed. Similarly, Rosária da Rocha Costa, president of the Quilombola association Coquivale (Comissão das Comunidades Quilombolas do Vale do Jequitinhonha), [told ICL Noticias](#) about the “frequent presence of armed men in the region, intimidating residents and forcing many of them to sell their land”, many of which are police officers or retired police officers who work for the company, or so she has been told. This information contradicts what the company has apparently informed the IFC: the [information disclosed by the IFC](#) on Aperam's financing package states that the company's “security agents do not carry firearms. No incidents

¹⁹ According to Galizoni et al. (2022, p. 74), Aperam attempted to acquire the land using “usucapião” – a form of land acquisition recognized by article 1238 of the Brazilian civil code that stipulates that “Anyone who, for fifteen years, without interruption or opposition, possesses a property as their own acquires title to it, irrespective of title deeds or good faith; they may apply to the court to have this declared by a judgement, which shall serve as the title for registration at the notary office” (our translation).



involving security personnel conduct have been reported by BioEnergia.” Aperam responded to ICL that it does not have its own armed security staff nor does it hire armed security services.

The accounts shared during the interviews were corroborated by a massive police operation carried out recently in the region, which showed how this conflict has escalated to a new level. On 8 October 2025, during a state military and civil police operation called “*Ignis Petra*”, over 120 police officers, 39 police vehicles, two helicopters and environmental agency personnel (IBAMA and Semad) were deployed to execute search and arrest warrants for 12 people accused of stealing wood residues and producing charcoal illegally in the municipalities of Minas Novas, Itamarandiba,

Turmalina and Veredinha. According to [one news source](#), “Aperam BioEnergia” appears in the accusation as the victim. As a result of the operation, [ovens were destroyed](#) and 11 people were detained. Local organisations are questioning the excessive use of force, the size of the operation and the amount of state resources used to arrest people who do not represent a threat to society. In their view, the intervention was clearly meant to intimidate the communities. A [recently announced civil inquiry](#) launched by the Federal Public Prosecutor’s Office on the socioenvironmental impacts of the expansion of Aperam’s operations in the region will investigate possible human rights violations committed during the police operation in the traditional community of Campo Buriti.

There could also be a correlation between the apparent increase in the criminalisation of communities practicing customary use of Aperam’s wood residues in recent years and the company’s carbon credit sales. If Aperam is now, as it claims,²⁰ using branches and other residues to produce biochar, then these residues have gone from being a waste product that the company needs to dispose of to a valuable resource that can be turned into carbon credits. Whilst it could also be the case that there is now more community reporting of criminalisation, it is also possible that it no longer makes economic sense for the company to encourage or even tolerate customary use—why would it give away a potential source of revenue?

²⁰ See the [Final Audit Report by EnergyLinks Services](#) submitted in December 2025, which is available on the Puro.earth Registry webpage. Last consulted on 21 May 2026.

FSC ignores complaint by over 40 groups

The issues described in this report, especially the impacts on water, were brought to the attention of Forest Stewardship Council (FSC) in a [complaint filed by CAV and 40 other groups](#) from Brazil, Italy and Switzerland, demanding the suspension of FSC’s certification of Aperam’s Brazilian operations. According to the company, all of its eucalyptus plantations are FSC-certified. FSC certification supposedly certifies forests and forest-based products according to strict sustainability standards, acting as proof that the charcoal Aperam produces comes from responsibly managed forests that protect biodiversity and local communities. However, FSC certification has been [mired in controversy and scandal for decades](#), leading many to conclude that it serves only to “[mask environmental and human rights abuses](#).”

The complaint filed by CAV and other groups eventually led the FSC to [instruct Assurance Services International \(ASI\)](#), a German accreditation body, to evaluate the previous audit of Aperam’s operations by the French certification body Bureau Veritas. On behalf of the FSC, ASI monitors certification bodies worldwide that issue certificates according to the FSC standard. During its field audit in 2024, [ASI identified several problems in the process](#), such as Aperam’s failure to prove that its plantations do not affect water availability in the region and the fact that [Quilombola communities had not been consulted](#). In its final assessment report, ASI also states that Bureau Veritas “repeatedly failed to evaluate stakeholders’ allegations of nonconformity at the [certificate holder] level.”

