



Risk-assessment: Cars and other vehicles

A report for the Norwegian Government Agency for Financial Management (DFØ) by Swedwatch 2020

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Introduction

Swedwatch has carried out risk assessments of different product categories on behalf of the Norwegian Government Agency for Financial Management (DFØ). The purpose of the risk assessments is to provide information on potential adverse impacts on labour rights and human rights in the supply chains of the selected products. The risk assessments will guide contracting authorities on the importance of social considerations in their purchasing practices and under what conditions such criteria should be applied. The risk assessments will also improve the readers' understanding of what to look for when monitoring supplier compliance.

It is important to note that the risk assessments do not aim to scrutinise or describe the supply chain of any particular brand or supplier. The purpose is to give a general understanding of the potential risks linked to a product.

General risks are broadly outlined in the narrative text, while risks categorised as most adverse are summarised in an introductory risk matrix. The grading at the bottom of the risk matrix indicates a combination of the severity and likelihood of the risk and aims to provide guidance on where the main risks are normally found in the supply chain. For example, for products that are assembled in both a high-risk and a low-risk context to more or less the same extent, the risk will be graded lower than if the product had been predominantly assembled in a high-risk environment. This also means that even if a number of potential severe risks are listed in the column, the risk may still be considered low if it is likely that the production mostly takes place under safe and sound processes in a low-risk environment.

The grading includes the following range:

Very low	Low	Medium-high	High	Very high
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Methodology and data

The data used for the risk assessments is mainly gathered from civil society reports, investigative articles, and academic research. As transparency and traceability is often limited, trading data has been used for the mapping of the supply chains. Therefore, the supply chain data, especially on a component and raw material level, partly presents the likelihood of a certain producing country being included in the supply chain. The supply chain data must therefore not be viewed as exact for every single product procured by Norwegian contracting authorities but should be considered a general estimate.

This report was written in August 2020.

Initiatives and guidelines

Please note that Swedwatch has not carried out a thorough analysis regarding the initiative/certification/guidelines' effectiveness or credibility. Criticism has been included when found but a more in-depth investigation would likely find additional weaknesses.

International Material Data System (IMDS) is an international database where manufacturers, suppliers and subcontractors of components and materials can report and track which materials, chemicals and substances are included in the vehicles and their components. Focus is on preventing the presence of hazardous and prohibited substances, and enabling the recycling of materials, based on legislation (for example REACH). Global Automotive Stakeholders Group (GASG) has a list of banned and dangerous substances. More than 100,000 companies report in the system where the information is shared.¹

Automotive Industry Action Group (AIAG) is an organisation in which members of the automotive industry work together to develop common global guidelines regarding quality, supply chains and sustainability.²

Drive Sustainability is a network of companies in the automotive industry that work for sustainability at the supplier level. The network develops tools and carries out activities such as training to promote sustainable supply chains and works to ensure that sustainability is included in procurement processes. Major brand owners such as Volvo Cars, Ford and BMW Group are members. Drive Sustainability has together with RMI (see below) produced a report on social and environmental risks linked to the extraction of materials and metals used in the electronics and automotive industries.³

Responsible Mineral Initiative (RMI) is a member-based industry organisation. RMI supports its members with tools and a follow-up system that aims to verify smelters' systems for purchasing minerals in a socially responsible way, in line with international standards, through third-party audits. The focus is primarily on conflict minerals and cobalt. More than 380 companies and other organisations are members, including Volvo Car Corporation, Volvo Group, Renault, BMW and AIAG (see above).⁴

EITI stands for Extractive Industries Transparency Initiative and is an initiative and standard that aims to increase transparency in the extractive industries. States, companies and organisations are stakeholders engaged in the initiative. The standard requires countries to disclose information about how extraction rights are awarded, how revenues are handled by the governments, and how they benefit the public.⁵

REACH is an EU regulation that includes rules on registration, bans or other restrictions of chemical substances in a variety of products placed on the EU market. The regulation also means that permits may be required for certain hazardous substances and that consumers must be informed about the content. The responsibility for manufacturing outside EU countries in accordance with REACH lies

¹ IMDS, [Global Automotive Declarable Substance List \(GADSL\)](#), n.d, retrieved 2020-08-24

² [AIAG](#), retrieved 2020-08-24

³ [Drive Sustainability](#), retrieved 2020-08-24

⁴ [Responsible Mineral Initiative](#), retrieved 2020-08-24

⁵ [EITI](#) retrieved 2020-08-24

with the importer (as the manufacturer is not covered by EU legislation). Independent lab tests are available in exporting countries, such as China, to ensure that a product meets the requirements of the REACH Regulation.⁶

The International Council on Mining and Metals brings together about fifty mining companies and industry associations with the aim of supporting sustainable development. Members are required to maintain sustainability strategies in accordance with defined principles, annual sustainability reports and to submit independent audits.⁷ However, there is no guarantee that member companies will enforce or comply with their strategies. One example is mining company Vale. Vale is the owner of the controversial iron ore mine in Brazil where an adjacent dam collapsed and caused the death of more than 250 people.

Cars and other vehicles

Product	Assembly	Component	Raw material
Cars and vehicles	Low risk	Medium-high risk	High risk
Batteries	Medium-high risk	High risk	High risk
Tires	Low risk	Medium-high risk	High risk

Vehicles consist of thousands of components and materials, sourced from all over the world. The production of components has generally been outsourced and the supply chains include thousands of subcontractors. With that many components, materials and suppliers, it is difficult to map the entire supply chain and thus, risks increase with low transparency. Human rights and labour rights risks are most prominent in the production of components and extraction of raw materials such as metals and rubber as production occurs in high-risks contexts where enforcement of laws is weak.

