

SAMSUNG

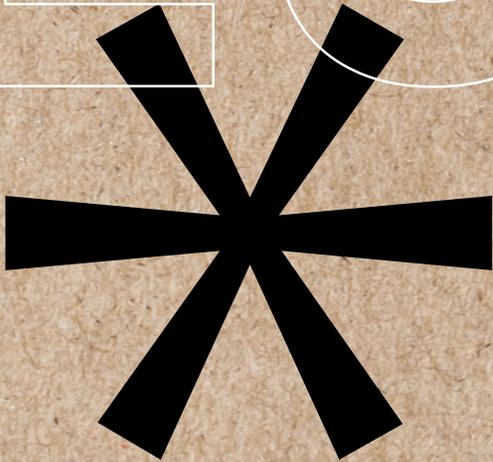


Samsung in America

Environmental Toolkit

Environment
2022

2022



SAMSUNG

Dear readers,

At Samsung, we believe that we are all responsible for protecting the environment for generations to come. While Congress and the Administration continue the important work of crafting policy to achieve these goals, we know that the importance of tackling climate change continues to grow. Samsung has a history of sustainability action, but we also recognize that what we've done in the past is not enough – we at Samsung continue to push forward. We have a responsibility to our communities and our customers to take action now and continue to expand our commitment to sustainable business practices and operations.

Our approach to sustainability combines technological advancement with carbon reduction across our products' lifecycles – leveraging innovative product design, energy efficient manufacturing, convenient repair options, recycling and upcycling to reduce the environmental impact of our operations, our products, and the use of our products. And we work with partners like the EPA's ENERGY STAR program to develop and implement standards that drive progress across the industry.

Since 2020, our U.S. operations run on 100% renewable energy. 81% of our home appliance products that are eligible for ENERGY STAR certification earned this distinction. And in 2021, we continued our exceptional electronics recycling program, collecting and recycling an average of 100 million pounds of e-waste per year in the U.S.

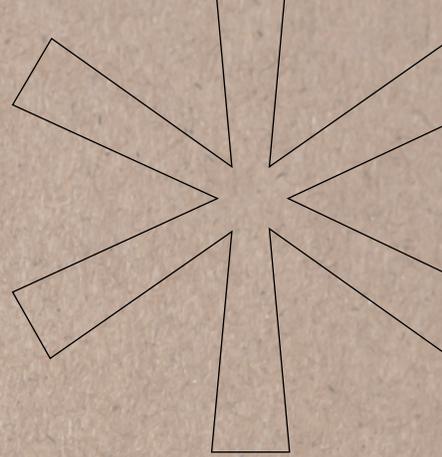
I take pride in Samsung's work as a responsible company and in our dedication to tackling climate change. I believe you will find this toolkit to be a helpful guide in understanding our approach today and into the future.

Sincerely,

Mark Lippert

Executive Vice President,
U.S. Public Affairs
Samsung Electronics America





Dear readers,

At Samsung, meaningful impact starts with everyday changes. Across our product lines and operations around the world, we find new ways every day to drive efficiency and to improve our products and processes. Through a commitment to sustainable operations, sustainable materials, product energy efficiency, product stewardship and working with partners to share our values, we can leverage our scale as one of the world's largest technology companies to drive that meaningful impact.

All of the "little things" – increasing a product's energy efficiency, recycling a device or rethinking sustainable packaging – add up to a large carbon savings and preserves resources for future generations.

In practice, these every day changes have led to:



Galaxy S22 packaging is less **than half the size and weight** of our 2016 Galaxy S7 packaging and contains no virgin plastic



Helping our customers avoid **over 334 million metric tons of CO₂ emissions** through our energy efficient products



Independent Service Provider (ISP) and self-repair programs that will **enable even more customers to extend their device's lifetime**



Solve for Tomorrow and Climate Superstars educational programs **have inspired more than 1.8 million students to think about how technology can help solve environmental issues** in their communities

We are intentional about creating a positive impact where we are able. We focus on initiatives to help customers achieve their sustainability goals and also do our part to create meaningful change. We realize that our products' impact doesn't stop once a customer takes a device or appliance home, so we tackle sustainability using two guiding questions:

1. | How do we make products less carbon intensive?

2. | How can the use of these products make our customers' lives more sustainable?

When our products enter a customer's home, we offer ways to help them live more sustainably. With the SmartThings app, customers can further educate themselves about their home energy use. Our wide range of ENERGY STAR certified appliances by nature of their energy efficiency help customers minimize their carbon emissions during product use.

