E-CIGARETTES

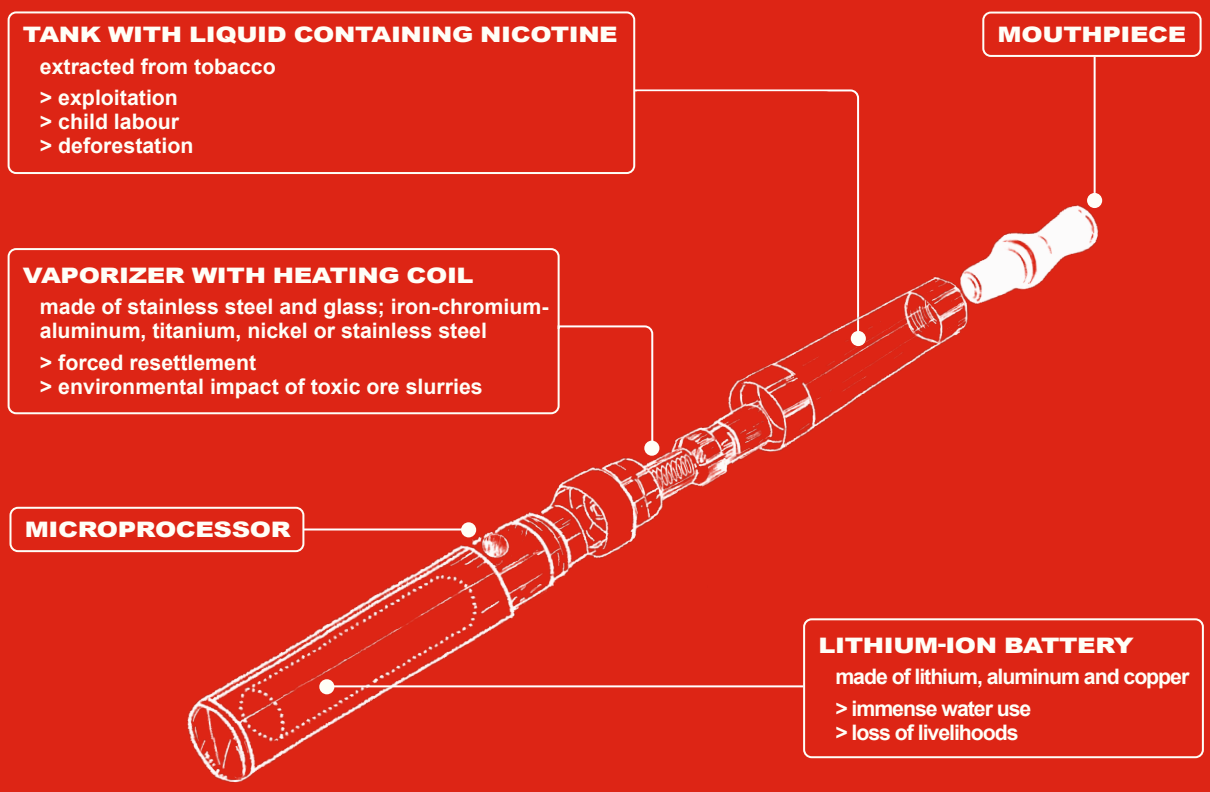
SUPPLY CHAINS | ENVIRONMENT | HUMAN RIGHTS

BACKGROUND

In June 2011, the UN Human Rights Council adopted the Guiding Principles on Business and Human Rights (UNGP). According to this, companies should counteract the negative impacts of their business activities, products and services on human rights on a voluntary basis.[1] However, voluntarism has not led to comprehensive improvements. For this reason, the German Act on Corporate Due Diligence Obligations in Supply Chains will become effective on January 1, 2023. It obliges companies based in Germany with more than 3,000 employees (from 2024: 1,000) to fulfill their responsibility for their supply chains: To respect human rights and meet environmental standards. A comparable law at the European level is currently being negotiated.[2]

