Google

Supplier Responsibility Report

2020

Supplier Responsibility Report 2020

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Supplier responsibility at Google

Each year, our Supplier Responsibility Report looks back on accomplishments and signs of progress from the year before. But 2020 has been so exceptional—and the challenges presented by the COVID-19 pandemic so urgent—that we believe it's imperative to first share how Google and our suppliers have responded to these challenges.

COVID-19 has driven businesses across the world to adjust their management practices to keep workers safe and healthy. It has disrupted every one of Google's suppliers and contract manufacturers. At Google, the people who make Google products and provide services are as much of a priority as the people who use them. In that spirit, we have worked diligently to help our suppliers maintain safe working conditions that meet their regions' unique demands during the pandemic.

We've worked with our suppliers to implement protective and preventive measures including health screenings, contact tracing, use of personal protective equipment, increased sanitizing stations, and new protocols for deep cleaning and handling uniforms. We've also collaborated on adjusted shift structures and the installment of physical barriers in the workplace and redesigned operations to support physical distancing and minimize contact.

In this atypical time, we want to make sure the progress, challenges, and aspirations of 2019 remain in the spotlight. Notably, in 2019 we formalized our commitment to work toward a world where everyone has access to renewable energy, including our suppliers and their communities, by investing approximately $150 million into renewable energy projects in key manufacturing regions. 2020 was also an important milestone for Google, as we became the first major company to commit to running on carbon-free energy everywhere, at all times, by 2030, and we eliminated our entire carbon legacy. We also extended our supply chain clean energy commitment to add 5 gigawatts of clean energy in key manufacturing regions by 2030. You'll learn more about our supply chain clean energy efforts—and get updates on others—later in this report.

You'll also get a closer look at the range of initiatives across our supplier network, such as our innovative effort to develop a new recycled aluminum alloy, that form our Supplier Responsibility program. Together, we're working toward better outcomes—for workers, for communities, and for our planet.

Karl Braitberg
Vice President, Supply Chain
Technical Infrastructure

Ana Corrales
Chief Operating Officer
Devices and Services

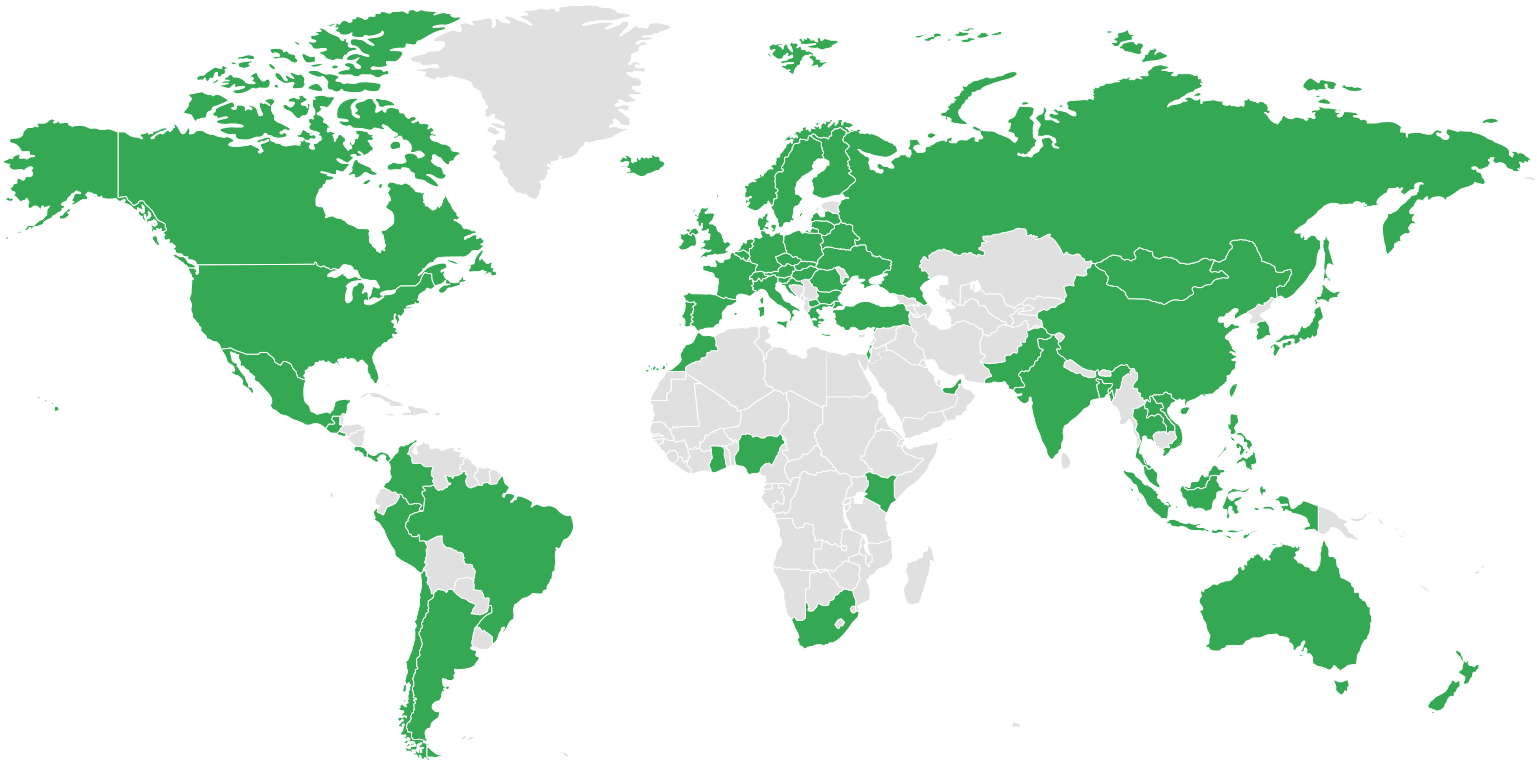
About our suppliers

We work with suppliers worldwide that support our business and operations, including hardware manufacturing and indirect services. With the support of our suppliers, Google is able to offer our core products and platforms—Android, Chrome, Gmail, Google Drive, Google Maps, Google Play, Search, and YouTube—that each have more than 1 billion monthly active users. The hardware in our data centers helps power all of those products, along with a broad collection of cloud-based products and services, including Google Workspace business productivity apps like Docs, Drive, and Calendar, and satellite mapping and analysis platforms like Google Earth. Our consumer hardware devices include Pixel phones, Nest products such as the Nest Learning Thermostat, the Stadia gaming platform, and the Pixelbook.

We work with suppliers in over

70

countries.



