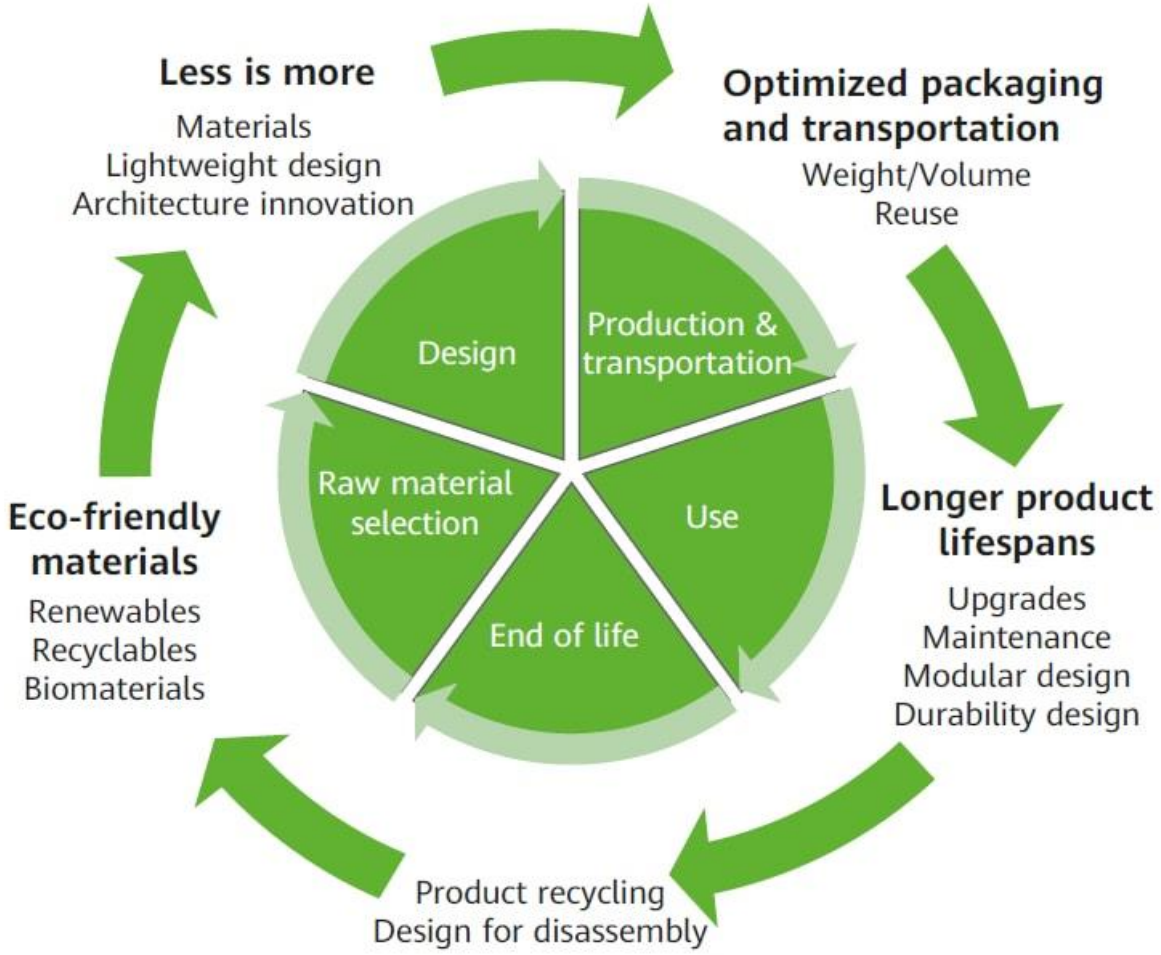
Contributing to a Circular Economy

To use less raw materials and make the most of resources, we are taking steps at the very beginning – the design stage. These include using more eco-friendly materials, reducing the raw materials needed, making products more durable and easier to disassemble, and improving the product recycling system. Huawei maximizes material utilization and minimizes resource consumption throughout the lifecycle of its products. This is how we promote the circular economy.



