

Vallourec: junk offset credits through charcoal production for the iron and steel sector in Brazil

Since 2004 at least ten Clean Development Mechanism (CDM) projects have certified the generation of carbon credits linked to the iron and steel sector in Minas Gerais, Brazil. Brazilian pig iron (used to produce steel) companies such as Plantar and Rima and large transnational steel-producers such as ArcelorMittal and Vallourec have all sold credits based on the fact that they use charcoal from near-by eucalyptus plantations in their blast furnaces rather than fossil fuels. Iron and steel companies in Minas Gerais are generally vertically-integrated, whereby the companies own large areas of plantations from which they produce the charcoal used in their operations. As a consequence, the iron and steel sector in Minas Gerais is the largest producer of charcoal globally, with around one million hectares of plantations at its disposal.

The credits sold by the sector have generally been generated in two ways: either for switching from using coal or gas in the iron and steel production process to charcoal, or for producing their own charcoal in so-called improved kilns. There are two fundamental problems with this approach that show that credits generated in this way are a poor climate mitigation strategy. Firstly, the methodology used to calculate reductions is flawed as it treats all carbon dioxide emissions from the production and combustion of charcoal from eucalyptus plantations as zero, and ignores them entirely. This stems



Extensive eucalyptus plantations in northern Minas Gerais. **Federica Giunta**

Carbon offsets for aviation: a false climate solution

CORSIA is a global scheme to offset greenhouse emissions from aviation and begins its pilot phase in 2021. Rather than reducing emissions by reducing flying, the sector with the fastest growing pre-pandemic emissions plans to compensate for the carbon it releases through offsetting. The Clean Development Mechanism (CDM) is one of the programs approved under CORSIA, whereby airlines will be able to purchase carbon credits sold by CDM projects. In order to assess the value of this approach it is important to look at recent CDM projects and the likely impacts that they have had. This case study describes charcoal production for Vallourec’s steel plants in Brazil, where credits are claimed for small efficiency gains in an otherwise highly polluting process. It highlights why offsetting emissions from aviation is such a bad climate solution, and why rolling-out CORSIA at scale would be a disaster for communities and the climate.

from the UN’s unscientific assessment that industrial-scale bioenergy is renewable and therefore carbon-neutral, despite clear and mounting evidence to the contrary. Secondly, eucalyptus plantations in Minas Gerais,

as in other areas of Brazil, are closely associated with land-grabbing, deforestation, conflicts with communities and water scarcity, and the companies involved should not be incentivised to continue these harmful practices.¹

¹ These issues are described extensively in an investigation into the Global Environment Facility-funded project “Production of sustainable, renewable biomass-based charcoal for the iron and steel industry in Brazil” <https://globalforestcoalition.org/brazil-charcoal-case-study/>, published by the Global Forest Coalition and FASE Espirito Santo in 2020.

Vallourec's CDM project

This case study focuses on CDM Project 8609,² registered by V&M Florestal, a subsidiary of V&M do Brasil S.A, which is wholly owned by Vallourec, a transnational steel-producer headquartered in France. The project claims an emissions reduction of 204,471 tonnes of CO₂

equivalent per annum, and its crediting period runs 15 Mar 2013 - 14 Mar 2023. It achieves emissions reductions through improved kiln design in its charcoal production facilities,³ where greater temperature control results in small increases in efficiency and reduced methane

emissions. Vallourec owns around 113,000 ha of eucalyptus plantations in Brazil to produce charcoal for its steel tube production plants in Belo Horizonte and Jeceaba, in southern Minas Gerais.⁴

Does the project reduce emissions?

Flawed methodology for calculating emissions reductions

The climate rationale of this CDM project is based on a fundamental biomass carbon accounting error, where plantation forestry is considered a “sustainable source” of biomass and therefore “renewable”, and carbon dioxide emissions from its carbonisation (in kilns) and then combustion (in iron and steel mills) are not accounted for at all.⁵ This ignores any baseline emissions involved in for example the destruction of the Cerrado biome that plantations in Minas Gerais have replaced, and ongoing loss of soil carbon and processes of desertification that also impact surrounding areas. It also ignores the “carbon debt” associated with burning biomass that numerous recent studies have highlighted,⁶ owing to the time it takes for carbon to be accumulated by

new trees in plantations. This is a significant factor even at the relatively short rotation cycles associated with Brazil's eucalyptus plantations. In fact, recent analysis by experts in carbon lifecycle modeling reveals that even burning thinnings from sustainably-managed plantations increases carbon dioxide levels in the atmosphere for more than four decades.⁷

The only carbon emissions that are accounted for in terms of charcoal production are methane, given that the carbonisation process releases more methane than combustion. The vast majority of the charcoal produced in Minas Gerais is done so in inefficient and polluting traditional brick charcoal kilns. Therefore, relatively low-tech improvements to kiln design can result in reduced

methane emissions, such as controlling temperatures to achieve small efficiency increases or flaring methane in flue gases. However, reduced methane implies increased carbon dioxide, since that is what the methane turns into before it is released to the atmosphere from the kiln chimney. Those carbon emissions aren't accounted for either, despite the fact that carbon is still being emitted, albeit as a less potent greenhouse gas. Fully accounting for the carbon emissions involved in charcoal production through an accurate assessment of life-cycle emissions would show that any small reductions in methane are more than compensated for by the large carbon dioxide emissions associated with the process.

² <https://cdm.unfccc.int/Projects/DB/BVQI1354824411.24/view>

³ CDM Project Design Document: <https://cdm.unfccc.int/UserManagement/FileStorage/QA6VLOGMXSFZ3D59KETRHJI7UN81WB>

⁴ Vallourec 2018 Annual Report

⁵ Under accounting rules agreed for the Kyoto Protocol and subsequently transferred to the Paris Agreement, carbon dioxide emissions from burning “renewable” biomass are ignored. See UNFCCC CDM methodology AM0041 for the “Mitigation of Methane Emissions in the Wood Carbonization Activity for Charcoal Production” used by the project here: <https://cdm.unfccc.int/methodologies/view?ref=AM0041>

⁶ See for example: <https://www.biofuelwatch.org.uk/biomass-resources/resources-on-biomass/>

⁷ <https://www.southernenvironment.org/news-and-press/news-feed/new-study-shows-burning-wood-from-sustainably-managed-forests-increases-carbon-pollution-for-40-years>

Additionality depends on where you set the baseline

Only a very small number of CDM projects have a high likelihood of ensuring that emission reductions are additional and are not over-estimated,⁸ and that they are resulting in emissions that are lower than the baseline would otherwise be. In the case of this project, the baseline is set to a scenario whereby charcoal is produced very inefficiently from established plantations to produce

steel from raw materials. This is very different to the baseline that existed a number of decades ago, before the industry was established and traditional farming communities co-existed within a highly biodiverse forest and savanna ecosystem. Although small reductions in methane emissions can be achieved by slightly tweaking the process, credits are still being claimed for what is a highly-

emissive and destructive process. Instead of incentivising true emissions reductions such as the restoration of the Cerrado and the reestablishment of community governance over the land, and of course a drastic reduction in the amount of iron and steel being produced from raw materials, the CDM is simply subsidizing a highly polluting industry.

Offset credits financing a company with a poor track record

Violent conflicts with traditional communities

Vallourec was implicated in a campaign of intimidation and violence in northern Minas Gerais, which culminated in the murder of a local farmer in 2007 by Vallourec's armed guards. The Canabrava community had previously complained about the intimidation and violence they were being subjected to, as well as the

deforestation of the Cerrado that was taking place for the company's eucalyptus plantations. The company had cut off the community's access to firewood and other forest resources such as fruit, and the plantations were drying up the Canabrava River. Vallourec's response to the complaint was to subject the community to

further intimidation and harassment, including directing verbal abuse and physical violence towards farmers and even children.⁹ Following the murder, numerous social organisations took up the issue with state authorities and human rights organisations, demanding immediate action against the company.¹⁰

A poor neighbor and employer

The 2003 World Rainforest Movement report "Certifying the Uncertifiable"¹¹ looked in detail at Vallourec's plantations (as well as those owned by Brazilian company Plantar) in Minas Gerais and documents how disputes between small farmers and the company were rife, and how their plantations had devastated the way of life of the *geraizeiros* (a term used to describe the traditional peoples that

live in northern Minas Gerais). Disputes were caused by banishing family agriculture and cattle-raising from previously public land, farm boundary disputes, agrochemical use, blocking roads and disrupting access, poor water management and the destruction of the Cerrado forests in the area. Promised economic benefits had not been realised, with few jobs created and minimal payment of local

taxes. In addition, the company was guilty of sub-human labour conditions, excessively long working hours, child labour, illegal outsourcing, unhealthy and degrading work, blacklisting of worker leaders and a lack of freedom and union autonomy, all of which was documented in detail in the reports of a Minas Gerais Parliamentary Investigation Commission.¹²