In August 2024, Aperam replaced Bureau Veritas with a Brazilian-based FSC-accredited body, Imaflora, which was to [submit a corrective action plan](#), along with evidence of its implementation, before mid-2025. On 10 May 2025, FSC updated the company’s certification status on its website, stating that it has been renewed and its certification is valid until 9 May 2030. This is yet another case where FSC has ignored complaints of violations of communities’ rights and approved certification for clearly unsustainable monoculture tree plantations.

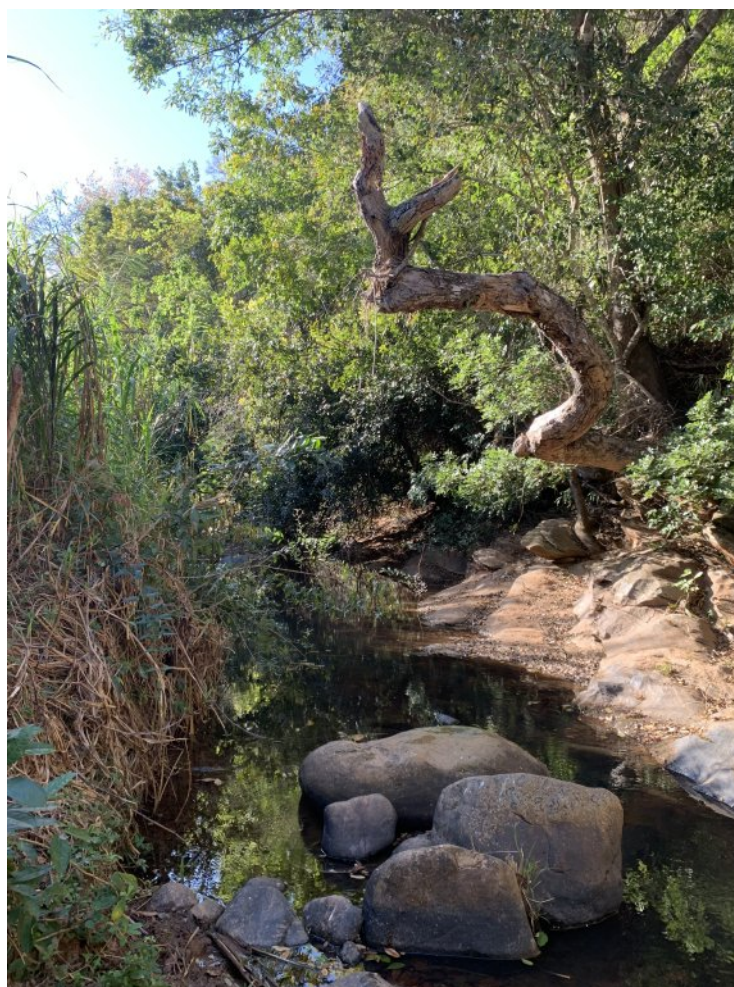
3.7 “This is our place”: How communities are fighting back

“[The company] is spreading propaganda saying that Aperam changed society. I said, ‘yeah, it sure did change it - into a terrible state!’ That’s how it changed it. Because people no longer have tranquility, peace. Because how can you live in a place where you don’t know if your grandchildren will be able to live [in the future]? This is our place.” Geraldinha

Even in the face of such difficulties, the traditional communities continue fighting to defend their rights and stay on the land. Some still farm during the rainy season, although in some communities where water issues are more pronounced, few are able to make a living this way. Communities living below the plateaus that have not been occupied by eucalyptus plantations, such as Pindaíba in Veredinha, on the other hand, still have water and are able to produce year-round.

CAV offers training and support on alternative techniques and practices to the communities to improve their living conditions and stay on the land. In addition to the water management techniques mentioned earlier, it works with them to restore highly degraded areas through agroecological practices, such as small dams, terraces and tree planting, and install energy alternatives (e.g., biodigester systems). It provides technical support for agroecological production and commercialisation (organic certification and farmers’ markets) and encourages the communities to take advantage of the region’s socio-biodiversity by working with “the products that nature already gives us”, such as fruits native to the Cerrado biome (pequi, cagaíta, jatobá, murici,

araticum and the list goes on) and special kinds of honey. It supports the Associação dos Apicultores do Vale do Jequitinhonha (AAPIVAJE), a regional cooperative of honey producers, whose livelihoods are [particularly at risk due to agrochemical use](#).