This risk assessment focus on:

- Vehicle production
- Batteries
- Tires and natural rubber

⁶ European Commission, [How REACH works](#) retrieved 2020-08-24; Kemikalieinspektionen, [REACH och varor](#) retrieved 2020-08-24

⁷ [International Council on Mining & Metals](#), retrieved 2020-08-24

Cars and vehicles

Assembly	Components	Raw materials
Low wages Poor and hazardous working conditions Lack of union rights Poor living conditions Excessive overtime	Low wages Poor and hazardous working conditions Lack of union rights Poor living conditions Excessive overtime Discrimination against female workers	Low wages Poor and hazardous working conditions Lack of union rights Impacts on livelihood Impacts on indigenous rights Child labour Sexual exploitation and violence Finance of armed conflict Land grabbing Violence towards human rights and environmental defenders
Low risk	Medium high risk	High risk

The product

Vehicles such as cars, trucks and buses consist of approximately 30,000 different components⁸ and a large variety of materials such as steel, aluminium, plastic, glass, copper and rubber.⁹ Supply chains are thus long and complex.¹⁰ The production of components has generally been outsourced to suppliers and subcontractors¹¹ and vehicle production can include thousands of subcontractors.¹²

The supply chain

Assembly	Component	Raw material
Germany Spain France UK Sweden Czech Republic Bulgaria Romania Poland Hungary	Germany Italy Czech Republic Spain Japan United States Mexico South Korea China	Steel: China, Japan, United States, Germany, France, Spain, Russia, and many more. ¹³ Iron ore: Brazil, Australia, China, India, Russia, South Africa, Sweden and many more ¹⁴

⁸ Blume Global, [Top 4 Automotive Supply Chain Challenges and Solutions](#), n.d, retrieved 2020-09-03

⁹ Copper Alliance, [Automotive](#), n.d., retrieved 2020-09-03; How stuff works, [Top five materials used in auto manufacturing](#), n.d., retrieved 2020-09-03

¹⁰ Blume Global, [Top 4 Automotive Supply Chain Challenges and Solutions](#), n.d, retrieved 2020-09-03; How stuff works, [Top five materials used in auto manufacturing](#), n.d., retrieved 2020-09-03

¹¹ European Parliament, [A Picture of the European Car industry](#) 2013

¹² Blume Global, [Top 4 Automotive Supply Chain Challenges and Solutions](#), n.d., retrieved 2020-08-24

¹³ World Steel Association, [Global crude steel output increases by 3.4% in 2019](#), published 2020-01-27

¹⁴ US Geological Survey, [Iron ore](#), 2020

United States China Japan India		Bauxite: Brazil, Guinea, China, India and Indonesia ¹⁵ Copper: Chile, Peru, China, D R Congo, Russia, Zambia ¹⁶ Plastic: European countries, China, United States ¹⁷ Natural rubber: Thailand, Indonesia Vietnam, China, India and Malaysia. ¹⁸ Lithium: Chile, Australia, China, Argentina ¹⁹ Cobalt: D R Congo, Russia, Australia, The Philippines, and many more ²⁰
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Vehicles are produced all over the world, on all continents. Simplified, design and assembly of vehicles is carried out by brands in their own factories. First-tier suppliers manufacture larger components, such as fuel pumps. Subcontractors in lower tiers manufacture smaller component, such as the fuel pump covers. In the lowest tiers, raw materials are sourced.²¹ The EU is the largest manufacturer of vehicles. The largest producer countries for passenger and transport vehicles are China, the United States, Japan, Germany and India, in descending order. Within the EU, Germany, Spain, France and the United Kingdom dominate.²² Specific import statistics for cars and vehicles is limited, however, according to the Norwegian Statistical State Agency, Norway imports vehicles to a large degree from Germany (23 % of all cars imported 2018) and Sweden.²³ According to the Observatory of Economic Complexity, Norway also imports machines and means of transportation (including cars and other vehicles) from China, the U.S., Great Britain, Japan, Italy and several other countries.²⁴ Although the import statistic is wider in scope, it indicates that Europe is the main exporter of vehicles to Norway. This would reflect the general tendency of vehicle manufacturing taking place close to the market. Production located in Germany, Italy and France accounts for 85% of sales within the EU,²⁵ which is likely to reflect the situation of the whole of Europe. Non-European brands are also manufactured in Europe. For example, Japanese Toyota is manufactured in Great Britain, Poland and the Czech Republic, and two thirds of all Toyota cars sold on the European market

¹⁵ US Geological Survey, [Bauxite and alumina](#), 2020

¹⁶ US Geological Survey, [Copper](#), 2020

¹⁷ Plastic Europe, [Plastic the facts](#), 2019

¹⁸ Statista, [Leading natural rubber producing countries worldwide in 2018 and 2019](#), retrieved 2020-08-24

¹⁹ US Geological Survey, Mineral Commodity Summaries 2019, [Lithium](#)

²⁰ US Geological Survey, [Cobalt](#), 2020

²² International Organization of Motor Vehicle Manufacturers, [Production statistics](#), 2019 European Parliament, [A Picture of the European Car industry](#) 2013

²³ Statistisk Sentralbyrå, [Norges viktigaste handelspartnere](#), updated 2020-03-02, retrieved 2020-08-20

²⁴ Statistisk Sentralbyrå, [Norges varehandel med utlandet](#), published 2019-11-15, retrieved 2020-08-20

²⁵ European Parliament, [A Picture of the European Car industry](#) 2013

have been manufactured within European borders.²⁶ Manufacturing of vehicles is shifting to Central- and East Europe, such as the Czech Republic²⁷ Bulgaria, Poland, Romania, and Hungary.²⁸ The fact that final assembly happens close to the market is due to local preferences, low profit margins and high transport and import fees.²⁹ Import of cars to the EU is mainly from Japan, Turkey, South Korea, the U.S. and Mexico,³⁰ which can be assumed the same for Norway.