We are committed to continue driving positive environmental change in our operations, in our products, and for our customers – and excited about the role of innovation in building a more sustainable future, a future we'll all be proud to pass on to our children.

Sincerely,

Mark Newton

Head of Corporate Sustainability
Samsung Electronics America



Product Energy Efficiency

Samsung is committed to helping mitigate climate change through our products, practices, and operations. Through continuous efficiency improvements, we are reducing the energy consumption of the devices that our customers love and demand and helping customers achieve their own sustainable lifestyles.

Product Efficiency Impact

Since 2009, our product efficiency improvements **have helped customers avoid an estimated 334 million metric tons of CO₂ emissions** through the usage phase of our products — **the equivalent of taking over 71 million cars off the road for a year**. This is nearly two thirds of all passenger cars registered in the U.S.

Samsung has a long history of developing energy efficient products.

In the 1970s, our Econo TV reduced energy consumption by over 20%.

ENERGY STAR products **reduce the average household's greenhouse gas emissions by 5,500 pounds** — equivalent to 3.3 acres of forest — **and decrease energy costs by 30%**, compared to non-ENERGY STAR counterparts.



We have over 350 ENERGY STAR certified base models, including:



100%
of notebooks, air purifiers, front-load washers and dishwashers



95%
of refrigerators



60%
of top-load washers



39%
of dryers

Efficiency Through Innovation

Our updated solar-cell remote control is designed to avoid waste from single use batteries. In addition to charging from indoor and outdoor light, the new remote can also harvest radio frequency waves for energy. This remote will be included for all smart TV products in 2022, avoiding the use of up to 200 million disposable batteries.

We have reduced our phone chargers' standby power consumption to less than 0.02W — among the lowest in the industry. We aim to lower this to less than 0.005W by 2025, on our way toward zero.

Samsung's digital inverter compressors significantly reduce the energy use of refrigerators with the technology.

By incorporating AI technology into our products, we can drive efficiency by changing the way consumers tackle everyday tasks, in addition to providing peace of mind.

Our OptiWash feature reduces water and energy consumption by detecting the laundry load's weight and using a patented Turbidity Sensor to determine the ideal amount of water and detergent to use in a cycle.



Solar-cell remote

avoids waste from single use batteries



<0.02W

of standby power consumption of phone chargers



AI technology

helps consumers tackle everyday tasks more efficiently



OptiWash

reduces water and energy consumption in washing machines

Partnerships



Working with partners such as Best Buy, Samsung offers promotions and incentives to encourage customers to purchase ENERGY STAR certified products.



Samsung supports Amazon's The Climate Pledge — a commitment to regular reporting, decarbonization and neutralizing remaining emissions with credible offsets.



Due to our improvements in product energy efficiency, Samsung is a major contributor to Walmart's Project Gigaton, which aims to avoid one billion metric tons (a gigaton) of greenhouse gases from the global value chain by 2030.



We launched the SmartThings Energy app in 2021 to help customers better understand and optimize their home energy usage. We partnered with Copper Labs, Eyedro, and Wattbuy to provide even more opportunities to create a sustainable home.



With Copper Labs, the app can monitor and report whole-home energy consumption in real time, enabling homeowners to set up automations based on energy costs or demand response events.



Eyedro energy monitors measure energy consumption data from specific devices on a home's energy meter, and allow users to measure energy consumption from specific, high-energy consuming devices, such as HVAC systems, pool pumps, and water heaters.



Through Wattbuy's platform, users can access an energy switching marketplace that provides personalized recommendations for more cost-effective energy deals and renewable energy deals.

Recognition

Samsung has earned **23 EPA ENERGY STAR Awards** since 2009.



This includes **9X ENERGY STAR Partner of the Year — Sustained Excellence** awards since 2013 and the prestigious Corporate Commitment Award in 2021. **Samsung is the first and only company recognized with the Corporate Commitment distinction in 10 years.**

In 2013, 2017, 2020, and 2021, Samsung earned the ENERGY STAR Emerging Technology Award for innovative refrigerators, clothes dryers and induction cooktops. Samsung has won four ENERGY STAR Emerging Technology Awards since 2011 — more than any other company. ENERGY STAR Emerging Technology Awards recognize groundbreaking energy efficiency.

Our digital inverter compressors earned the ENERGY STAR Emerging Technology Award for Advanced Adaptive Compressors in 2020.