About this report

Google formally launched our Supplier Responsibility program in 2012. In 2017, we published our first report, which outlined our framework, tools, and key performance metrics.

This report maintains the core structure of past reports while highlighting several key 2019 projects across our supplier network that help illustrate our program's successes, challenges, and aspirations.

The annual social and environmental performance data in this report covers our 2019 fiscal year (January 1 through December 31, 2019). The spotlights have a longer trajectory and may include some of our progress in 2020 in addition to data and stories from prior years to provide context. Unless otherwise specified, all performance data included in this report applies to Google LLC. The primary exceptions include our greenhouse gas (GHG) emissions, energy use data, and Conflict Minerals program, which cover the combined operations of Google and our Other Bets.

For more information about our Supplier Responsibility program, including case studies, white papers, and blogs, please see our Supplier Responsibility website.

Our approach

Our vision

We aspire to create a supply chain model for the future that accomplishes the following:

- **Includes everyone.** We want to collaborate with suppliers and peers across industries and service sectors to create a safer, fairer, and more equitable supply chain.
- **Makes things better.** We want to leave every supplier workplace, community, and ecosystem we touch better than we found it.
- **Transforms with technology.** We want to invest in and build technologies to create the world's most trusted supply chain network.

Our journey: Adapting to meet new global challenges in our supply base

The COVID-19 pandemic has shifted the landscape for everyone. As we respond to the new challenges posed by COVID-19, we've made it a priority to clearly understand our current supplier practices—and support their alignment with global and local guidelines. While the work done by and with our suppliers to improve COVID-19 management, manage worker health and safety, and remain in compliance with local and national guidance and requirements as part of the Google Supplier Code of Conduct took place in 2020, we've included some references to it in this report, where appropriate.

Even beyond COVID-19, we recognize that we're at a defining moment as a society. Now is the time for us to collectively address threats to our climate, resources, and human health and welfare. That's why we aspire to drive meaningful and positive change throughout all our value chains. In response to today's challenges, we seek to be highly strategic in how we engage with suppliers, supplier communities, and the people and ecosystems that are integral to both. Every decision we make has the potential to affect people, communities, and ecosystems in countless ways. So, at every stage, we push ourselves to understand the interconnected impacts of our supply chain and collaborate internally and externally to be inclusive and restorative across all areas of our work.

This work requires collaboration with partners to determine where we have the most potential for influence and can make the most significant impact. It also requires ongoing transparency, dialogue, and accountability from everyone in our supply chain, along with a willingness to adjust our strategies and continually iterate to improve as we learn.

We work across industries to set expectations for ourselves and our suppliers on both social and environmental performance. By investing in areas like worker engagement, renewable energy, transparency in the mineral supply chain, and materials reuse, we're working to create stronger and more resilient communities. By partnering with nongovernmental organizations (NGOs), industry groups, peers, and suppliers, we'll continue our efforts to have a more positive impact on our suppliers and their communities.

Our priorities

Our Supplier Responsibility program spans eight priority areas, which we've organized into three categories: putting people first, strengthening communities, and protecting the planet.

Putting people first

We're committed to a fair and inclusive supply chain that creates shared value everywhere we operate.

- Treating workers fairly
- Creating safe and healthy workplaces
- Operating ethically

Strengthening communities

We aspire to strengthen communities everywhere we do business. This includes sourcing minerals responsibly, empowering residents of mining communities to pursue alternative economic opportunities, and ensuring that we support diverse businesses throughout our supply chain.

- Sourcing minerals responsibly
- Increasing community resilience
- Advancing supplier diversity

Protecting the planet

We are working to build an energy-efficient, low-carbon supply chain that makes smart use of the earth's resources, protects ecosystems, and helps lead the fight against climate change.

- Addressing the climate crisis
- Working to end reliance on raw material extraction

These areas are interwoven and mutually reinforcing. For example, treating workers with dignity and respect creates stronger, more empowered communities. Investing in infrastructure in supplier communities generates more social and economic opportunities and helps reduce reliance on extractive industries such as mining. Replacing dirty energy sources with renewable options contributes to reducing GHG emissions and increases community and global well-being.

How we make this happen

Our program strategy is built on four major pillars that help mitigate risk and benefit people and places through responsible sourcing.

1. **Supplier Code of Conduct.** Our Supplier Code of Conduct sets expectations designed to protect the health, safety, and treatment of workers. This includes the prohibition of any form of modern slavery such as forced, bonded (including debt bondage), or indentured labor; involuntary prison labor; sex trafficking; and slavery or trafficking. Our Supplier Code of Conduct is included in our supplier contract templates, and suppliers are expected to actively drive adherence to the Code.
2. **Supplier engagement.** Through mechanisms such as supplier self-assessments, risk assessments, and third-party on-site audits, we gauge how suppliers are performing relative to our standards, identify potential risks, and address concerns. We also work closely with manufacturing suppliers to build capabilities in areas like improving environmental performance, protecting workers from hazardous manufacturing process chemicals, and increasing transparency in the mineral supply chain.
3. **Community investment.** When we work with our suppliers, we aspire to positively impact not just the areas in which we work together but also our suppliers' overall operations and their broader communities. For example, as part of our goal to end our reliance on raw material extraction, we're working with mining communities to end their reliance on the mining trade.
4. **Partnerships.** We partner with NGOs, industry groups, suppliers, and peers to tackle issues bigger than a single company can address alone. Our partners bring a wide range of expertise and creative thinking to issues like improving worker well-being, advancing impact sourcing, increasing transparency in minerals mining, reducing reliance on raw materials, bringing electricity to mining communities, and expanding renewable energy markets.

2019 highlights

Putting people first

47

We performed on-site assessments at 47 supplier sites for a cumulative total of 283 site assessments since 2013.

1,700

We engaged more than 1,700 workers through third-party surveys and interviews, giving us important insights into worker priorities.

159

Of our suppliers, 159 participated in our Manufacturing Restricted Substances List self-assessment process, initiating the transition to safer and greener alternatives.

Strengthening communities

100%

Of the smelters or refiners we used for four conflict minerals—tantalum, tin, tungsten, and gold—100% were Compliant.[1]

655

To promote economic opportunity and resilience, we supported 655 new connections providing renewable energy access to homes and businesses in the Democratic Republic of the Congo.

Protecting the planet

281

Our ongoing energy-efficiency assessments at 23 supplier sites identified more than 281 potential energy-efficiency measures and over $17 million per year in potential savings for suppliers to date.

67

Our suppliers have committed to or have already implemented more than 45% of Google's energy-efficiency recommendations, representing a savings of approximately 67 gigawatt-hours per year.