Electric vehicles specifically are produced in several countries, such as Germany, United States, and several Asian countries.³¹ Nissan Leaf, the most popular electric car in Norway and in Europe overall, is produced in Great Britain.³² Tesla is produced in plants in the United States.³³

Component suppliers can be located all over the world. The largest component suppliers on the global market in the automotive industry are located in European countries such as Germany, Italy, the Czech Republic and Spain, but also in Japan, United States, Mexico and South Korea.³⁴ However, production of smaller components and raw materials take place in numerous counties across the world.³⁵

Risks

The manufacture of vehicles in Eastern and Central Europe is associated with certain social risks. Although the ILO's core conventions have been ratified in all countries in the region, violations of labour law occur regularly in countries such as Poland, the Czech Republic, Romania and Hungary.³⁶ There are anti-union activities in Romania and reports of "yellow" unions³⁷ controlled by the employer.³⁸ Precarious employment has been found in the Czech Republic and there are reports of unpaid overtime, discrimination against migrant workers and 12-hour shifts.³⁹ Migrant workers are generally more vulnerable to violations of labour rights and lower wages.⁴⁰

Imports of finished vehicles from South Korea and Turkey are also associated with certain social risks. Freedom of association in South Korea is limited and the country has not ratified the ILO's core conventions on freedom of association, collective bargaining (87, 98) and forced labour (29 and

²⁶ Toyota, [Toyota in Europe, n.d.](#), retrieved 2020-08-24

²⁷ International Organization of Motor Vehicle Manufacturers, [Production statistics](#), 2019

²⁸ Forbes, [Shifting Production To Central And Eastern Europe Could Boost Profits Of German Automakers](#) 2014-06-23

²⁹ European Parliament, [A Picture of the European Car industry](#) 2013

³⁰ Eurostat, [International trade in cars](#), April 2019

³¹ J Coffin, David, and Jeff Horowitz, [The Supply Chain for Electric Vehicle Batteries Journal of International Commerce and Economics](#), December 2018

³² Clean Technica, [2018 Nissan LEAF Production Begins In Europe!](#), 2017-12-20; [Nissan, Nissan Sunderland restarts vehicle production](#), 2020-06-08

³³ Tesla, [Teslas fabrik](#), n.d., retrieved 2020-08-21

³⁴ Automotive news, Top suppliers, 2019-06-25, World's Top Export, [Automotive Parts Exports by Country](#), 2020-08-12

³⁵ Observatory of Economic Complexity, [Vehicle parts trade](#), 2017

³⁶ International Trade Union Confederation, [Global Rights Index 2019](#)

³⁷ "Yellow unions" are union associations that are established by the employer itself and are thus not free. The purpose is to control the workers and prevent strikes. They can also be controlled or influenced by the state.

³⁸ Union to union, [Fackföreningsrörelsen Central- och Östeuropa samt Centralasien](#), 2015

³⁹ Electronics Watch, Compliance Report Foxconn in Pardubice, Czech Republic, 2017

⁴⁰ c't Magazin, [Shenzhen an der Elbe](#), nr 21/2013

105).⁴¹ Migrant workers make up a large proportion of the South Korean workforce, partly in the manufacturing industry. In practice, they cannot organise themselves in a trade union and are vulnerable to forced labour.⁴² Reports show that trade unions and union activities have sometimes been actively opposed, and union leaders imprisoned.⁴³ Insecure employment is common and does not give the right to social insurance coverage or other benefits. Discrimination against women and migrant workers is also common, and sexual harassment and abuse occur.⁴⁴ According to reports from the electronics industry, workers have committed suicide due to unreasonably high workload and pressure.⁴⁵

Turkey has ratified the ILO core conventions, but there are weaknesses in their enforcement. It is common for trade unionists to be dismissed without legal grounds or are being harassed.⁴⁶ Turkey is considered one of the world's ten worst countries for workers according to the International Trade Union Confederation (ITUC), which means that there is no guarantee that labour rights will be respected. In 2018, 26 workers were imprisoned and sentenced to five months in prison after protesting outside a Renault factory, demanding to be allowed to organise in the factory.⁴⁷

To a lesser degree, vehicles sold on the European market have been imported from other Asian countries. Production sites in some of these areas be associated with risk, such as high level of short-contract workers, precarious employment, low wages and lack of unionisation or even anti-unionisation laws.⁴⁸ In Japan just as in South Korea, extreme overtime and a stressful work culture is common practice. There has been reports on suicides by employees due to extreme overtime and bullying in the vehicle production sector.⁴⁹

At the component level, several risk countries are among the largest exporters, such as Mexico, China and South Korea. Mexico has ratified ILO:s core conventions,⁵⁰ unions are however fragmented, and repression, violence and threats against union activities are common. There are reports of sexual harassment and exploitation of female workers, low wages, forced overtime, and anti-union activities.⁵¹