The production and consumption of tobacco and nicotine products are linked to numerous human rights violations and environmental damage. These include economic exploitation, child labour, lack of occupational health and safety, deforestation, water scarcity, and environmental pollution in the tobacco and extractive sectors. They are an obstacle to achieving the Sustainable Development Goals (SDGs). With regard to tobacco and nicotine products, the implementation of the WHO Framework Convention on Tobacco Control (FCTC), which is part of the Sustainable Development Goals (SDG 3.a), is therefore of particular importance.[3]

E-cigarettes are devices in which a liquid (e-liquid), usually containing nicotine, is heated. The generated aerosol is then inhaled into the lungs. To date, e-cigarettes have not been used one a large scale in Germany. According to the DEBRA study, 0.5% of 14-17-year-olds and 2.4% of 18-24-year-olds used e-cigarettes in 2021. Although the majority of them currently uses refillable devices, a strong trend towards disposable e-cigarettes is emerging in 2022.[4]



WHAT'S IN E-CIGARETTES?

E-CIGARETTES AND HEALTH

The aerosol generated in e-cigarettes contains harmful substances such as the carcinogen formaldehyde as well as acetaldehyde, nickel and lead. Consumption poses a health risk to the respiratory and cardiovascular systems. This risk is currently estimated to be lower than from smoking cigarettes. However, e-cigarettes containing nicotine can have a similar addiction potential as cigarettes. For adolescents and young adults, the use is particularly risky, as brain development can be impaired by regular nicotine consumption. Longer-term health consequences as well as harm to non-consumers from aerosol exposure are still under further investigation.[5]

WHAT'S IN E-CIGARETTES?

Thousands of different e-cigarettes, e-liquids and devices (or parts) are registered in Germany, mostly traded by small and medium-sized companies. Reusable devices as well as disposable e-cigarettes are often produced in Asia, but also in Germany. E-liquids are also produced in Germany.[6]

All models work on the same principle. A plastic/metal housing contains a battery, a vaporizer unit and a mouthpiece. In the vaporizer, a heating coil heats a liquid made of glycerin, flavorings and nicotine, generating an aerosol which is inhaled. A microprocessor controls the temperature, and a lithium-ion battery supplies the energy.[7]

The production of e-cigarettes is based on global supply chains in which human rights violations and environmental damage occur, as examplified here. The nicotine (salt) in the e-liquid is extracted from tobacco leaves. Tobacco is grown worldwide mainly in low- and middle-income countries such as Brazil or Zimbabwe, mostly in smallholder farms. Economic exploitation and child labour are widespread in tobacco cultivation, and the use of pesticides and chemical fertilizers as well as deforestation have a negative impact on the climate.[8]

The vaporizer contains a heating coil, mostly an iron-chromium-aluminum alloy, and the vaporizer head is often made of stainless steel. Iron and steel are produced from iron ore, which is imported mainly from Brazil. For the mining of iron ore, entire villages are forcibly resettled and forests are cleared. The residue from the mines is toxic ore slurry, which causes devastating and in some cases irreversible environmental damage in the event of accidents, such as the Brumadinho dam failure in 2019.[9]

All devices, including disposables, contain a rechargeable lithium-ion battery. This requires lithium, copper and aluminum, among other things.[10] Of particular concern is the current trend in Germany, the UK and other countries towards disposables, in which the rechargeable batteries are permanently installed. Thus, millions of rechargeable batteries are thrown away instead of being reused. Despite the mandatory instructions for the disposal of electronic waste on their packages, disposables are mainly discarded in household waste, according to estimates by waste associations. This also means that valuable minerals such as lithium cannot be recycled.[11]

"What's concerning about lithium is the social and environmental impact of its extraction. Who is benefitting and who is paying the cost? The problem is not only that certain communities face harm as result of extraction. It's also that they suffer those harms so that someone else, probably an affluent person elsewhere in the world, can drive an electric vehicle. Lithium batteries surface various tensions, trade-offs and inequalities of global capitalism."[12]

Thea Riofrancos, U.S. scientist conducting research on conflicts surrounding lithium mining.