Making Things Simpler and Products Lighter

Huawei is committed to making things simple for its customers. We use lightweight designs from the very beginning, and we do everything we can to make things simple and user-friendly to contribute to a circular economy.

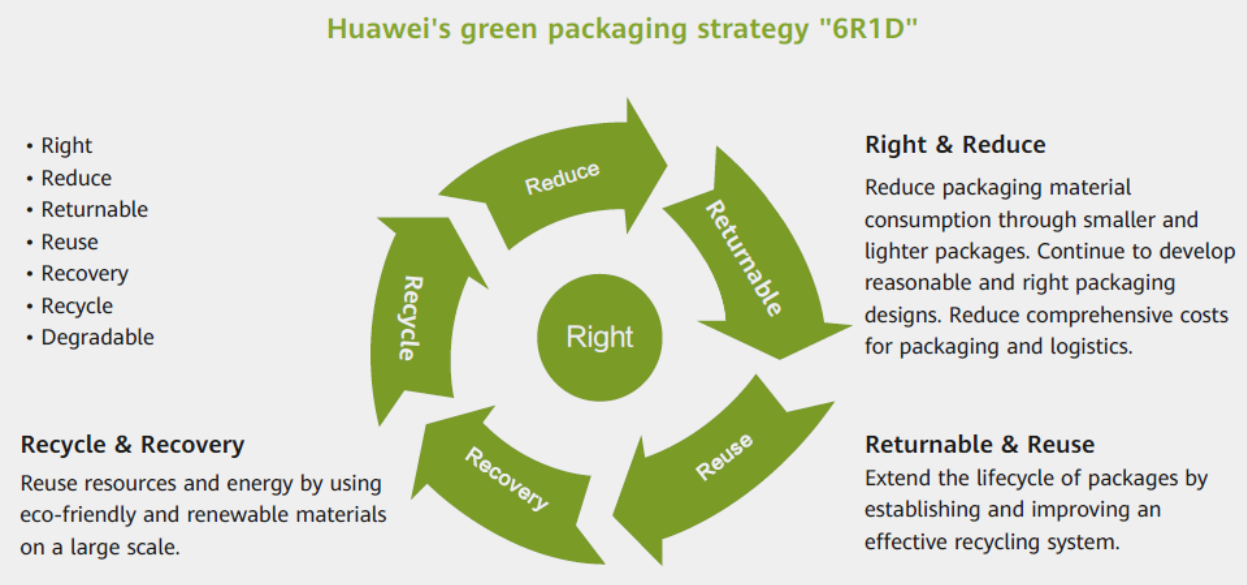
Huawei's third-generation 5G active antenna units (AAUs) are much more integrated and lighter than their predecessors. The 64T64R 5G AAU weighs only 25 kg, so that it can be deployed and installed by one person in most countries.

The simplified design of Huawei Blade AAU integrates the active 5G AAU and passive 2G/3G/4G antennas into one box, for a total height of around two meters. One Blade AAU can support all sub-6 GHz frequency bands, greatly reducing the space and materials required for antenna deployment.

Previously, different remote radio units (RRUs) were needed to support different frequency bands. With Huawei's innovative ultra-wideband technology, only one RRU is needed for multiple bands, which reduces the number of RRUs by two-thirds.

We Saved Over 90,000 m^3 of Wood in 2019

Huawei has implemented the green packaging strategy "6R1D": Right Packaging (the core), Reduce, Returnable, Reuse, Recycle, Recovery, and Degradable. Our lightweight and compact packaging design reduces packaging materials as well as warehousing and transportation costs. We use eco-friendly and renewable packaging materials so they can be recycled and reused as much as possible, saving both materials and energy. We have also established an effective recycling system to facilitate this practice and extend the lifespans of packaging materials.



Huawei's green packaging strategy "6R1D"

Since 2008, Huawei has continuously optimized its packaging design and processes. More Huawei products use greener packaging designs, saving a considerable amount of packaging materials. In 2019, Huawei shipped more than 400,000 pieces of green packaging, saving more than 90,000 m3 of wood.

Over the years, Huawei has worked to apply green packaging to the products it ships around the world. We have developed many innovative materials and processing techniques, including high-strength corrugated carton boxes, multi-density integrated expanded polypropylene (EPP), plastic-steel lightweight pallets, and thin paper honeycomb panels.

Replacing Plywood Pallets with Lightweight Plastic-Steel Pallets

Plywood pallets are usually used for product shipment and transportation. However, plywood pallets are not ideal for long-term use in many complex logistics environments and they require a considerable amount of wood.

In 2019, Huawei developed lightweight plastic-steel pallets for packaging 5G base station equipment and other products, and promoted the reuse of these pallets. Compared with traditional pallets, plastic-steel pallets can reduce the total weight by 1,367 tons per year, saving about 11,000 m3 of wood and reducing CO2 emissions by 6,890 tons. In the future, we plan to gradually apply the plastic-steel pallets to packaging servers and devices to further reduce wood consumption.

Disposable plywood pallets

Lightweight plastic-steel pallets

Multi-density Cushioning Process for Lightweight Packaging

In 2019, Huawei invented an integrated molding process for cushioning materials of different densities. This process enables the seamless integration and integrated molding of materials with different densities in the same mold, and has been applied to protect wireless base station equipment and servers. The new process provides the same level of protection as traditional single-density foam, but it reduces the packaging volume by 30% on average and weight by 20%. For example, packaging for 5G MIMO in 2019 used the multi-density cushioning process, which shrunk the packaging volume by 38% and reduced the combined weight by 291 tons, which is the equivalent of reducing CO2 emissions by 463 tons.

Longer Product Lifespans Means Less Resources Used

One of the most effective ways to conserve resources is to make high-quality and durable products. That's why we conduct strict reliability tests so that our devices are more durable. In addition, we are optimizing the software and hardware of our mobile phones so there are fewer problems, and have established a convenient global repair system to extend the service life of our products and further reduce resource consumption.

Using a product for longer means using less resources in the long run. We always want our mobile phones to look nicer, perform better, and have longer battery life. Our latest EMUI 10.1 system for our smartphones has seen significant improvements in file fragmentation and memory resource scheduling. With these new features, our phones do not freeze up after being used for 18 months. In addition, our hardware system is reliable enough to handle moisture changes and extreme temperature throughout assembly, production, and use.

No matter how reliable a product is, problems are inevitable and repairs are the best way to save material. Huawei has rolled out its battery replacement program globally. The program supports more than 110 models of Huawei phones and allows users to replace their batteries at a fixed price. Each month in 2019, the batteries of hundreds of thousands of mobile phones were replaced through this program.

Our discounted repair program helps reduce maintenance costs for consumers and makes the most of spare parts while ensuring maintenance quality.

We have also established a recycling program for used, out-of-warranty screens in multiple countries outside China so we can continuously reduce resource consumption and maximize resource utilization.

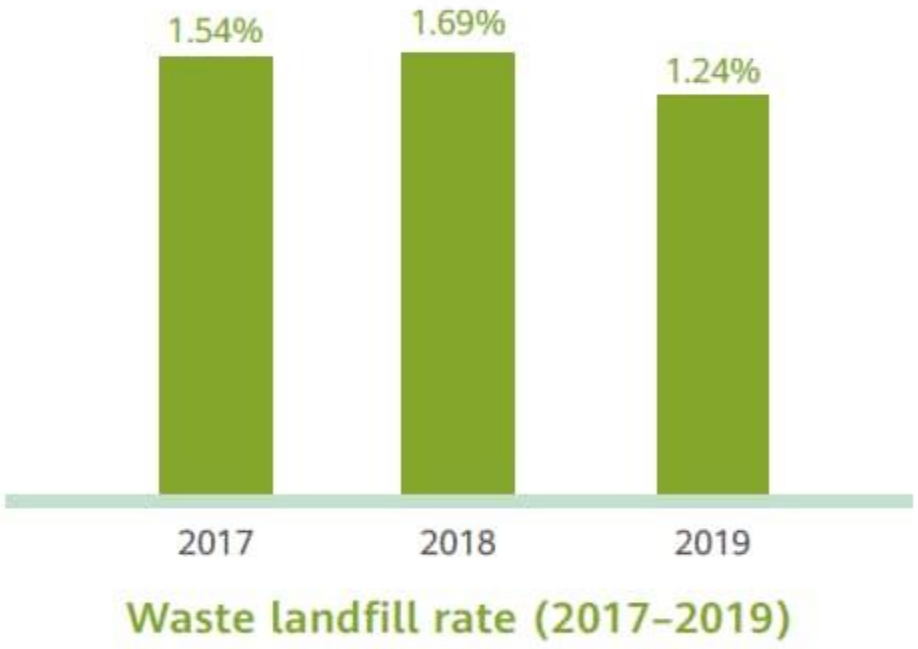
Green Action: Recycling, Reusing, and Upgrading

Recycling is a vital part of the circular economy. To fulfill our extended producer responsibility, Huawei has built a global recycling system that allows consumers to recycle their used electronics and reduce their environmental impact. Huawei wants to give consumers a better understanding of the recycling channels available to them, and involve them more deeply in our recycling process, contributing to the circular economy. By the end of 2019, Huawei was running nearly 1,300 recycling stations in 48 countries and regions around the world. Through a paid recycling program, Huawei's service centers took back more than 300,000 used spare parts (totaling 60 tons) every month in 2019.

Huawei has further scaled up its product trade-in program where we give consumers a discount on new Huawei products and thus increase the reuse rate of used products. In China, we also introduced a new online credit-based recycling program where we give consumers coupons in return for recycling. Outside China, our trade-in program was available in nine countries, including Russia, Italy, Germany, and the United Arab Emirates.

Giving New Life to Waste

In 2019, we disposed of 12,756 tons of waste, 1.24% of which was landfilled. In close collaboration with leading recycling companies, Huawei aims to minimize the environmental impact of waste through category-based waste collection and disposal, exploring ways to reusing as much waste as possible, and reducing landfill.



Waste landfill rate (2017–2019)

Working with Suppliers to Recycle and Reuse e-Waste

Resin powder accounts for a large percentage of e-waste in landfills and is difficult for companies to deal with. Huawei worked with suppliers to analyze its waste landfill data and worked out a solution for reusing resin powder in partnership with the Chinese Research Academy of Environmental Sciences. Together we turn resin powder into new products (through procedures such as modification and prilling), forming a virtuous cycle of waste reuse. In 2019, we made huge headway and trial-produced many new products from resin powder, including trash cans and baskets.

Trash cans and baskets made of used boards

Making Every Drop of Water Count

In 2019, we used 12.94 million m3 of water, up 28% year-on-year. This increase was largely attributable to business growth, larger construction sites, and bigger landscaping areas. We found that most of the water we consumed in our operations was used for landscaping, canteens, and air-conditioning.

To reduce water usage, we have rolled out clean production technologies and adopted a variety of measures such as collecting rainwater, recycling cooling water, recycling condensate, and buying reclaimed water for cleaning and landscaping on campuses.

Using Excess Heat from Condensate to Make Water Purification Systems More Productive

Our Shanghai Research Center uses a water purification system that pre-treats tap water and uses reverse osmosis (RO) to purify the water. Both drinking water and concentrated

water are produced during this process. Normally, when the inlet water temperature is 10°C, the water yield is 60% of the rated yield, and the water yield increases 3% for every one-degree increase in temperature. The RO membrane yields the most water when the inlet water temperature is 25°C.

In the winter, our Shanghai Research Center uses the municipal steam heat exchange system. When steam is converted into heat energy through the heat exchanger, a large amount of warm condensate is created. We use this extra heat to heat tap water and keep the inlet water temperature at 25°C, so that our water purifier is much more productive. We save 1,200 m3 of water each year, with the yield of drinking water up 40% and the water production rate up 10%.