⁴¹ International Trade Union Confederation, [Internationally Recognised Core Labour Standards In Korea](#) 2012-09-21; International Labour Organization, Labour Standards - [Ratifications of fundamental Conventions and Protocols by country](#) retrieved 2019-10-09

⁴² Freedom House, [Freedom in the world - South Korea](#), 2019

⁴³ IndustriALL, [IndustriALL affiliates show solidarity for Samsung](#) 2014-06-26, Freedom House, [Freedom in the world 2019 – South Korea](#)

⁴⁴ International Trade Union Confederation, [Internationally Recognised Core Labour Standards In Korea](#) Hämtad 2015-12-07; [Korean Workers' Strike on April 24!](#) 2015-04-15

⁴⁵ Danwatch, [Suicide and class struggle in South Korea](#) 2015-11-03, International Trade Union Confederation, [International Trade Unions Statement on Korea](#) 2014-01-20

⁴⁶ Utrikesdepartementet, Mänskliga rättigheter, demokrati och rättsstatens principer i Turkiet 2015–2016

⁴⁷ International Trade Union Confederation, [Global Rights Index 2019](#)

⁴⁸ Swedwatch, Risks associated with the global trend of non-standard Employment A case study on India, 2017

⁴⁹ CTV News, [Toyota worker's suicide ruled work-related after harassment](#), 2019-11-19; Japan Times, [Dark Side of Toyota's Drive to be No 1](#) 2013-06-09;

⁵⁰ International Labour Organisation, Ratifications of fundamental Conventions by country, retrieved 2020-08-20

⁵¹ Union to Union, [Facket i världen: Mexiko](#), September 2019; The World, [Workers in Mexico's border factories say they can barely survive, so they're turning to unions](#), 2016-02-29; Crain's Cleveland Business, Goodyear disagrees with criticism of Mexico plant conditions levied by U.S. congressmen, 2019-08-07

General risks in the manufacturing sector in China include poor health and safety, low wages that sometimes fall below the minimum wage, illegal and forced overtime, penalties for workers, discrimination, lack of trade union rights, and precarious work through recruitment agencies, which generally exacerbates workers' vulnerability to exploitation.⁵² Living conditions for migrant workers can be poor where employees live in cramped dorms without access to hot water.⁵³

The manufacturing of components in Eastern and Central Europe is also associated with certain risks (see previous sections). Cars and vehicles contain electronic components which also entail severe labour and human rights risks, including those linked to the extraction of conflict-minerals ([please see risk-assessment on IT and electronics and conflict minerals specifically](#)).

The extraction of raw materials used to produce cars and vehicles, such as various metals, rubber and glass, is often linked to severe human rights and labour rights risks.

Batteries

Assembly	Components	Raw materials
Low wages Poor and hazardous working conditions Lack of union rights Poor living conditions Excessive overtime	Low wages Poor and hazardous working conditions Lack of union rights Poor living conditions Excessive overtime Discrimination against female workers	Low wages Poor and hazardous working conditions Lack of union rights Impacts on livelihood Impacts on indigenous rights Child labour Sexual exploitation and violence Finance of armed conflict Land grabbing Violence towards human rights and environmental defenders.
Medium-high	High	high

The product

Lead-acid batteries consist of a plastic casing, lead plates, lead terminals separators of synthetics, and battery fluid made from distilled water and sulphuric acid.⁵⁴ The lithium-ion battery consists of lithium-ion cells made of an anode usually of graphite, an electrolyte of organic carbonate solvents and lithium salt, plastic film used as separators, and a cathode of nickel, lithium, cobalt, aluminium and sometimes manganese. The battery has a plastic casing and foam to protect the battery cells.⁵⁵

The supply chain

Assembly	Component	Raw material
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⁵² International Trade Union Confederation, [Global Rights Index – China](#)
⁵³ China Labor Watch, [A nightmare for workers – Appalling conditions in toy factories persist](#), 2018-12-06
⁵⁴ Comet Battery, [How a battery is made](#), n.d, retrieved 2020-08-21
⁵⁵ Lithium battery, [Plastic parts, Can and casing](#) n.d., retrieved 2020-08-21

European countries such as Great Britain, Germany, France and Hungary ⁵⁶ China Japan South Korea	Great Britain China The United States South Korea Japan	Australia Peru Russia The United States Mozambique Brazil Madagascar Canada Chile Argentina The Philippines Indonesia DR Congo
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There is low traceability concerning where lead-acid battery production takes place, however, China is reported as the top producer of lead-acid batteries.⁵⁷ The EU produces 15% of the global market of lead-acid batteries, meaning, it is likely that production for the European market takes place in Europe, although import from Asia and elsewhere cannot be ruled out. China is by far the world's largest producer and exporter of electric lithium-ion batteries, followed by the United States, South Korea and Japan.⁵⁸ EU accounts for 5% of the global production of lithium-ion batteries, consisting of battery cells often imported from Southeast Asia.⁵⁹ However, lithium-ion cells, modules and packs are also produced in Great Britain supplying Nissan Leaf⁶⁰ as well as Japan, United States and South Korea.⁶¹