99%

Of the suppliers participating in our environmental surveys, 99% responded to our climate change survey requests and 82% have integrated climate risk into their long-term business objectives.

100%

In September 2019, we achieved 100% carbon-neutral shipping for Made by Google products. We achieved a 33% reduction in total transportation emissions per unit for Made by Google products from 2017 through 2019.

Putting people first

Overview

We're committed to building a healthy, inclusive supply chain. In practice, this means honoring and respecting everyone who engages with the Google supply chain and striving to ensure that their workplaces promote worker well-being. Our baseline is to ensure that Google treats workers with dignity and respect, maintains safe and healthy workplaces, and holds suppliers to high ethical standards. But our long-term goal is more extensive: We aim to unlock the power of partnerships and change the dynamic between companies, suppliers, and users so that together we can create a safer, fairer, and more equitable supply chain.

Treating workers fairly

We believe every person working in our supply chain should be treated fairly and with dignity and respect. We accomplish this by deploying policies and processes throughout our supply chain that are designed to protect the people who make our products and provide valuable services to our company.

The foundation of this work is our Supplier Code of Conduct, which includes our expectations for labor and human rights, health and safety, environmental responsibility, and ethics and compliance. Laborwise, we expect all suppliers in our operations and supply chain—and their suppliers—to ensure that employment is freely chosen and that workers pay zero recruitment fees. Our suppliers must also prohibit the use of child labor, guard against sexual harassment and verbal abuse, prevent discrimination, and support freedom of association and collective bargaining rights.

We hold suppliers accountable to our Supplier Code of Conduct through a multi-step assessment process, which includes self-assessments, risk assessments, and independent third-party audits. See page 38 for our audit performance in this area.

Engaging workers

Through our site assessment process, we can detect areas of nonconformance on-site. One crucial component of our audits and broader supplier engagement is hearing directly from the employees working for our suppliers, as they often provide some of the most valuable insights into what's working and what needs improvement. To hear from workers, we engage with third parties to gather feedback through anonymous worker surveys and face-to-face interviews. Workers are invited to share their concerns and satisfaction in areas such as working conditions, health and safety, wages and benefits, working hours, and communication with management. This information influences our strategies, while giving suppliers valuable insights into improving worker recruitment and retention.

Over 1,700 people throughout our supply chain were interviewed through our third-party audit process or our worker surveys in 2019.

Creating safe and healthy workplaces

Workplace safety is a top priority, now more than ever. We remain committed to ensuring that everyone who makes our products or provides us with services works in a healthy and safe environment. In accordance with our Supplier Code of Conduct, our suppliers are expected to maintain safe and healthy workplaces that comply with all applicable laws and to implement a management system to identify and resolve related issues.

Suppliers' health and safety management systems must identify, evaluate, and control worker exposure to all safety and health hazards—including chemical, biological, physical, and ergonomic stressors—and provide proper design, controls, procedures, and guidance in factory production and other work environments. We also expect suppliers to identify and plan for potential emergencies and provide workers with ready access to clean toilet facilities; potable water; and sanitary food preparation, storage, and eating facilities. If applicable, housing facilities must be clean, safe, and fair and include adequate personal space and hot water for bathing and showering.

In addition, suppliers are expected to implement COVID-19 management practices that adhere to local guidance, such as maintaining an infectious-disease preparedness and response plan, enacting infection prevention, creating procedures for identifying and isolating sick people, promoting workplace flexibility and protections, and monitoring and evaluating their COVID-19 strategies and plans going forward.

Driving healthier manufacturing processes

Just as no one should be harmed using a Google product, we believe that no one should be harmed when making a Google product. We're furthering progress in our long-term initiative to identify and eliminate harmful substances from our manufacturing process by giving our suppliers the knowledge and support they need to transition to safer alternatives. Through these actions, we aspire to protect workers in our supply chains and improve community and environmental health in supplier communities.

In 2017, we began incorporating substances from our Manufacturing Restricted Substances List (MRSL) into our Restricted Substances Specification for consumer hardware. In 2018, we rolled out a comprehensive training program to further support this initiative, which included webinars, workshops, in-person training sessions at supplier factories, and e-learning courses in English and Chinese.

In 2019, we continued to expand our MRSL assessment and declaration process to additional suppliers supporting data center machines.

Also in 2019, 316 supplier factories (from 159 distinct suppliers) participated in our MRSL assessment and declaration process and completed chemical management surveys. Based on the results, we evaluated the process-control measures to protect workers from hazards and partnered with suppliers to replace chemical products, such as cleaners and degreasers, that contain restricted substances with safer alternatives or eliminate them by transitioning to newer processes. In addition, we conducted on-site chemical management and risk assessments to verify the efficacy of suppliers' hazard controls and provide consultation to help build their capacity.

Operating ethically

We expect our suppliers to uphold high ethical standards, including not engaging—directly or indirectly—in corruption, bribery, extortion, embezzlement, or other illegal practices. To meet these standards, we encourage companies to disclose information about their business activities, financial situations, and performance in line with regulations and industry practices. We also expect our suppliers to protect Google's intellectual property and information privacy from attacks by third parties.

Addressing ethical conduct and the prevention of modern slavery

Forced labor, indentured labor, debt bondage, and other forms of modern slavery can occur in industries with many workers and few regulations. We have zero tolerance for any form of modern slavery in our supply chain.

As codified in our supplier contracts, Google suppliers are required to comply with laws against international human trafficking, forced labor, and modern slavery. We reserve the right to audit any facility where modern slavery is reported and to terminate our agreements for any violation of these policies.

We also train our vendors, temporary staff, and independent contractors to report concerns of illegal or unethical activity and to avoid working with parties that engage in modern slavery or other illegal practices. In addition, we have an online training course that includes anti-modern slavery education for workers in roles related to hardware supplier management. As of December 31, 2019, over 95% of the identified population of Google employees managing relationships with higher-risk suppliers had completed the online training.

We also continue our commitment to supply chain integrity through our anti-modern slavery program. For more information, please see our Policy Against Modern Slavery, which defines modern slavery, gives a list of prohibited actions, and provides channels for reporting suspected instances.

Read our 2019 Statement Against Modern Slavery.

Supplier assessments

We follow a multi-step process for evaluating our suppliers. Performing regular assessments helps us address potential issues early on and support our suppliers in taking corrective actions.

Self-assessments

We ask new suppliers to complete a detailed self-assessment. The company's responses help us see how closely it adheres to our Supplier Code of Conduct. Many suppliers already have strong programs in place to address our requirements. When a self-assessment indicates that a supplier does not meet our expectations, we follow up to ensure it develops programs to address our concerns. As one component of our supplier risk assessment process, self-assessments can help gauge suppliers' understanding of and commitment to our expectations.