23 | EPA ENERGY STAR Awards since 2009

9X | ENERGY STAR Partner of the Year — Sustained Excellence

4X | winner of the ENERGY STAR Emerging Technology Award



ACEEE and Samsung have a history of partnership such as working together to preserve funding for the ENERGY STAR program. ACEEE's studies show that energy efficiency can help us get halfway to our climate goals. Samsung strives to keep ENERGY STAR top of mind in its operations and for policymakers and consumers. Samsung has been among the leaders in the Tenant Space program and has been a leader in cutting edge innovative products as demonstrated by its multiple Emerging Technology Awards. ACEEE is proud to work with Samsung because of the company's commitment to ENERGY STAR in both products and buildings."

Steve Nadel

The Executive Director of the American Council for an Energy Efficient Economy (ACEEE)

Product Stewardship

Samsung is saying goodbye to the 'take, make, dispose' model. To foster a circular economy, we design our products to be repaired or recycled easily and keep e-waste out of landfills by upcycling and providing convenient repair options.

Life Cycle Assessments

To understand the full impact of our products, from cradle to grave, we conduct life cycle assessments (LCAs) on our products.

In 2021, 24 of Samsung's semiconductor products, plus 11 TVs, 5 displays, and 14 galaxy devices, received a CO₂ measured Product Carbon Footprint (PCF) label verifying that Carbon Trust had measured the carbon emissions and water consumption throughout the products' lifecycles, from extracting and refining the raw materials to making, distributing, using, and recycling the product.



Responsible Recycling

Re+, Samsung's global e-waste recycling program, is one of the largest in the tech sector. **We collect and recycle ~100 million pounds of e-waste per year in the U.S. alone — and that is only about 10% of what we collect and recycle globally.**

Our goal is to collect 7.5 million metric tons of e-waste globally (since 2009) by 2030. We have various recycling programs in 55 different countries. As of 2021, we collected **5.07 million metric tons.**

We have a goal to achieve zero waste to landfill across global manufacturing facilities by 2025. As of 2021, we are at 96%.



All of Samsung's semiconductor operation sites received UL's Zero Waste to Landfill validation gold level or above in 2020. This certification signifies that these sites achieve at least 95% waste diversion through methods not involving thermal processing.



Samsung partners with Call2Recycle in the U.S. and Canada for takeback of rechargeable batteries and mobile phones.



Samsung has adopted Basel Action Network's (BAN) EarthEye™ service, a global GPS based tracking system to ensure that e-waste is handled properly. BAN also prohibits recyclers from exporting nonworking electronics to developing countries. As a committed e-Steward Enterprise, Samsung strives to prioritize our recycling partners who are BAN e-Steward certified.



We have a partnership with uBreakiFix to enable customers to responsibly dispose of their small electronic devices and computers at over 670 locations nationwide. Samsung expects our partners to adhere to the same high standards of electronics recycling.



Our appliance haul away programs are run multiple times a year in partnership with Best Buy to help ensure products are responsibly recycled.

5.07 million

metric tons of e-waste have been collected since 2009

96% +

of waste diverted through methods not involving thermal processing

GPS tracking

ensures e-waste is not exported to developing countries

Product Upcycling



Our Galaxy Upcycling program repurposes older Galaxy phones that would otherwise be discarded or unused. We've expanded the program to enable customers to

use the SmartThings app to turn their Galaxy phones into smart home devices, such as childcare monitors, pet care solutions, and other tools that meet lifestyle needs.

Phones have been transformed into inexpensive medical diagnosis cameras called EYELIKE™ that aim to improve eye health accessibility for underserved populations. They're currently in use in Vietnam, India, Morocco, and Papua New Guinea.

Through Samsung's Certified Re-Newed program, old devices are refurbished to like-new condition. Consumers



get outstanding performance at a lower price, and because we only replace or repair what is needed to revamp existing devices, we reduce the environmental impact significantly compared to a new purchase.

To earn the "Certified Re-Newed" label, each phone is extensively tested and covered by the same one-year warranty as a new device. Samsung technicians follow a rigorous refurbishing program to ensure like-new condition. Our technicians wipe data, assign new identifiers for security, rebuild using genuine parts and an all-new battery, ensure the devices are tested to factory specifications and have the latest software.

According to the latest U.S. Environmental Protection Agency (EPA) Waste Reduction Model (WARM v15), reusing a phone can have up to 28X lower greenhouse gas impact than recycling and remanufacturing it.