Raw materials used in batteries can originate from all over the world. China is the dominating producer of lead, followed by Australia, Peru, Russia, United States and other countries.⁶² China is also the world leading graphite producer, but graphite is also extracted in a range of other countries, including Mozambique, Brazil, Madagascar, Russia and Canada.⁶³ Lithium is extracted mainly in Australia, China, Chile and Argentina.⁶⁴ Nickel is extracted to a large degree in Indonesia, the Philippines, Russia. More than 60% of all cobalt comes from the Democratic Republic of Congo.⁶⁵

⁵⁶ European Commission, [Lithium-ion batteries for mobility and stationary storage applications](#), 2018

⁵⁷ Cision PR Newswire, [Global and China Lead-acid Battery Industry Report, 2015-2018](#), 2016-01-06

⁵⁸ Forbes, [Why China is dominating the lithium-ion battery production](#), 2019-08-04 and J Coffin, David, and Jeff Horowitz, [The Supply Chain for Electric Vehicle Batteries Journal of International Commerce and Economics](#), December 2018

⁵⁹ European Commission, [Commission staff working document: on the evaluation of the Directive 2006/66/EC on batteries and accumulators and waste batteries and accumulators and repealing Directive 91/157/EEC](#), 2019, European Commission, [Lithium-ion batteries for mobility and stationary storage applications](#), 2018

⁶⁰ J Coffin, David, and Jeff Horowitz, [The Supply Chain for Electric Vehicle Batteries Journal of International Commerce and Economics](#), December 2018

⁶¹ J Coffin, David, and Jeff Horowitz, [The Supply Chain for Electric Vehicle Batteries Journal of International Commerce and Economics](#), December 2018

⁶² US Geological Survey, [Lead](#), 2019

⁶³ US Geological Survey, [Graphite](#), 2020

⁶⁴ US Geological Survey, Mineral Commodity Summaries 2019, [Lithium](#)

⁶⁵ US Geological Survey, [Mineral Commodity Summaries – Cobalt](#), 2019

Risks

There are potential social risks along the entire production chain of car batteries, both regarding workers and local communities. Lead is hazardous to health and there are risks associated with the extraction, smelting, processing and handling of lead in manufacturing. Workers may be exposed to lead if there is a lack of sufficient protective equipment and ventilation. Local communities can be affected when gases are released during smelting and refining of lead, which can also pollute land and waterways utilised for domestic use. These risks are most prominent in areas or countries where poor enforcement of law persist, for example in China.⁶⁶ Severely high lead-poisoning rates among children living near battery factories has been reported in China.⁶⁷ Used lead batteries are very hazardous to health and leakage from recycling facilities with inadequate safety routines has led to lead contamination of soil and a major health impact in countries such as China, Kenya and neighbouring countries, and Brazil.⁶⁸

The production of lithium-ion batteries in China has been linked to a number of human rights and union rights violations. China has only ratified four ILO core conventions; free unions are consequently prohibited and there is no guarantee of labour rights being respected.⁶⁹ Low wages, sometimes below minimum wage, illegal and forced overtime, penalties for workers, discrimination, precarious work and short-term contracts which generally exacerbates workers' vulnerable situation are also general risks present in the manufacturing sector in China,⁷⁰ as are poor living conditions for migrant workers.⁷¹

Raw materials in lithium-ion batteries, such as lithium, nickel, cobalt and graphite, are all associated with risks of severe violations of human rights and labour rights in countries such as China, the DR Congo, the Philippines and several South American countries. Risks include hazardous working conditions, low wages, lack of union rights, pollution and land acquisition which impacts local communities' livelihoods and health.⁷² Sexual exploitation and violence has also been found a prominent risk linked to mining in many places.⁷³ Child labour and forced labour also occur in artisanal mining in high-risk contexts. Violation of indigenous people rights are common in several countries where these minerals are extracted, and in some contexts, the extraction benefits armed groups and mafias. The human rights organisation Front Line Defenders, which aims to protect human rights defenders, has reported that 321 human rights defenders in 27 countries were targeted and killed for their work in 2018, of which 77 percent were defending land, environmental

⁶⁶ National Center for Biotechnology, [Health hazards of China's lead-acid battery industry: a review of its market drivers, production processes, and health impacts](#) 2013-08-03

⁶⁷ van der Kuijp, T.J., Huang, L. & Cherry, C.R. Health hazards of China's lead-acid battery industry: a review of its market drivers, production processes, and health impacts. *Environ Health* 12, 61 (2013).

⁶⁸ Gottesfeld, p., et al., Soil contamination from lead battery manufacturing and recycling in seven African countries, 2018

⁶⁹ International Labour Organisation, [Ratification of Fundamental Conventions by Country](#), retrieved 2020-08-24, International Trade Union Confederation, [Workers Rights Index 2020](#)

⁷⁰ International Trade Union Confederation, [Global Rights Index – China](#)

⁷¹ China Labor Watch, [A nightmare for workers – Appalling conditions in toy factories persist](#), 2018-12-06

⁷² Swedwatch, [Copper with a cost: Human rights and environmental risks in ICT mineral supply chains. A case study from Zambia](#), 2019

⁷³ The Enough Project, [Powering down corruption](#), 2018

or indigenous peoples’ rights, often linked to extractive industries. The number of reported killings in the Front Line Defenders report is the highest ever recorded.⁷⁴

The extraction of lithium from the salt flats of the lithium triangle, an arid area spanning over Chile, Argentina and Bolivia, has been fraught with conflicts with indigenous peoples who reportedly do not benefit economically from the exploitation of the land and water which they depend on for their traditional way of life. There are also risks associated with the already low groundwater level, which may decrease even more when mining operations increase in the area. At the same time, mining companies have invested in infrastructure and created jobs.⁷⁵ Graphite extraction in China has caused severe pollution of air, water and crops, constituting a major risk to local communities’ livelihoods and health.⁷⁶