⁸ <https://www.oeko.de/publikationen/p-details/how-additional-is-the-clean-development-mechanism>

⁹ <https://www.sinjus.org.br/trabalhador-rural-e-assassinado-no-interior-de-minas-gerais/>

¹⁰ <https://wrm.org.uy/articles-from-the-wrm-bulletin/section2/brazil-an-overview-of-monoculture-eucalyptus-plantations/> and <https://fsc-watch.com/2007/03/01/peasant-murdered-by-employees-of-fsc-certified-plantation-company-brazil/>

¹¹ <https://wrm.org.uy/fr/livres-et-rapports/certifying-the-uncertifiable-fsc-certification-of-tree-plantations-in-thailand-and-brazil/>

¹² CPI das Carvoarias: relatório final. Deputado Adelmo Carneiro Leão, presidente de la CPI. Bello Horizonte, 11-06-2002.

Eucalyptus is turning the region into a desert

Impacts on water resources are another serious consequence of Vallourec's operations in northern Minas Gerais, where water is increasingly scarce and contaminated by agrochemicals used in plantation management. Dozens of

municipalities have in the past declared a "state of public emergency" due to a prolonged drought directly related to large-scale eucalyptus monocultures. According to a study commissioned by the Ministry of Environment, the northern third of

Minas Gerais is at risk of desertification in the next 20 years due to land management practices including deforestation and the expansion of monoculture tree plantations, which will severely impact on the area's 2.2 million inhabitants.¹³

Landgrabbing and other unjust land acquisition processes

Vallourec has also been closely involved in fraudulent land acquisition processes and illegal logging in Minas Gerais through their eucalyptus plantation operations since the 1970s. Large areas of land were leased to them long-term through public land use concessions awarded by the state on terras devolutas (so-called vacant lands), where it was claimed that the land was unused and in need of economic improvement. Throughout the state iron and steel companies

were directly incentivised through tax breaks to plant eucalyptus on public lands, to the extent that by the early 2000s only a quarter of the vast area that had been planted in Minas Gerais was done so on private lands that the companies had paid for.¹⁴ More recently, with the help of intermediaries, plantation companies have attempted to legalise land acquisition through fraudulent processes such as drawing up contratos de promessa de compra e

venda (contracts of promise of purchase) for untitled land.¹⁵ In northern Minas Gerais where the concentration of eucalyptus plantations is highest, communities report that in some areas up to 90% of the land that plantation companies have come to own was originally held by the state and previously used in traditional ways by local people.

Conclusion

Vallourec's CDM project is a good example of how offsetting emissions through trading carbon credits not only rewards companies for highly polluting and damaging activities, but allows other industries to carry on polluting rather than reducing their own emissions. The net result is that

the amount of carbon in the atmosphere is increased by both the seller and the buyer. Further still, CDM credits offer Vallourec a financial incentive to maintain their socially and environmentally harmful operations, when the most effective means of tackling emissions from the iron and

steel sector would be to reduce the demand for and production of iron and steel and, through community-led forest and ecosystem restoration, replace eucalyptus plantations with regenerated forests.

¹³ <https://www.caa.org.br/biblioteca/noticia/em-vinte-anos-um-terco-de-minas-pode-virar-deserto> and <https://www.terra.com.br/noticias/ciencia/pesquisa/estudo-diz-que-norte-de-mg-pode-virar-deserto-em-20-anos,d229962f137ea310VgnCLD200000bbcceb0aRCRD.html>

¹⁴ <https://wrm.org.uy/fr/livres-et-rapports/certifying-the-uncertifiable-fsc-certification-of-tree-plantations-in-thailand-and-brazil/>

¹⁵ Information provided by a legal advisor to the Rural Workers Union of northern Minas Gerais and described here: <https://globalforestcoalition.org/brazil-charcoal-case-study/>

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