Risk assessments

Along with having suppliers evaluate their operations, we perform our own due diligence to understand our supply chain's current and potential risks. Our extensive Supplier Risk Assessment process evaluates the social, environmental, and ethical risks of working with individual suppliers or groups of suppliers. The results give our supplier managers insights to make better-informed sourcing decisions and proactively manage their supplier relationships.

When performing a Supplier Risk Assessment, we look at a variety of factors, such as:

- **Country-level risks.** Are certain countries at higher risk for water scarcity, corruption, or child labor?
- **Product-specific risks.** Do suppliers use chemically intensive manufacturing processes? How physically demanding is the work involved?
- **Supplier fines or convictions.** Has the supplier previously been fined for human rights, environmental, or corruption violations?
- **Google's supplier-engagement efforts.** Has the supplier submitted a self-assessment? If problems were found during an audit, has the supplier taken steps to resolve them?
- **Supplier relationship.** How strategic is the supplier to our business? Do we influence the design of the product or the selection of the components?

2019 audit overview

47

supplier site assessments

676

nonconformance issues identified

On-site assessments

We regularly perform independent third-party site assessments at our suppliers' facilities to determine whether the supplier is meeting our standards, to hear directly from workers, and to identify and help resolve issues. Our audits also provide valuable opportunities to raise suppliers' awareness of their social and environmental responsibilities, promote accountability, understand leading practices, and encourage greater transparency.

The audits include in-depth factory, facility, and dormitory tours; management meetings; on-site worker interviews; and reviews of documents and records. Our audit program prioritizes our contract manufacturers, original equipment manufacturers, and suppliers initially identified as high risk. We performed 283 on-site assessments from 2013 to 2019.

Audit performance

In 2019, working hours and health and safety continued to be important focus areas. For many of our newer suppliers, 2019 brought their first Supplier Code of Conduct site assessment. Because of this new batch, our nonconformance findings related to management systems increased in 2019. The new suppliers we continue to add each year account for the majority of our new findings year over year.

When we find that a supplier is not conforming, we expect the supplier to provide a corrective action plan (CAP) that outlines the root cause of the finding, how and when that company will resolve the issue, and what steps will be taken to prevent recurrence. We determine whether the plan is acceptable based on the severity of the nonconformance, in addition to the effort and time required to resolve the issue.

We expect suppliers to demonstrate improvements in order to continue working with us. Our goal is to resolve the most severe issues immediately. We expect all other findings to be resolved in accordance with our guidelines as quickly as is practical. While we work with our suppliers to help them address our findings, in some instances, we may decide to no longer pursue a relationship or to terminate our current relationship with a supplier.

Once a CAP is approved, the supplier is expected to provide evidence of resolution and commit to improving over time, which may require follow-up verification. When the supplier can demonstrate that it has successfully implemented the approved CAP, we change the plan's status to "closed."

Audit findings by category in 2019

Nonconformance category	Percentage
Labor	38%
Health & Safety	26%
Environment	6%
Ethics	3%
Management System	27%

Most common nonconformance findings per category in 2019

Nonconformance category and criteria	Percentage
Labor	
Working hours Excessive hours (over 60 per week) or more than six consecutive workdays without rest	12%
Wages and benefits Workers not receiving or delayed in receiving legally required wages and benefits	8%
Health & Safety	
Emergency preparedness Fire code violations, inadequate drills, or inadequate fire alarm systems	8%
Occupational safety Improper controls for potential safety hazards; no up-to-date permits or certifications	6%
Management System	
Risk assessment and risk management Ineffective work practices (such as labeling, handling, storage, and disposal) for managing hazardous substances; insufficient documentation on risk assessment and management processes	5%

Strengthening communities

Overview

We aspire to create stronger, more resilient communities everywhere we do business. We're taking action on more responsible sourcing of raw materials, including making broad, multi-industry commitments to ensure that minerals are mined responsibly. We're also working on strategies to responsibly transition into and out of supplier communities, including investing in local infrastructure and vital services so that people have access to economic opportunities beyond mining and manufacturing. As we work to end our reliance on raw materials altogether, these investments may prove critical to helping these communities persist and adapt in the face of change.
At a minimum, our supply chain should do no harm. We aspire to leave communities better than we found them.

Sourcing minerals responsibly

We take proactive measures to manage the social and environmental impacts associated with the sourcing and extraction of raw materials for our consumer devices and data center equipment. This includes sourcing minerals for our electronics—specifically tin, tantalum, tungsten, and gold—exclusively from mines that aren't financing armed conflicts in the Democratic Republic of the Congo (DRC) and other high-risk locations.

We launched our Conflict Minerals program in 2012 to improve transparency and develop conflict-free sources of these materials. From the beginning, our strategy has been to work collaboratively with governmental organizations and NGOs across the electronics industry and others to enable conflict-free sourcing for everyone. We're one of nearly 400 members of the Responsible Minerals Initiative, which provides independent third-party audits to ensure that smelters and refiners meet current conflict-free standards.

In 2019, 100% of the smelters or refiners we used were conformant, active,[2] or verified by a third party to source from countries other than those covered in the 2010 Dodd-Frank Act (collectively referred to as "Compliant" smelters or refiners for the purposes of this report).

In 2019,

100%

of the smelters or refiners we used were Compliant.[3]

We are committed to zero child labor everywhere in our supply chain—including in mining. In addition to our focus on tin, tantalum, tungsten, and gold, we work with peer companies and partners to help ensure zero child labor in cobalt mining and to strengthen cobalt tracing. In 2019, we joined the Cobalt for Development project, a multi-sector public-private initiative that seeks to promote responsible mining practices and improve conditions at artisanal cobalt mining sites in a southern province of the DRC. We also work with our peers via the artisanal and small-scale mining subcommittee of the Responsible Minerals Initiative.