In 2020, we introduced Eco-Packaging across several of our TV product offerings, enabling customers to upcycle boxes into functional items, such as tables and pet houses, instead of disposing of the packaging. The cardboard contains a minimum of 50% recycled content, is sustainable forest certified, and is soy-ink printed with a dot matrix, which gives users easy-to-follow guidance for upcycling.

Repair

Our mission is to deliver a customer-first care experience as innovative as our products. To achieve this, we have a vast network of repair options for our customers, including same day repair for Galaxy devices in over 2,000 retail locations nationwide.

Our network of repair providers has 80% coverage in the U.S. (within a 30-60 minute drive) for in-person, same day service, usually in 2 hours or less. This includes:

900+

Authorized Service Centers.

550+

We Come To You van services, in which an authorized Samsung service provider will come to you to complete phone repairs.

Since 2018, Samsung has worked with uBreakiFix and Best Buy to offer Samsung Galaxy customers same-day, in-person support and repair services. We now have over 900 locations that offer same-day support and repair services.

After launching an Independent Service Provider (ISP) network in October of 2020, we are now working to further expand this repair channel beyond providers with a national footprint to include regional and local ISPs. This program provides qualified entities with access to Samsung genuine

parts, proprietary repair tools for mobile products, and repair documentation to ensure they can provide a high quality of service to customers who choose this channel. We have over 1,100 locations, which are growing daily.

We require our out-of-warranty repair depot Authorized Service Centers (ASCs) to be e-Stewards or R2 certified. We also have a large array of small businesses we partner with to provide excellent customer service to repair consumer electronics and home appliances.

Samsung Galaxy device owners will be able to take product repair into their own hands for Samsung's most popular models, the Galaxy S20 and S21 family of products, and the Galaxy Tab S7+ beginning this summer. Samsung consumers will get access to genuine device parts, repair tools, and intuitive, visual, step-by-step repair guides. Samsung is collaborating with iFixit, the leading online repair community, on this program.

Awards

Samsung has received the U.S. EPA's Sustainable Materials Management Gold Tier Champion award every year since the award's inception in 2014. This award recognizes our leadership in e-waste collection and recycling.



Sustainable Materials

Samsung designs hardware and packaging with a circular economy in mind. Rather than using resources once and discarding them, Samsung is working to ensure that resources can have multiple useful lives. From using recycled materials to removing plastic from our packaging, we are committed to minimizing the environmental impact of our products.

Responsible Materials

SINCE 2009

310,291 tons

of recycled plastics globally in our products.



2030 GOAL

500,000 tons

of recycled plastics globally in our products.

Through the Galaxy for the Planet initiative, we are investing in new and innovative eco-conscious materials and incorporating recycled materials in all mobile products.



We developed a recycled plastic material that gives ocean-bound discarded fishing nets new life as they're incorporated into various Galaxy devices and monitors.



We developed our own recycled aluminum material that we incorporate into our Galaxy smartphone brackets and other internal metal parts, with the goal to continuously adopt more recycled metal into our Galaxy A and M series.



Samsung will eliminate all single-use plastic from smartphone packaging by 2025.

100%

of the paper we use in packaging and manuals is certified by global environmental organizations like the Forest Stewardship Council (FSC).

100%

of the smelters we source metals from are certified by the Responsible Minerals Assurance Process to avoid Conflict Minerals.

Chemical Management



We are leading the effort to eliminate the use of ozone depleting substances and closely follow the EPA's Significant New Alternatives Policy (SNAP) Program, which evaluates chemicals, updates lists of unacceptable substances, and promotes the use of more responsible chemical replacements.

As the industry worked to phase out hydrochlorofluorocarbons (HCFCs) (a successor to chlorofluorocarbons (CFCs) which were banned in 1987) and protect the ozone layer, Samsung became the first refrigerator manufacturer to use R-600a technology, introducing 20 refrigerator models in 2017 that used R-600a as a refrigerant. The EPA recognized our leadership and awarded us with the 2017 Emerging Technology award.

Samsung takes a precautionary approach to chemical management. Substances that may pose a threat to human and/or environmental health are identified and managed based on sound scientific evidence wherever possible. We also consider cases where concerns exist due to conflicting evidence. To keep our stakeholders safe, [Samsung has voluntarily phased out chemicals of concern while continuing to provide high quality products.](#)

For example, Samsung banned the use of multiple types of phthalates for all components and no longer uses sterilizers/anti-corrosion agents for products with air conditioners and air purifier filters.

Samsung also restricts organohalogen flame retardants in our current TVs, monitors, and signage.