Water in a stream at the end of the dry season in the Pindaíba community, which has no eucalyptus on the plateau above it. **GFC**

CAV also helps the communities self-organise by setting up their own associations. Renato Alves explained that “Just as the rural workers unions founded CAV, CAV helps create other organisations, such as the Associação de Feirantes [the Farmers’ Market Association] and Escola Família Agrícola de Veredinha [Veredinha

Family Farming School],” as well as the associations of the communities we visited, which coordinate their actions and share information through the Rede de Parceiros network.

In the Gentio community, for instance, the women interviewed shared the story of ASMAFA (Associação de Mulheres Agricultoras do Córrego da Lagoa e Beira do Fanado), a women farmers’ association that is rapidly approaching its ten-year anniversary. Originally created by 12 women to care for the environment, [unite the community and pool community resources](#), its membership has since grown to 100.²¹ With women at the helm, the association played a key role in mobilising its members to engage in the process of obtaining official recognition as descendants of Quilombolas for the Córrego dos Macacos, Gentio and Beira do Fanado community, which was granted in 2024.

Obtaining legal recognition as a traditional or Quilombola community is an important step in the communities’ struggle to reclaim their ancestral lands through the courts. In 2014, the state of Minas Gerais passed a law that allows traditional communities to declare themselves as such.²² Some communities in the region affected by Aperam’s operations have defined themselves

²¹ They have since let men join the association.

²² Law no. 21,147, later regulated by state executive order no. 47,289, in 2017, allows “culturally-distinct groups that recognize themselves as such and have their own forms of social organization, occupying territories and using natural resources as a condition for their cultural, social, religious, ancestral and economic reproduction and applying knowledge, innovations and practices generated and transmitted by tradition”.

as “*groteira-chapadeira*” – a term that reflects their way of life, which is intrinsically connected to both the plateaus or “*chapadas*” above and the “*grotas*” or valleys below. CAV assists communities with the official recognition process, as it will give them a more solid base for their land claims.

For the community members we spoke with, one thing is clear: the only real, long-term solution to the problems that they face is to take back their territories, especially the “*veredas*”. “Here’s what I think: the communities should all get together to demand that they give us back the Chapada das Veredas so we can preserve it,” said Geraldinha. For most, the “*veredas*” are particularly

important due to their role in recharging groundwater and the springs and streams in the valleys below. As one young community member put it, “The plateau functions as a water tank. If there are eucalyptus sucking water from the tank, there won’t be any left for the taps.” Several interviewees thus support the removal of eucalyptus from the “*veredas*” and their reforestation with native trees to allow water sources to recuperate.

Experiences in other regions of Minas Gerais show that the communities are right in demanding that the land be reclaimed from the eucalyptus monocultures and restored. In Rio Pardo de Minas, for example, the

land on the plateaus, removed the eucalyptus, allowed vegetation to come back naturally in some areas and planted native species in others. As a result, the natural water cycle and water springs were eventually restored and the native forest has come back.

When asked what message the communities would like to share with others who are engaged in the same struggle, one woman replied, “what we can do is unite everyone, right? We shouldn’t think we’re small. We need to think that we’re big. We should bring all the people together to claim what is ours and fight for our way of life, for the lives we used to have.”

Small-scale agroecological farming in the region (left), including the cultivation of beans (top right) and coffee (bottom right). GFC





Pottery—a story of women's resilience

"It is an expression of a way of life, a source of income and a bridge to the outside world".
Camila Araujo, [writing in \(\(o\)eco](#).

Women from the communities of Campo Alegre and Campo Buriti have become famous for their hand-painted clay pottery that reflect elements of nature and scenes from daily life in the region. "Every piece tells the story of a woman," said Fátima, from Campo Buriti. Together, they tell the story of a long, difficult struggle of the women in the region who turned their craftwork into a source of recognition, financial independence and income for themselves, their families and their communities.