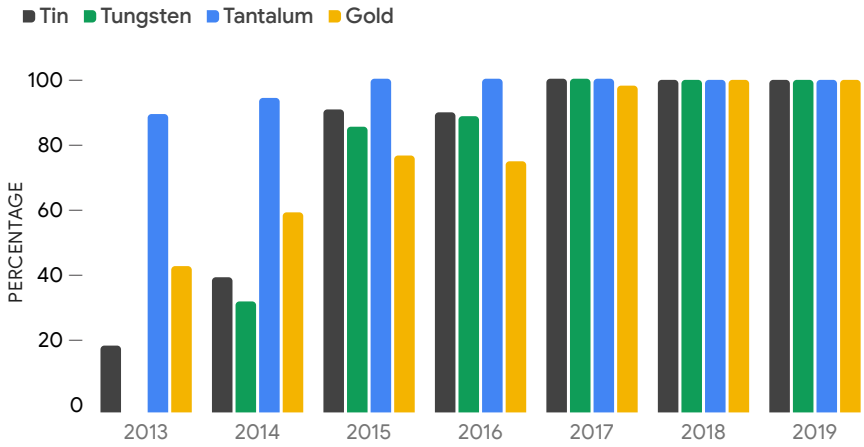
Empowering minerals transparency

To continue to build visibility into the source of every mineral used in the electronics industry, we invest in ways to make the minerals-tracking process more transparent for everyone along the supply chain. In 2018, we joined several corporate partners, along with Peruvian mining company Minsur and Berlin-based startup Minespider, to launch an initiative for end-to-end minerals traceability. In 2019, we completed the first phase of the pilot, which focused on Minsur's tin mine in San Rafael, Peru. We're now expanding to consider blockchain and other minerals-tracking technologies to track gold, cobalt, and copper supply chains. Ultimately, we're building toward an open collaboration model that any industry player can join, inspiring greater traceability across the mining and minerals industry.

Increasing community transparency

While we leverage technology like blockchain to create end-to-end minerals transparency, we also continue to create content and stories that help promote transparency by inviting our users and supplier partners to learn more about our supply chain communities.

Compliant smelters or refiners, by metal (2013–2019)



Building off the storytelling success of *Journey of Gold*, we funded the short documentary film *Ukweli* in 2020. *Ukweli* tells the story of three Congolese artists driven to reclaim their history from the prevailing media narrative of war, conflict, and poverty in the DRC. The film premiered at the Hot Docs Canadian International Documentary Festival and is supported by a nonprofit collective working to convert the film's empowerment message into direct action within corporate supply chains.

We believe empowering communities is one of the most impactful ways to provide the Congolese with new choices and opportunities. We hope the film inspires others to continue to build their commitments to the responsible sourcing of minerals.

SPOTLIGHT

Journey through Google's supply chain

We believe it's important to connect the people who use our products and services with the people who help make our business possible worldwide. In collaboration with StoryUP Studio, we've developed four unique augmented reality (AR) experiences that invite users to engage with the people and places in our supply chain.

Learn how we're using AR to bring Google's global supply chain stories to life.

Increasing community resilience

Roughly 42 million people work in artisanal and small-scale mining,[4] and many have few options outside the minerals trade. As a result, our decisions on whether to source materials from specific mines or pull out of a mining community can have enormous consequences for local families. As we begin to understand these consequences more fully, we're launching investment initiatives in select communities to enhance local infrastructure and empower people to pursue alternative livelihoods.

In collaboration with nonprofit, academic, technical, and community partners, our initial investments have focused on solar energy projects in the DRC, where only 9% of the nation has access to electricity.[5] The Congo Power team completed four projects in 2020 and has also added eight new projects to the pipeline. We've also expanded our focus to include conservation areas and national parks that are of vital importance to the Congolese and the planet.

As we expand our community investment efforts, we're looking at other ways to improve social and economic opportunities in supplier communities.

Advancing supplier diversity

Google is committed to advancing supplier diversity, equity, and inclusion in how Google buys and does business globally.

We reinforced our commitment in response to the challenging business climate for our suppliers during the COVID-19 crisis. Google's expedited payment terms, extended to suppliers in our Supplier Diversity program, generated incremental capital for diverse suppliers in the United States during the pandemic.

And in recognition of the role that an inclusive supply chain plays in creating racial equity, Google committed to accelerating our progress in supplier diversity through investment to rebuild and transform our Supplier Diversity program. In October 2020, we announced a new goal to spend at least $100 million with Black-owned suppliers and $1 billion with diverse-owned suppliers in the United States by the end of 2021 and every year after.[6]

Protecting the planet

Overview

We're committed to building an energy-efficient, low-carbon supply chain that makes smart use of the earth's resources, protects ecosystems, and helps lead the fight against climate change. This starts with areas where we can make an immediate and long-term impact, such as helping our suppliers adopt high-quality energy-efficiency measures (EEMs); improve their environmental performance; and integrate inclusivity, climate resilience, water stewardship, and circular design into our supply chain. We believe these principles can play a key role not just in reducing environmental impact but also in protecting human rights and community health.

Addressing the climate crisis

Climate risks, such as floods or extreme temperatures, can threaten the availability of materials and water for suppliers, disrupt operations, and damage community health. To help our suppliers reduce GHG emissions and build toward a renewable energy future, we're incorporating climate-resilience strategies across our supplier network.

Going big on renewables

Google works with suppliers around the world. The electricity grids in many countries where our suppliers operate lack sufficient carbon-free energy capacity to support rapidly growing demand and may even face energy shortages that affect not just manufacturing but also the communities and livelihoods of the people in these regions.

Our long-term vision is that all our suppliers, direct and indirect, and their communities have access to reliable, cost-effective carbon-free energy. But we'll only get there through significant global investment in new wind, solar, and other clean energy capacity, as well as more robust grid systems.

That's why Google has made a commitment to add 5 gigawatts (GW) of new clean energy and enable infrastructure across key supply chain manufacturing regions. Once online, this will avoid the global GHG emissions equivalent of taking more than 1 million cars off the road each year.[7] Investment in renewable capacity is a scalable approach to creating system-level change, driving grid decarbonization, and enabling greater access to carbon-free energy.

This is especially significant in markets where credible clean energy procurement mechanisms do not exist. Our 5 GW commitment is expected to result in a more than $5 billion investment in new wind, solar, and other clean energy and enabling technologies, driving broad sustainability benefits.

Of course, bringing new clean energy online is only one piece of the puzzle. We're committed to directly reducing our supply chain footprint by supporting our suppliers' transition to carbon-free energy for their operations and adopting EEMs that draw on Google's expertise in the areas of predictive analytics and machine learning, including helping them schedule energy-intensive activities for periods when more clean energy is on the grid and drive further energy efficiency across their operations. We expect that these efforts will reduce our suppliers' GHG emissions.

In 2019, we announced our plan to develop an open-source collaborative platform to help address climate change by making renewable energy more affordable and accessible in manufacturing markets. In the months following the announcement, we launched an extensive fact-finding mission to learn the current state of renewable energy procurement in key supply chain markets and identify barriers and gaps. We then shared our findings with our industry peers and started mobilizing a network of peers and suppliers to address them.

SPOTLIGHT

The alchemy of aluminum: Pioneering a new recycled alloy for our products

The aluminum in the enclosure of the Google Pixel 5 is 100% recycled content. Getting there took a highly cross-functional team, spanning nearly all groups within Google's consumer hardware division, to innovate new recycled metals and supply chain practices at Google.