Eco-Conscious Packaging



Samsung's mobile, TV, and appliance boxes and manuals are made from recycled and/or sustainably sourced materials. All TV packaging utilizes recycled or bio-based materials in its protective plastic bags. All interior packaging has been redesigned to reduce its environmental footprint and consume fewer resources.

Packaging for the Galaxy S22 contains

0%

virgin plastic.

100%

recycled paper.

>50%

reduction in waste.

>50%

less carbon compared to 2016's Galaxy S7.



As part of our Galaxy for the Planet initiative, we are committed to **eliminating all plastic in mobile packaging by 2025.**

Recognition



13 SMM Awards

Samsung earned the 2020 EPA Sustainable Materials Management (SMM) Champion Award in the Program Category in recognition of our Galaxy S10 eco-packaging strategies. We have won 13 SMM awards since the program began in 2016 for our products and recycling operations. In 2021, we were honored to earn a special EPA Sustained Excellence award for our legacy of SMM achievement, including the introduction of our groundbreaking SolarCell remote.

Sustainable Operations

Samsung is committed to reducing the climate impact of our operations. We have a two-pronged strategy — we optimize the efficiency of our processes and products to reduce our energy consumption, and expand our use of renewable and green power to match our load.

Efficient Operations

Reducing our energy consumption

Samsung’s energy management efforts enable us to understand our operations’ energy use in all occupied spaces, including energy efficiency, energy security, energy use, and renewable energy use. We use this information to set measurable goals, capital improvement investment strategies, and action plans to achieve those goals.

Samsung’s long-term strategy is to achieve continual energy performance improvement.

Several of our office spaces in New York City, Washington, D.C., and South Carolina are ENERGY STAR® certified or a part of the Charter Tenant and Tenant Space programs. In addition to these office spaces, several of our repair facilities and warehouses are also ENERGY STAR certified.

In 2021, our goal was to obtain ENERGY STAR Tenant Space certification for 10% of our premises. **We have exceeded this goal by achieving recognition for 7 spaces, representing 19% of our portfolio.**

Offices in these places are ENERGY STAR for Tenant Space certified or Tenant Space recognized:



New York City



Washington, D.C.



South Carolina

2021 GOAL

10%

of Samsung premises ENERGY STAR Certified



NOW

19%

of Samsung premises ENERGY STAR Certified

Renewable Energy

Supporting the transition to green power

Samsung uses 100% renewable energy to power its worksites in the U.S., China, and Europe. As a result, Samsung ranks among the top performers in the EPA’s Green Power Partnership program.

Every semiconductor chip manufactured in the U.S. is made with 100% renewable energy sources — and we’ll continue working to move the rest of our chipmaking facilities to renewables. Our home appliances made in South Carolina are built with renewable energy as well.

In 2021, Samsung sourced **1,330,258,940 kWh of renewable energy** in the U.S., representing 103% of our electricity consumption.



100%

renewable energy used to power worksites in the U.S., China, and Europe



100%

Renewable energy sourced to make semiconductor chips in the U.S.



100%

of energy consumption in the U.S. is from renewable energy sources

Emissions Reduction

Decreasing our impact on the planet

In 2021, we implemented a total of 476 GHG reduction projects, including enhancing the efficiency of F-gas processing, upgrading to high-efficiency equipment, and streamlining the manufacturing process. As a result, we avoided a total of 6.41 million metric tons GHG emissions compared to the expected emission amount.



~6.4 million

metric tons of greenhouse gas emissions avoided globally in 2021



476

greenhouse gas reduction projects in 2021



Renewable energy

increased by 31% in 2021 compared to last year

Recognition

Earning recognition for our green power commitment

Samsung has been a leader on the EPA's Green Power Partnership list since 2019, when our semiconductor operations transitioned to 100% renewable energy.



EPA Green Power Leadership Award



EPA ranked as **#15** in green power user



EPA ranked as **100%** green power user



EPA ranked as **#8** in Green Power Partnership Tech & Telecom



Samsung is a Clean Energy Buyers Association (CEBA) member

Sharing our Values

Around the world, Samsung technology is enabling companies, organizations, and governments to accelerate the decarbonization of the global economy. Through our investments in our communities and our partnerships with our suppliers, we're training and inspiring the next generation of innovators that are building the ethical, responsible, and low carbon economy of tomorrow.

Employee Volunteerism

Samsung Gives Day of Service - Supporting and engaging with our communities



Samsung has a long history of giving back to our communities. 2021 was our eleventh Samsung Gives Day of Service.