It was common in the region for men to spend between 8-12 months a year working on sugarcane plantations in other parts of the country. While they were away, the women had to assume all family responsibilities and farm work on their own. This included making things out of pottery for their own use at home such as plates, bowls, pots and their most famous pieces, dolls. With no money to spend, the women would take their pottery to the market in Minas Novas to either sell or trade it. Interest in their work quickly began to grow and today, the members of the Coqueiro Campo Artisans Association (Associação dos Artesãos Coqueiro Campo, AACC) in Campo Buriti participate in craft fairs across the country and sell their work to tourists and even large chain stores, such as Camicado and TokStok.

The growing success of their pottery has made a major difference in the women's lives. One AACC member affirmed that, "Today, I can say that they all have money. Their financial independence is very advanced. But in the past, it wasn't like that." She went on to explain that before, most young women used to go to the big cities to work in people's homes as domestic workers. But not anymore. "Now, they are more involved in pottery. (...) Now, you have mothers who have put their child through university, who is now an engineer, a teacher. Thanks to the pottery."

Aperam has also taken interest in the artisans' work. In the last two years, it has donated wood to the artisans for their ovens, which it includes in reports as one of its contributions to the development of the region. Women artisans affirmed, however, that most is residual wood from plantations, which does not meet the requirements of the women's pottery ovens, but they accept it because they can no longer get wood from the plateaus.

The women from the association interviewed are well aware that this "help" comes with strings. As one artisan said, "I think they give it to us to keep us quiet". Some interviewees believe that Aperam uses its donations and social projects to co-opt local associations and generate conflicts within the communities. Moreover, none of Aperam's social projects tackle the root cause of the problems that traditional communities in the area face. As one former city councillor in Itamarandiba explained, Aperam's projects in affected communities do not come close to making up for "the scale of the disaster that they caused in the region."

4. Conclusion: Aperam's business model is fundamentally unsustainable

Our research sets out how the exploitation of eucalyptus monocultures for charcoal—and now biochar—production on the plateaus of the Jequitinhonha Valley has had, and continues to have, devastating impacts on the traditional *groteira-chapadeira* and Quilombola communities in the region.

When Acesita arrived in the region 50 years ago, it severed their access to their common lands, confining them to smaller areas, and destroyed the native vegetation of the Cerrado, home to an abundance of fruit, medicinal plants, fish and fauna, to replace them with thousands of hectares of “green deserts”. Over the decades since, numerous water sources have dried up, making it nearly impossible for the communities—which had preserved the land for centuries—to farm and pursue traditional ways of life. Many have seen their population dwindle, as people have been forced to seek employment elsewhere. Without water, the prospects are limited for young people who wish to remain in their communities.

Despite the growing evidence contradicting its sustainability narrative, Aperam continues to receive institutional support. The renewal of FSC certification until 2030, despite well-documented community complaints, and significant financing from the IFC for further expansion have enabled the company to brand its operations as environmentally responsible. The conflict has also

taken a more coercive turn, including through the major police operation carried out in 2025, which resulted in arrests and the destruction of artisanal charcoal ovens. Community organisations have questioned the scale and use of force, and the Federal Public Prosecutor's Office is investigating possible human rights violations during the operation.

To “green” its image further, Aperam plans to expand its production of biochar and sales of carbon removal certificates, which it champions as solutions to climate change. In reality, as shown in this report, the science underpinning these claims is deeply contested. Carbon accounting methods are flawed, and the credits generated simply allow polluters elsewhere to avoid genuine emission reductions. Moreover, Aperam's biochar production cannot be separated from the impacts of its charcoal production and, therefore, its eucalyptus plantations. As this report has tried to do, it is crucial to centre the voices and experiences of affected communities in any discussion of sustainable development and climate solutions. Their testimony makes clear that the

costs of these so-called “green” solutions are disproportionately borne by those with the least power and resources. Sustainability cannot be achieved by sacrificing local livelihoods, biodiversity and water security for the sake of industrial profits or global markets. Instead, policies and investments should prioritise the recovery of community lands, the support of agroecological practices that respect local knowledge and rights, and the restoration of native ecosystems. Looking ahead, the future of the Jequitinhonha Valley—and regions facing similar extractivist pressures—will depend on the ability of communities, civil society and policymakers to challenge greenwashing and demand accountability from corporations and certifiers alike. The case of Aperam underscores the urgent need for a re-evaluation of what constitutes sustainable forestry, carbon removal and climate action. Only by confronting these uncomfortable truths and centering justice and ecological integrity can lasting solutions be found.

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