Learn how our work with recycled aluminum is propelling us forward on our journey toward circularity and GHG emissions reductions.

The high cost of renewables is the most persistent barrier in markets outside the United States and Europe. In addition, many energy markets have few mechanisms—or none at all—through which companies can purchase clean energy.

As part of the open-source collaborative platform, our first major initiative has been to leverage the collective influence of our peers and manufacturing partners to push the boundaries for renewable energy in Japan, a key manufacturing market. In partnership with seven other major corporations, strategic supply chain partners, and regional utilities, we're currently rolling out pilot mechanisms for this new open-source model. Our goal is to make renewable energy so cost-effective in Japan that suppliers no longer have to choose between what's best for their businesses, the environment, or the communities in which they operate.

Following a successful launch of the pilot, we'll work with our growing list of collaborative and local partners to adapt or find new models that will achieve the same results in other markets and geographies so that suppliers worldwide can have greater access to affordable clean energy.

Our work in increasing supplier access to renewable energy is intentionally inclusive. We aim for our investments in renewable energy and energy efficiency to drive better manufacturing across Google's supply chain and—importantly—to reduce the environmental impact of manufacturing for people and communities around the world.

Energy reduction

150,000 MWh

Approximate potential energy reduction, with 66,947 megawatt-hours (45%) planned

14%

Roughly the average potential annual energy reduction per site

Maximizing potential energy savings

We work closely with suppliers to improve their environmental performance by helping them get more out of every watt of energy they consume. This includes performing energy-efficiency evaluations at supplier sites, making recommendations for EEMs, following up on implementation, and encouraging the adoption of robust energy-management systems.

We've identified more than 281 potential EEMs and over 85 megawatts (MW) of on-site solar photovoltaic (PV) potential, which could result in more than $17 million in annual savings across 23 supplier sites. Our teams have continued to work with suppliers to support the implementation of measures with the greatest potential for payback and assist in the transition to renewable energy on-site. These efforts include training and coaching; support for continuous improvements in energy efficiency and performance, cost savings, and productivity; and internal recognition. As a result, we have received commitments from suppliers to implement nearly half of the EEMs recommended over the next several years. EEMs with the most savings potential include replacing high-density lighting with LED lighting, optimizing and automating chilled-water distribution systems, replacing outdated chillers and other major equipment, and implementing fully integrated building management systems.

Our energy-efficiency assessments also have an impact beyond Google's supply chain. In many cases, the recommendations we make to suppliers should benefit all the customers they serve. We also encourage our suppliers to share best practices with other facilities owned by the same company. As with renewable energy, these long-term initiatives are intended to reduce GHG emissions across the sector and, ultimately, benefit the communities where our suppliers operate.

Google's 2019 GHG emissions: 12,529,953 metric tons of carbon dioxide equivalent (tCO_2e)*,†

■ Scope 1 ■ Scope 2 ■ Scope 3

TOTAL: 66,686 tCO_2e

TOTAL: 794,267 tCO_2e (MARKET-BASED)

TOTAL: 5,116,949 tCO_2e (LOCATION-BASED)

TOTAL: 11,669,000 tCO_2e

Our GHG emissions

To estimate our manufacturing Scope 3 GHG emissions, we collected supplier Scope 1 and 2 GHG emissions data directly from our Tier 1 contract manufacturers and component suppliers through the CDP supply chain platform. GHG emissions were estimated using facility- and company-level emissions allocated to Google, as reported by suppliers or calculated based on GHG intensity and spend data, to collectively represent 100% of the spend. GHG emissions were estimated for fabless suppliers by using those suppliers' company-level Scope 1 and 2 emissions allocated to Google, as well as, when reported, Scope 3 emissions from their manufacturing partners. Data gaps were estimated using industry-average GHG intensities by sector and spend data. GHG emissions beyond our Tier 1 suppliers were estimated—with a high degree of uncertainty—by applying a multiplier based on Google's past carbon footprints using the Economic Input-Output Life Cycle Assessment method and that is consistent with Scope 3 data reported by our suppliers through the CDP supply chain platform.

We calculated GHG emissions from transportation and warehousing of our consumer products, data center equipment, and Google Shopping deliveries by third-party logistics providers, both inbound and outbound, paid for by Alphabet. Some transportation providers reported customer-allocated GHG emissions that they calculated in alignment with the GHG Protocol based on fuel use or weight-distance data and routing associated with a shipment. We estimated GHG emissions based on the number of units shipped and activity data obtained from the other transportation providers.

We obtained energy data, when available, directly from the warehouses and estimated emissions using electricity and fuel factors. In cases where data was not available, we estimated electricity and natural gas use in warehousing by using average energy consumption per square foot from the 2012 Commercial Buildings Energy Consumption Survey, multiplied by the square feet allocated to Alphabet.[8]

* Our total emissions are the sum of our Scope 1, Scope 2 (market-based), and Scope 3 emissions. Scope 1, 2, and part of Scope 3 emissions are verified by an independent, accredited verifier. Our electricity use is also part of our Scope 2 verification.

† Scope 1 emissions are direct emissions from sources we own or control, such as company vehicles or generators at Google's offices and data centers.

Scope 2 emissions are indirect emissions from the production of electricity we purchase to run our operations. The location-based category reflects the average carbon intensity of the grids where our operations are located and, thus, our energy consumption occurs. The market-based category incorporates our procurement choices (i.e., our renewable energy purchases via contractual mechanisms like power purchase agreements).

Scope 3 emissions are indirect emissions from other sources in our value chain, such as our manufacturing and food suppliers, logistics providers, business travel, employee commuting, and use and end-of-life treatment of Google products.

Integrating sustainability into supplier sourcing

In 2019, we requested environmental data from 177 suppliers; 99% (up from 93% in 2018) responded to our climate change survey requests, 95% (up from 88% in 2018) reported at least one scope of GHG emissions (Scope 1, Scope 2, or both), and 71% (up from 66% in 2018) reported having GHG emissions reduction targets.

We're continuing to integrate sustainability criteria into our supplier sourcing, including assessing our suppliers' reporting, management, and emissions reduction processes. We're using this data to set goals and priorities for our sustainability program by supplier, commodity, and region and to continually improve our analyses of our supply chain GHG emissions.

Working to end reliance on raw materials

At Google, we have a company-level commitment to maximize the reuse of finite resources across our operations, products, and supply chains and to enable others to do the same by accelerating the transition to a circular economy. This includes rethinking how we build our products and working to keep materials and resources in use for as long as possible. An important part of this framework is going beyond sourcing minerals more responsibly and working to end our collective reliance on raw materials altogether.