97,500 tons of lithium were mined in 2019.[13] The main producing countries are currently Australia, Chile, China and Argentina jointly accounting for more than 90 percent of global production.[14] In 2021, 65 percent of lithium was used in rechargeable batteries, 18 percent in glass and ceramics, and five percent in lubricants.[15] E-cigarette batteries account for only a small fraction of this. The growing importance of batteries for electric cars in particular makes lithium a much wanted raw material. Some studies predict a hundredfold increase in current consumption, primarily due to electromobility.[16] Yet, electricity storage solutions and the expansion of battery-powered electrical technology are also causing demand for lithium to skyrocket. According to the private sector company Benchmark Mineral Intelligence, battery demand alone would require 74 new lithium mines by 2035.[17]

But many conflicts are already emerging. Four companies currently dominate the world market: Albemarle (USA), Jiangxi Ganfeng Lithium Co. (China), Sociedad Quimica y Minera de Chile (Chile) and Tianqi (China).[18] Their particular focus is on the Andean areas in Chile, Bolivia and Argentina. In this areas, Lithium mining is immensely water-intensive. "The main extraction technique is pumping brine (salty water) from high-altitude salt pans in the Andes," says Pia Marchegiani of the Argentine organization FARN, describing the process. She criticizes that in Argentina lithium extraction takes place „in a very fragile ecosystem with severe water shortages throughout the year, without a strategy for water use and little control of these activities."[19]

This type of extraction impacts both biodiversity and local indigenous communities that rely on the water.[20] Chilean farmer Cristian Espindola from Toconao sums it up, „The lithium companies use vast amounts of underground water, 2,000 liters per second. They claim the brine is not water, but that's not true. They claim they don't do any harm, but that's a lie: there's no more water flowing here, the rivers are drying up, the trees are dying, there are hardly any flamingos left. [...] A world, a country, a city, a person without water must die. Where there is no water, there is no life. Lithium may bring millions of dollars, but our livelihoods are sacrificed for it."[21]

Lithium mining is not only controversial in South America. In the USA, protests are forming against Thacker Pass, a future lithium mine in Nevada. Critics fear that parts of the fauna would be destroyed and the place would become uninhabitable because of the lack of water.[22] In Portugal, critics fear that a lithium mine in the nature reserve will destroy biodiversity and endanger Portugal's first World Agricultural Heritage Site, designated by the Food and Agriculture Organization of the United Nations (FAO) in 2018.[23] And in other places, too, people are demonstrating against mines because they fear losing their livelihoods to lithium mining.[24]

The value added and the jobs are usually created far away. Currently, China, South Korea and Japan are the most important battery producers. In the future, the USA and European countries such as Germany could join them. Some lithium-rich countries, such as Mexico or Bolivia, are planning to process the raw material in the country and build up their own battery production. However, this is proving difficult.[25]

Picture: Lithium mine in Jujuy, Argentina

ACTION
TOBACCO CONTROL, DUE DILIGENCE AND RAW MATERIAL TRANSITION

Through international agreements, Germany has committed itself to sustainable development, human rights and the protection of the environment.[26] With regard to e-cigarettes containing nicotine, the German government has an obligation to implement tobacco control measures[27] and to fulfill its extraterritorial responsibility.

E-cigarettes have far more complex supply chains than conventional cigarettes and contain diverse raw materials, such as lithium. Of particular concern in this context is the current trend toward single-use e-cigarettes (disposables), especially among young people.

In order to minimize the use of e-cigarettes and its potential effects on children and adolescents, the following measures are particularly important:

- Annual adjustment of taxes on all e-liquids for e-cigarettes
- Strengthening the regulation of e-cigarettes (advertising ban, packaging rules)
- Prevention programmes tailored to specific target groups

In global supply chains, including those of e-cigarettes, human rights violations and environmental damage must be prevented or reduced, including at the beginning of the supply chains, i.e. in tobacco fields or lithium mines. The following measures are suitable for this purpose:

- Strengthening Germany's Supply Chain Act to make it more effective[28]
- Introduction of an effective supply chain law in Europe[29]

For sustainable development, however, it is not enough to improve the supply chains for raw materials such as tobacco or lithium. Instead, there is an urgent need to initiate a raw material transition and, to this end, to greatly reduce the extraction of raw materials. For lithium, for example, this requires the establishment of a recycling loop and rapid implementation of the forthcoming European battery regulation.[30] This also implies banning disposable products with lithium-ion batteries, such as disposable e-cigarettes.[31]

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