Although cobalt is not officially considered a conflict mineral, human rights organisations are working to reclassify the mineral as a conflict mineral, as there is a high risk of linkage between cobalt mining and armed conflict in the DR Congo.⁷⁷ In lawless areas of the country, armed groups engage in violent warfare and compete for control over artisanal mines and mineral trade. Many of these groups include child soldiers. The profit from selling the minerals which eventually end up on the global market, enables continuous warfare and underpins a persistent humanitarian crisis and terror targeting the local communities, including murder, sexual violence against women and children and forced displacement.⁷⁸ The non-profit organisation the Enough Project has reported that the president's security forces have taken control of small-scale cobalt mines, sometimes under threat and violence.⁷⁹ There are several other social risks associated with the often small scale artisanal mining of cobalt in the DR Congo, such as long-term damage to health, dangerous working environment, fatal accidents in narrow tunnels where the risk of landslides is impending, inadequate protective equipment, excessively long working days, and not least child labour. Wages can be 2-3 USD/day for artisanal miners.⁸⁰ Women are especially vulnerable to sexual exploitation and violence in mining areas in general, and in DR Congo in particular, where rape is used as a weapon of war in areas where warfare is financed by mineral trade.⁸¹

Tires and natural rubber

Assembly	Components	Raw materials (rubber, metal, oil, polyester)
Low wages Poor and hazardous working conditions	Low wages Poor and hazardous working conditions	Low wages Poor and hazardous working conditions

⁷⁴ Front Line Defenders, [Global Analysis 2018](#), January 2019
⁷⁵ Washington Post, Tossed aside by the lithium rush, 2016-12-19
⁷⁶ Washington Post, [In your phone, in their air](#), 2016-10-02
⁷⁷ Source Intelligence, Cobalt: the new conflict mineral?
⁷⁸ Global Witness, [Conflict Minerals in Eastern Congo](#), hämtad 2020-04-22
⁷⁹ The Enough Project, Powering down corruption, 2018
⁸⁰ Washington Post, [Cobalt mining for lithium ion batteries has a high cost](#), 2016-09-30
⁸¹ United Nations United Nations Office of the Special Representative of the Secretary-General on Sexual Violence in Conflict, [Democratic Republic of the Congo](#), 2020-06-03

Lack of union rights Excessive overtime	Lack of union rights Excessive overtime	Lack of union rights Child labour Forced labour Impact on indigenous peoples' rights Pollution that impacts access to water and livelihood
Low	Medium-high	High

The product

Tires can consist 100 different components and 200 different raw materials. Tires consist of natural and synthetic rubbers, polyester, nylon, silica, carbon black, petroleum, and steel belts and beads with a rubber coating.⁸² Tires are manufactured by blending materials, pressing rubber, assembling the tire construction and finally curing the rubber. Natural rubber comes from the rubber tree, which is processed together with sulphur through heating into an elastic and durable material, to which chemicals are added. Rubber processing usually takes place in close conjunction with the rubber plantation. 70% of all rubber is synthetic and is produced by mixing naphtha and natural gas, producing a vulcanisation process. Naphtha is produced from crude oil, coal or hydrocarbon.⁸³ Approximately 60 % of all rubber used in tires is synthetic and 40 % is natural rubber.⁸⁴

Assembly	Natural rubber
Great Britain Poland Italy Russia Slovenia Turkey Germany Many other countries, such as China, India, Mexico.	Thailand Indonesia Vietnam China India Malaysia Liberia

The supply chain

The production chain for tires is significantly complex. Production is dominated by a few large producers in both the final production stage and in raw material production. The production of tires takes place all over the world. For example, one of the world's largest tire manufacturers produces tires in 69 production facilities in 17 countries.⁸⁵ Large tire manufacturers own their own production plants. All the major tire brands have production facilities in Europe. Tire production usually takes place close to the market, which means that the tires sold on the European market are also largely produced in Europe⁸⁶, in countries such as Great Britain, Poland, Italy, Russia, Slovenia, Turkey and

⁸² Bridgestone, [Tire construction](#), n.d., retrieved 2020-08-21

⁸³ Upphandlingsmyndigheten, [Fordon och transporter](#), n.d., retrieved 2020-08-21

⁸⁴ Michelin, [Materials](#), n.d., retrieved 2020-09-03

⁸⁵ Michelin, [Production facilities](#) n.d., retrieved 2020-08-24

⁸⁶ Information retrieved from The Scandinavian Tire & Rim Organization, 2016-03-18

Germany.⁸⁷ The common brands also have production in other parts of the world, for example in India, China, Mexico and Thailand. It can therefore not be completely ruled out that the tires sold on the European market have been manufactured outside the Europe. Imports of tires for passenger cars to the European market has increased, with China being the main supplier. However, imports of tires for buses and lorries have fallen sharply after the EU imposed tariffs on these products.⁸⁸

Raw materials are sourced from all over the world.⁸⁹ The most important raw material in tires is rubber and therefore this risk assessment focus on rubber. Asia accounts for about 90% of global natural rubber production.⁹⁰ 70% of all natural rubber produced supply the tire industry. Thailand and Indonesia are dominating the production of natural rubber, followed by Vietnam, China, India and Malaysia.⁹¹ For more information on steel production, please view the risk assessment on Construction and landscaping.