Progress and commitments

Creating a more inclusive, resilient, transparent, and connected supply chain is a long-term process. We've set a number of goals for our own operations and those of our suppliers to help accelerate our progress. Here's a look at some of the commitments we've made, our progress in 2019, and new commitments for 2020.

Progress against targets

Putting people first

Target	Deadline	2019 progress	Status
Maintain suppliers' commitments to our Supplier Code of Conduct and perform risk assessments for all suppliers.	Annual	We continue to embed our Supplier Code of Conduct in our supplier contract templates across Google.	●
Conduct on-site assessments for suppliers identified as high risk and for contract manufacturers.	Annual	We conducted 47 site assessments, for a total of 283 from 2013 to 2019.	●
Continue to conduct worker surveys to increase transparency and identify opportunities for improvement in the areas most important to workers.	2019	We engaged more than 1,700 workers through third-party surveys and interviews, giving us important insights into worker priorities.	●
Using Manufacturing Restricted Substances (MRS) declarations, identify the potential process-chemical risks at 140 supplier sites.	2019	A total of 316 supplier sites (159 suppliers) completed MRSL self-assessments and chemical management surveys. We evaluated 86 unique chemical processes to ensure that suppliers' protective measures were in place.	●
Expand Supplier Code of Conduct trainings for strategic suppliers and supplier managers in areas like humane treatment of workers, forced labor, and modern slavery.	Annual	We train our vendors, temporary staff, and independent contractors to report concerns of illegal or unethical activity and avoid working with parties that engage in modern slavery or other illegal practices. In addition, we have an online training course that includes anti-modern slavery education for workers in roles related to hardware supplier management. As of December 31, 2019, over 95% of the identified population of Google employees managing relationships with higher-risk suppliers had completed the online training.	●

2020 goals

Maintain suppliers' commitment to our Supplier Code of Conduct and perform risk assessments for all suppliers.

Continue to conduct worker surveys to increase transparency and identify opportunities for improvement in the areas most important to workers.

Expand Supplier Code of Conduct trainings for strategic suppliers and supplier managers in areas like humane treatment of workers, forced labor, and modern slavery.

Launch Google's Process Chemicals Full Material Disclosure Data Collection and Assessment to contract manufacturers to enhance data transparency, evaluate hazardous chemicals, and verify MRS conformance for safe chemistry.

Progress against targets (continued)

Strengthening communities

Target	Deadline	2019 progress	Status
Continue to work toward ensuring that our suppliers source from smelters that are 100% conformant with the Conflict-Free Smelter Program assessment protocols.	Annual	100% of the smelters or refiners we used in 2019 were conformant, active,[9] or verified by a third party to source from countries other than those covered in the 2010 Dodd-Frank Act.	●
Continue engaging with cross-industry groups to expand conflict-free and responsible sourcing options through initiatives such as smelter audits and materials chain-of-custody verifications in multiple high-risk areas.	Annual	We contributed to the Responsible Minerals Initiative by supporting audit funds, training, and research on gold and cobalt. We also funded the Responsible Artisanal Gold Solutions Forum and two new research initiatives. The first continues our work examining the links between conflict, conservation, livelihoods, and renewable energy interventions. The other looks at responsible minerals beyond conflict definitions and geographic constraints in hopes of developing improved models for production, consumption, and sustainability in supply chains.	●
Continue to collaborate with external stakeholders and cross-industry groups that reinforce responsible sourcing of minerals and improved human rights outcomes.	Annual	We continue to engage in external stakeholder and industry groups such as the International Conference on the Great Lakes Region Audit Committee, the Public-Private Alliance for Responsible Minerals Trade, and DRC-specific contributions to the Responsible Artisanal Gold Solutions Forum and Responsible Minerals Initiative.	●
Continue to develop strategies to ensure zero child labor in cobalt supply chains and increase renewable energy access in mining communities.	Annual	We joined the Cobalt for Development project, a multi-sector public-private initiative that seeks to promote responsible mining practices and improve conditions at artisanal cobalt mining sites in a southern province of the DRC. We also work with our peers via the artisanal and small-scale mining subcommittee of the Responsible Minerals Initiative.	●
Drive increased transparency and traceability in minerals value chains and support root-cause interventions that reinforce responsible and ethical supply chains.	Annual	We completed a first phase of traceability in tin supply chains and supported the interoperability of due diligence traceability systems.	●

2020 goals

Continue to work toward ensuring that our suppliers source from smelters that are 100% conformant with the Conflict-Free Smelter Program assessment protocols.

Continue to engage with cross-industry groups to expand conflict-free and responsible sourcing options through initiatives such as smelter audits and materials chain-of-custody verifications in multiple high-risk areas.

Continue to collaborate with external stakeholders and cross-industry groups that reinforce responsible sourcing of minerals and improved human rights outcomes.

Continue to develop strategies to help ensure zero child labor in cobalt supply chains and increase renewable energy access in mining communities.

Continue to drive increased transparency and traceability in minerals value chains and support root-cause interventions that reinforce responsible and ethical supply chains.

Progress against targets (continued)

Protecting the planet

Target	Deadline	2019 progress	Status
Work toward ensuring that 90% of our suppliers responding to our environmental surveys report GHG emissions and at least 50% report GHG emissions reduction targets through the CDP supply chain platform.	2019	In 2019, 99% of our suppliers responded to our climate change survey requests, 95% reported at least one scope of GHG emissions, and 71% reported having GHG emissions reduction targets.	●
Complete 10 additional on-site energy-efficiency assessments at supplier factories and continue to develop programs that accelerate the transition of supplier sites to renewable energy.	2019	In 2019, we completed 13 on-site energy-efficiency and renewable energy assessments at supplier factories. In aggregate, our program has helped suppliers identify over $17 million in annual savings potential through the adoption of EEMs. We also helped suppliers identify over 85 MW of on-site solar PV potential in total.	●
Work toward increasing renewable energy use in our supply chain through direct supplier engagement, renewable energy investments, and the open-source collaborative platform, which is designed to reduce the cost and accelerate supplier adoption of renewable energy around the world.	2019	We identified over 85 MW of new on-site solar PV potential at supplier sites. Our suppliers have committed to adopting nearly 2.5 MW, representing 3% of recommendations. We're also working directly with suppliers to enter into power purchase agreements at locations around the world and have publicly advocated in support of direct power purchase agreements in Vietnam. In addition, we established a fund structure to deploy $150 million with our suppliers and expanded our investment commitment to 5 GW by 2030. With a coalition of peers and suppliers, we've been working in Japan to identify cost-effective solutions.	●
Calculate the carbon footprint associated with manufacturing our products throughout their life cycle and work to increase the proportion of suppliers providing data to 90% of our supplier spend.	2019	We conducted life-cycle assessments (LCAs) and published product environmental reports for Google's flagship products. Additionally, we estimated and reported Alphabet's manufacturing Scope 3 emissions, including 100% of the manufacturing inventory spend. We received primary data from suppliers representing 74% of the manufacturing inventory spend.	●
Finalize the quantification of the life-cycle environmental impacts of value recovery options for rare-earth magnets from hard-disk drives (HDDs).	2019	We finalized with our partners an LCA study of value recovery options for rare-earth magnets from HDDs. The results have been published in the iNEMI Value Recovery from Used Electronics Project, Phase 2 report and in the Resources, Conservation and Recycling Journal.	●