Prior to COVID-19, our offices would close nationwide to allow employees to serve the communities where they work and live.



In 2020, we expanded the campaign to allow more employee giving as part of an entire month's worth of virtual community service.

Employee Awareness

Samsung practices our commitment to sustainability both outwardly and inwardly by building awareness and education among our employees. We host "Sustainability 101 Series" webinars to inform all our employees of our sustainability efforts so that they understand what we are focused on and why.

Education and Youth Outreach

Using STEM to solve social and environmental issues



**Samsung
Solve
for Tomorrow**

Each year, Samsung hosts a \$2 million national competition for public schools, grades 6–12, in which students are asked to

consider how science, technology, engineering and math (STEM) can be used to create change in their communities. With the help of their teachers, students can apply to the contest and compete to win up to \$100,000 in prizes for their school, plus the opportunity to work with Samsung employees to develop their prototypes.



As of 2021, Solve for Tomorrow has expanded to 33 countries, reaching over 1.8 million students.



The 12th annual competition included solutions for issues ranging from urban sustainability and social justice to isolation-induced depression from COVID-19.



This year, Samsung also provided a \$10,000 Sustainability Innovation award to help bring the winning school's project idea to life.

Accelerating environmental literacy

SAMSUNG

Climate Superstars

Developed in partnership with the Environmental Protection Agency (EPA) and National Environmental Education Foundation (NEEF), the Climate Superstars Challenge gets middle school students around the country excited about the environment and how they can take an active role in caring for its future.

Every year, middle school teachers can simply register their class for the online month-long challenge. During the month, students can visit the online Climate Superstars portal to participate in learning activities geared towards environmental literacy and energy efficiency. These lessons are meant to be flexible and can be completed in-person or virtually and are designed to complement lesson plans. Classes that complete at least 7 tasks are entered into a drawing to win Samsung products to modernize their classrooms.

Samsung also partnered with AY Young, an artist, sustainability activist, and one of the United Nations Sustainable Development Goals Young Leaders. He is one of the first artists to power his concerts with 100% renewable energy, naming his tour the "Battery Tour." To support the Climate Superstars Challenge, Young performed live for the grand prize winner's school.

GENERATION17

Mobilizing the Galaxy community to take action

[Samsung partnered with the United Nations Development Programme \(UNDP\)](#) to magnify the voices, stories and ingenuity of young leaders helping to achieve the 17 Sustainable Development Goals. The program mobilizes and supports young leaders through mentorship, Galaxy technology, and networking opportunities.

Partnerships

Through partners, whether non-profits, advocacy organizations, or other businesses, Samsung can extend the reach of our environmental commitment.



Commercially — whether it's working with Best Buy to promote ENERGY STAR, helping Walmart make progress on Project Gigaton, or recycling waste consumer electronics with e-Steward certified recyclers like Electronic Recyclers International (ERI) — partnerships are at the core of our most impactful programs.

Some of our NGOs and non-profit partners and programs include American Council for an Energy-Efficient Economy (ACEEE) to support energy efficiency, Clean Energy Buyers Association (CEBA) to accelerate renewable energy, and Basel Action Network (BAN) to support responsible electronics recycling and disposal.

Labor and Human Rights

Samsung respects the freedom and human rights which all people deserve. Based on the United Nations Guiding Principles on Business and Human Rights (UNGPs) and with the assistance of third-party experts, we established our own framework to identify, prevent, mitigate, and account for any adverse human rights impacts across our business activities. In March 2022, we joined the UN Global Compact, expressing our commitment to embedding its principles in all aspects of our management and corporate culture and expanding our cooperation with global stakeholders, including the United Nations.

We have processes in place to ensure that our partners and suppliers to take the same approach to the rights of those with whom they work. The cornerstones of Samsung's human rights and labor policies are our [Global Code of Conduct](#) and [Supplier Code of Conduct](#), which describe standards of integrity that Samsung worksites and supply chain partners should meet, respectively.

Through our work with the Responsible Business Alliance (RBA), the world's largest industry coalition dedicated to corporate social responsibility in global supply chains, we ensure that our labor and human rights practices are in line with industry best practices. For example, we apply the RBA Code of Conduct to our worksite management, utilize the RBA SAQ (Self-Assessment Questionnaire), and conduct annual on-site audits to ensure compliance and identify any issues requiring corrective action.

Guiding Principles

We have established a robust set of policies and guidelines to protect labor and human rights. These policies are based on:

