

Green dream or social nightmare? Cobalt at the crossroads of electric mobility

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Figure 1. "Cobalt, l'envers du rêve électrique", by Quentin Noirfalisce and Arnaud Zajtman - Dancing Dog Productions - Photo: Quentin Devillers

Child labour, human rights violations, and environmental harm. The rush for cobalt sheds light on the downside of the electric dream. And while researchers are looking for technological alternatives for our electric vehicles' batteries, NGOs warn of repeating the mistakes of the fossil-fuel industry: "We are at a crossroads. The green transition must go fast but needs to be fair, otherwise, we will look back on this critical time with regret"

In Lualaba province, it's not rare that **children are shot dead by the police, who are paid to prevent them from entering the mines' premises** and grabbing some cobalt rest. Many **thousands more of these children risk developing cancer** just because they live in Kolwezi and discharge mining waste in its artisanal exploitations, while their fathers dig in the tunnels with shovels and pick-axes, but without oxygen machines. This is how several NGOs depict the **extraction industry in the Democratic Republic of Congo, also known as the "Saudi Arabia of cobalt"** for the abundance and quality of its stock. Home to [70% of the world's supplies of this critical raw material](#) now crucial for electric vehicle batteries, it is where **Quentin Noirfalisce and Arnaud Zajtman** filmed their documentary "[Cobalt rush: the future of going green](#)". Its original French

title, “Cobalt, l’envers du rêve électrique” means literally “Cobalt, the downside of the electric dream” because it’s a dream with two faces, says Noirfalisce. “Of course, electric vehicles are more environmentally-friendly, but ‘the green revolution’ is not entirely clean. **A key role in cobalt world supply is played by artisanal exploitations where children are often employed for peripheral tasks, and adults risk dying in landslides and gallery floods.**”

Gathering precise statistics is difficult but Amnesty International and the Congolese government estimate that [some 20% of the cobalt currently exported from the DRC comes from such “artisanal mines”](#). “There are sometimes several thousands of people working in these exploitations. Women usually wash the extracted minerals, while children are employed for peripheral tasks and men spend up to 10 hours digging in 40 to 60 meter deep tunnels,” says Noirfalisce. Civil rights groups raise concern, especially about child labour, working conditions, and labour rights abuses. **“It’s very dangerous, but people come from all over the country to try their luck, because on a good day, they can easily get 10 fold more money than if they were growing crops.”** Wages are also much more attractive than those paid by the official mines, adds Anneke van Woudenberg, executive director at [RAID](#), a corporate watchdog NGO investigating and researching environmental harm, and other wrongdoing by multinational companies. **“We see widespread workers’ rights violations in the industrial mines too,** especially related to subcontractors earning well below the poverty line, lack of access to medical benefits and sometimes real brutality and violence.”



Figure 2. "Cobalt, l’envers du rêve électrique", by Quentin Noirfalisce and Arnaud Zajtman - Dancing Dog Productions

As cobalt has such a negative social and human rights record, **industry and research are multiplying their efforts to find more suitable alternatives.** Guinevere Giffin is the Scientific Head of the [Fraunhofer R&D Center for Electromobility FZEB](#) at the [Fraunhofer Institute for Silicate](#)

[Research ISC](#) in Würzburg. Within the [European project Astrabat](#), she works on **developing a safer and less flammable battery, capable of storing more energy and having a lower social impact.** “Cobalt is crucial because it is used to store lithium. And lithium, in turn, influences the energy density, which basically means how much energy can be stored in the battery.” The process is very technical but we can roughly say that in lithium-ion batteries we have an anode, a negative electrode, and a cathode, which is a positive one, with lithium moving back and forth between them, to charge and discharge the battery. **“One of the aims in our project is to reduce cobalt to less than 10 percent,”** says Giffin. **“Today, when you buy a battery, in the cathode material used to store lithium there are three metals: nickel, manganese, and cobalt.** Some 10 years ago, each of them had a share of one third, but since then we’ve been trying to increase the nickel and decrease the cobalt.”

Despite being a huge technical challenge, **completely removing cobalt from EV batteries is in principle possible. However, some argue that it wouldn’t be an effective solution.** “Most people in RDC don’t want mining to stop; they just want it to benefit the population. **The real answer should be the companies making bigger investments to properly support the civil society, monitor the mines, and ensure better wages,**” says Noirfalisie. According to van Woudenberg, as the artisanal mines are crucial for the Congolese economy and population, shutting them down wouldn’t be a good approach either. “They need to coexist with the industrial ones, but with stronger guidelines. On the one hand, the companies must ensure that they're looking in detail at how their workers are being treated, and on the other hand, **the Congolese government must ensure that the local labour law is applied.**” Additionally, research by several civil society groups suggests that other critical minerals often throw up similar problems. **“The vicious triangle of human rights violations, environmental harm, and corruption is not unique to cobalt.** So, eliminating it from EV batteries wouldn’t get rid of these problems,” says van Woudenberg. “We could have done the same documentary on other minerals,” confirms Noirfalisie. **“The problem is not limited to cobalt, but related to the excesses of mining.”**

Respect for human rights and climate solutions go hand in hand, [warns Amnesty International](#): **“If the energy transition is facilitated by human exploitation, dispossession, and environmental harm, we will look back on this critical time with regret”.** “We are now at a crossroads,” confirms Noirfalisie. “People start making more efforts, but in the short term it will be difficult for the electric dream not to have a downside.” Even if for the sake of green mobility, **what’s going on in Congo already echoes well-known practices, proper to the fossil fuel industry,** says van Woudenberg. **“Local communities should not be sacrificed for the green energy transition in the global North. The switch to the green economy must go fast but needs to be fair.** If we want the green energy transition to avoid repeating the mistakes of the past, electric vehicle companies should be required by law to provide transparency on their supply chains.” **It will require time, but a just transition is within reach,** she concludes. And thanks also to better recycling and a more circular approach, **“there's every opportunity to make it”.**

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