2020 goals

Continue to work toward ensuring that 90% of our suppliers responding to our environmental surveys report GHG emissions and at least 50% report GHG emissions reduction targets through the CDP supply chain platform.

Complete pilot study to drive emissions and energy reductions using advanced analytics and machine learning techniques. Through policy, technical, and market support, continue to develop programs that accelerate the transition of supplier sites to renewable energy.

Invest in one clean energy project as part of Google's commitment to enable 5 GW of new clean energy in manufacturing markets by 2030.

Work toward increasing renewable energy use in our supply chain through direct supplier engagement, renewable energy investments, and the open-source collaborative platform. Replicate successes from the platform in Japan to reduce the cost and accelerate supplier adoption of renewable energy in other key supply markets around the world.

Continue to improve and refine the way we calculate the carbon footprint associated with our products throughout their life cycle and work to increase the proportion of suppliers providing data to 90% of our supplier spend.

Appendix

Appendix

Audit conformance data by category and criteria, including improvements following corrective action plans (2013–2019)

Audit criteria	Unique audited supplier factories with non-conformance findings	Improvement in conformance after CAP	Audited supplier factories in conformance after CAP
Labor total	**85.13%**	**74.32%**	**89.19%**
Freely Chosen Employment	31.98%	27.93%	95.95%
Child Labor Avoidance; Student Interns	29.73%	28.83%	99.10%
Working Hours	79.73%	74.32%	94.59%
Wages and Benefits	52.25%	47.75%	95.50%
Humane Treatment	10.36%	10.36%	100.00%
Non-Discrimination	13.06%	13.06%	100.00%
Freedom of Association and Collective Bargaining	13.96%	13.96%	100.00%
Immigration Law and Compliance	0.45%	0.45%	100.00%
Other	5.40%	4.95%	99.55%
Health & Safety total	**80.63%**	**73.87%**	**93.24%**
Health & Safety Management System	1.80%	1.80%	100.00%
Occupational Safety	56.31%	55.86%	99.55%
Emergency Preparedness	62.16%	59.46%	97.30%
Occupational Injury and Illness	36.93%	34.68%	97.75%
Industrial Hygiene	33.78%	33.33%	99.55%
Physically Demanding Work	17.12%	13.96%	96.84%
Machine Safeguarding	19.82%	19.82%	100.00%
Sanitation, Food, and Housing	26.58%	26.13%	99.55%
Emotional Well-Being	2.70%	0.90%	98.20%
Other	0.45%	0.45%	100.00%
Environment total	**61.71%**	**59.01%**	**97.30%**
Environmental Management System	2.25%	2.25%	100.00%
Environmental Permits and Reporting	21.17%	20.72%	99.55%
Hazardous Substances	50.45%	48.65%	98.20%
Wastewater and Solid Waste	20.27%	19.82%	99.55%
Air Emissions	9.46%	9.46%	100.00%
Product Content Restrictions	3.60%	3.60%	100.00%
Resource Efficiency	10.36%	9.46%	99.10%

Appendix

Audit criteria	Unique audited supplier factories with non-conformance findings	Improvement in conformance after CAP	Audited supplier factories in conformance after CAP
Ethics total	**29.73%**	**27.03%**	**97.30%**
Business Integrity; No Improper Advantage	19.82%	18.47%	98.65%
Disclosure of Information	1.80%	1.80%	100.00%
Intellectual Property	8.11%	7.21%	99.10%
Fair Business, Advertising, and Competition	3.60%	3.15%	99.55%
Responsible Sourcing of Minerals	2.70%	2.70%	100.00%
Privacy	5.86%	5.86%	100.00%
Non-Retaliation	13.06%	12.16%	99.10%
Other	0.90%	0.90%	100.00%
Management System total	**56.76%**	**48.20%**	**91.44%**
Company Commitment	5.41%	5.41%	100.00%
Management Accountability and Responsibility	19.37%	17.57%	98.20%
Legal and Customer Requirements	21.17%	19.37%	98.20%
Risk Assessment and Risk Management	27.93%	24.32%	96.39%
Improvement Objectives	25.22%	20.72%	95.50%
Training	13.51%	12.16%	98.65%
Communication	12.61%	11.71%	99.10%
Worker Feedback and Participation	8.56%	7.21%	98.65%
Audits and Assessments	23.87%	18.47%	94.60%
Corrective Action Process	9.91%	6.76%	96.85%
Documentation and Records	4.95%	4.95%	100.00%
Supplier Responsibility	26.57%	24.32%	97.75%

Endnotes

1. For the purposes of this report, "Compliant" smelters or refiners are those that are conformant, active, or verified by a third party to source from countries other than those covered in the 2010 Dodd-Frank Act. See Alphabet's Conflict Minerals Policy and Report for more information.
2. Smelters and refiners are defined as "conformant" or "active" by the Responsible Minerals Initiative. Conformant smelters or refiners are those that have been audited and meet the criteria for not directly or indirectly supporting the conflict; active smelters or refiners are those in the process of being audited.
3. See note 1 above.
4. Delve (website), accessed 2020.
5. "Democratic Republic of the Congo," Power Africa fact sheet, USAID, April 2020.
6. Sundar Pichai, "Progress on Our Racial Equity Commitments," *The Keyword* (blog), October 22, 2020.
7. "Greenhouse Gas Equivalencies Calculator," U.S. Environmental Protection Agency, accessed 2020.
8. This approach excluded any refrigerants and likely overestimated natural gas use.
9. See note 2 above.

Google

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Additional resources

Modern Slavery Statements (2019, 2018, 2017, 2016)

Supplier Code of Conduct

SEC filings (2019, 2018, 2017, 2016, 2015, 2014)

Responsible Supply Chain Report (2019, 2018, 2017)