Risks

There are risks and reports of labour rights and human rights violations in the manufacturing of tires as well, in countries where enforcement of law is low. In Thervoy, India, Michelin established a tire factory on land traditionally owned by indigenous Dalit people. The factory was criticised for having deprived 6000 persons of their means of livelihood when forests were cut down, water sources dried out and pastureland destroyed. Protests were met with violence from the police. The area has become a Special Economic Zone where international investors can enjoy exceptions in labour laws regarding working hours and other types of labour right infringements.⁹² Goodyear has also been criticised together with Michelin by ITUC⁹³ when employees in their factories in Thailand were exposed to lockout for protesting wage cuts, with several following arrest. Michelin is also said to have fired union members at a factory in Thailand. The employees were later re-employed but demoted to lower positions.⁹⁴

Manufacturing in India, China and Thailand is also generally associated with risks. Thailand is a military dictatorship that has not ratified the ILO's core conventions on freedom of association and the right to bargain (98, 87).⁹⁵ Enforcement of international labour law standards is low. Union rights exist but are weak, and the union movement is small and fragmented. Companies can harass and dismiss unionists with a low risk of sanctions from authorities. Thailand's many migrant workers, who mainly come from Myanmar and Cambodia, are particularly vulnerable. They often lack general employment protection and the right to organize, receive wages below minimum level, lack social insurance coverage and are often exposed to dangerous work environment. Many migrant workers in Thailand are subjected to forced labour and trafficking, ending up in debt bondage, where they

⁸⁷ Michelin, [Production facilities](#) ej daterad, hämtad 2019-11-20; Goodyear, [Global Presence](#) ej daterad, hämtad 2019-11-20

⁸⁸ European Tyre & Manufacturing Association, [Statistics edition 2019](#)

⁸⁹ Nokia, [Value chain](#) n.d., retrieved 2020-08-24

⁹⁰ Råd & Rön, [Däckgummi](#) 2013-03-18

⁹¹ Statista, [Leading natural rubber producing countries worldwide in 2018 and 2019](#), retrieved 2020-08-24

⁹² Multinationals Observatory, [Was Michelin involved in human rights abuse in India?](#) 2013-10-02

⁹³ International Trade Union Confederation, en internationell facklig paraplyorganisation.

⁹⁴ International Trade Union Confederation, [Internationally Recognised Core Labour Standards in Thailand](#) 2011

⁹⁵ International Labour Organisation, Ratifications of fundamental Conventions by country, ej daterad, hämtad 2019-11-20

have to pay illegal fees to recruitment agencies and cannot leave the country as their passports are withheld.⁹⁶

India's labour law is extensive, but enforcement is low. The right to organise is restricted, even if unions can be strong locally. Work-related problems include precarious short-term employment, illegally low wages and discrimination.⁹⁷ India has not ratified ILO's core conventions on freedom of association and the right to bargain (98, 87).⁹⁸ The proportion of temporary staff has increased in Indian industry and amounts to approximately 46% of the total workforce. This means that a large proportion of employees work under precarious employment conditions with the risk of being dismissed at short notice. Most are not unionised.⁹⁹ This makes them vulnerable to labour rights violations and poor working conditions.

Production in Europe is also associated with certain risks. Russia has ratified the ILO's eight core conventions¹⁰⁰ but ITUC assess that labour rights are violated regularly.¹⁰¹ Freedom of association is under constant pressure. Precarious employment is common and wages are often unequal.¹⁰² Forced labour occurs. Migrant workers from the former Soviet states in Central Asia constitute a large and vulnerable group of the total workforce who often work under difficult working conditions and restrictions in labour law.¹⁰³ Anti-union activities also occur in Eastern and Central European countries such as Poland (see previous paragraph). Production in Turkey is also associated with risks as previously described. Worth noting is that a union leader that organised workers at tire factories in Turkey was shot dead in 2018 outside a factory, after he had succeeded to convince the employer to provide short-term contract employees with permanent contracts at the tire factory.¹⁰⁴

The manufacturing process of tires involves many steps and is to some degree physically challenging. Workers are exposed to heat, dust, loud noises and toxic fumes, which demands well-functioning ventilation systems and protective equipment and gear.¹⁰⁵ Tire production can also generate negative environmental impacts in the form of dust emissions, noise, and solid waste and the release of volatile Organic compounds¹⁰⁶ which may constitute environmental and health risks to surrounding communities.

⁹⁶ Swedwatch rapport: [Trapped in the Kitchen of the World](#), 2015

⁹⁷ International Trade Union Confederation, [Internationally Recognised Core Labour Standards in India](#) 2011-09-16; International Trade Union Confederation, [Tens of millions strike in India](#) 2015-09-02, Union to union, [Facket I världen – Indien](#), 2019

⁹⁸ International Labour Organization, [Ratifications of fundamental Conventions and Protocols n.d.](#), retrieved 2020-08-24

⁹⁹ Union to union, [Facket I världen – Indien](#), januari 2019

¹⁰⁰ International Labour Organisation, [Saudi Arabia](#), och International Labour Organisation, Ratifications of fundamental Conventions by country, hämtad 2019-10-08

¹⁰¹ International Trade Union Confederation, [Global Rights Index 2019](#)

¹⁰² Utrikesdepartementet, [Ryssland – mänskliga rättigheter, demokrati och rättsstatens principer](#) 2017

¹⁰³ Freedom House, [Freedom in the World 2019 - Russia](#), hämtad 2019-10-08, Eurasia Foundation, [Protection the rights of migrant workers in Russia](#), 2013; Nederland MVO, CSR Risk [Russian Federation](#), 2017

¹⁰⁴ International Trade Union Confederation, [Turkish Trade Union Leader Abdullah Karacan Murdered, Two Union Representatives Wounded](#), 2018-11-13 och Historic union victory in Turkish tyre industry, 2015-01-08

¹⁰⁵ IARC, [Occupational exposure in the rubber-manufacturing industry](#)The National Center for Biotechnology Information, 2012; [Work Environments and Exposure to Hazardous Substances in Korean Tire Manufacturing](#) 2012 2016-03-10

¹⁰⁶ Noika Tyres, [Environmental impacts of production](#), n.d., retrieved 2020-09-04

Risks are present further down the supply chain of tires, linked to the extraction of raw materials such as steel, rubber, polyester and other components and when production takes place in areas with low enforcement labour law.¹⁰⁷ Just like production of other types of textiles, the manufacturing process of polyester requires the use of chemicals,¹⁰⁸ which may constitute health and safety risks to workers as well as the surrounding environment and local communities in high-risk countries. Exposure to chemicals is also a risk in the production of other plastic parts, as well as risks of fires and explosions in factories and pollution.¹⁰⁹

Mining and metal production is associated with labour rights and human rights risks, especially in high-risk areas where enforcement of law is low. Steel production is associated with low wages, excessive over-time, lack of unionisation in China, India and Russia. Steel production may imply hazardous working conditions, with extreme temperatures, heavy lifting, operating large machines and exposure to dust and toxic fumes. Toxic chemicals are used in the processes, which is a risk factor for workers and the surrounding environment if wastewater is not managed safely.¹¹⁰ There are steel factories present in China operating illegally, which increases labour rights and human rights risks as state authorities do not audit the factories due to corruption.¹¹¹ For more information on mining and metal production, please see risk assessment on “Construction and landscaping”.

Natural rubber

Natural rubber is harvested from the rubber tree, either grown in large plantations or extracted through small-scale forestry. The work is performed in a demanding environment where sharp knives are used. In the regions where rubber is grown, malaria is often rife with risks for workers on plantations and farms to become infected.

Strong pesticides such as the herbicide paraquat are often used. Paraquat is, due to its high toxicity to humans, banned in the EU. A report by the organisation Danwatch showed that working conditions for workers on rubber plantations and in small-scale forestry in Indonesia and Malaysia implies work seven days a week for an often unreasonably low wage and lack of union rights. Production included many day labourers and migrant workers who are particularly vulnerable as they often do not have access to the benefits and rights that permanent employees enjoy. Day labourers also received lower wages. Migrant workers' passports were confiscated, which implies forced labour. When using paraquat, protective gear was used to varying degrees.¹¹²

Small-scale rubber producers are sensitive to the fluctuating market price of rubber. When the price goes down, there is a risk that school fees and other basic expenses cannot be paid.¹¹³ This impact children's right to education. Child labour occurs in Thai rubber plantations and 40% of the work staff are migrant workers from Myanmar. Working and living conditions are harsh. A report from Swedish

¹⁰⁷ Please review risk assessment “Construction and landscaping” and “Work wear, foot wear and textile” for more information on steel and polyester.

¹⁰⁸ Sustainability Consortium, [Polyester textiles](#), 2017

¹⁰⁹ Upphandlingsmyndigheten, [Risker i upphandling av varor inom städ och kemikalier](#), 2016, Pulitzer Center, [India: The Toxic Price of Leather](#), 2017-10-03, ITUC, [Toxic work stop deadly exposure today](#), 2015-04-09

¹¹⁰ Enact Sustainable Strategies, Riskanalys: Instrument, 2017; International Labour Organisation, [Code of practice on safety and health in the iron and steel industry, 2005](#)

¹¹¹ Wired, [Step inside Chinas hellish, illicit steel factories](#), 2016

¹¹² Danwatch, [Behind the rubber label](#) 2013

¹¹³ Danwatch, [Behind the rubber label](#) 2013

consumer magazine Råd & Rön showed that entire families, including children, had to help out with harvesting the latex from the rubber trees in order to reach production targets on Thai plantations, but still only received wages below minimum wage. Knowledge of union rights were low and paraquat was used, exposing workers and family members living close to the plantations to severe health risks.¹¹⁴

Child labour has also been reported from Cambodia, Indonesia, Vietnam, the Philippines, Myanmar and Liberia.¹¹⁵ Forced labour also occur through trafficking in rubber production in Myanmar and Thailand.¹¹⁶ Land traditionally owned by indigenous people has also been reported to be exploited when rubber plantations have been established in Cambodia.¹¹⁷ Land grabbing has been reported from Liberia and Myanmar.¹¹⁸

¹¹⁴ Råd & Rön, [Däckgummi](#) 2013-03-18

¹¹⁵ Department of Labor, [List of Goods Produced by Child Labor or Forced Labor](#), retrived 2020-08-24

¹¹⁶ Vertié, [Rubber](#), 2019-11-11

¹¹⁷ Global Witness, [Rubber Barons](#), 2013-05-13

¹¹⁸ Global Witness, [Rubber Barons](#), 2013-05-13; Farmlandgrab.org, Rubber groups ousts farmers in Liberia, 2019-02-20