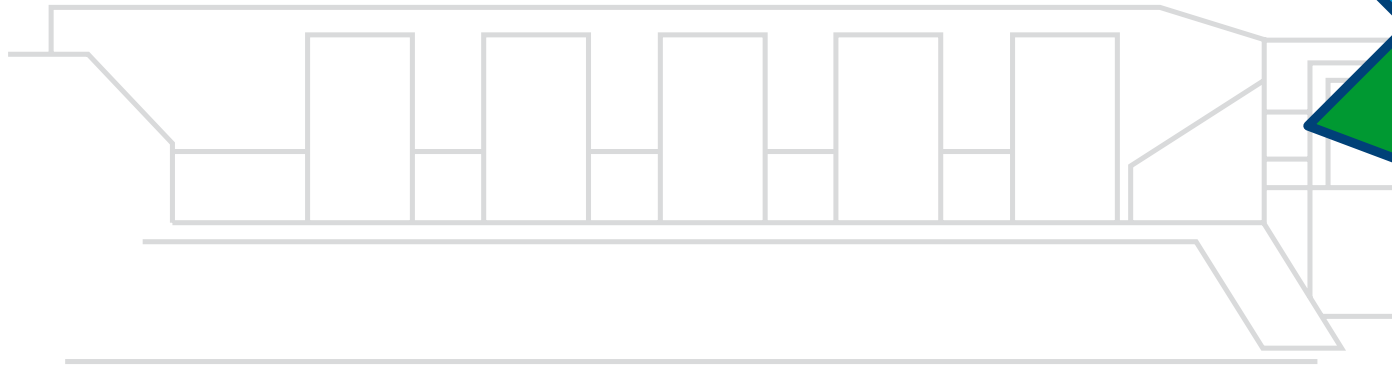




White paper

# **Sustainably packaged:** printing for a better world.

The implementation of environmentally friendly and socially acceptable solutions in packaging printing.



# Preface



All areas of industry have undergone a worldwide paradigm shift in the last ten years: global warming can no more be argued away than the pollution of our waters by chemicals and microplastics. At the same time, an increasing scarcity of raw materials is forcing us to manage resources more carefully and invest in sustainable energy generation. Greenhouse gas emissions have skyrocketed in the past 120 years.

In response, the first comprehensive and legally binding climate protection agreement, known as the Paris Agreement, was concluded at the Paris Climate Conference (COP21) in December 2015. The Agreement was ratified on October 5, 2016 between almost 190 parties and came into force on November 4, 2016. The basic objective is to keep global warming well under 35.6°F (2°C) as a way of keeping the increase in temperature under 34.7°F (1.5°C).<sup>1</sup>

In September 2020, as part of a European Green Deal, the European Commission further proposed to increase the target for

reducing CO<sub>2</sub> emissions by 2030 to at least 55 percent compared with 1990 levels. In the medium term, the goal is to work towards a climate-neutral economy. The aim by 2030 is to

- reduce greenhouse gas emissions by at least 40 percent compared with 1990
- have at least 32 percent of renewable energy
- increase energy efficiency by at least 32.5 percent<sup>2</sup>

Companies worldwide are therefore under pressure to implement the politicians' climate goals.

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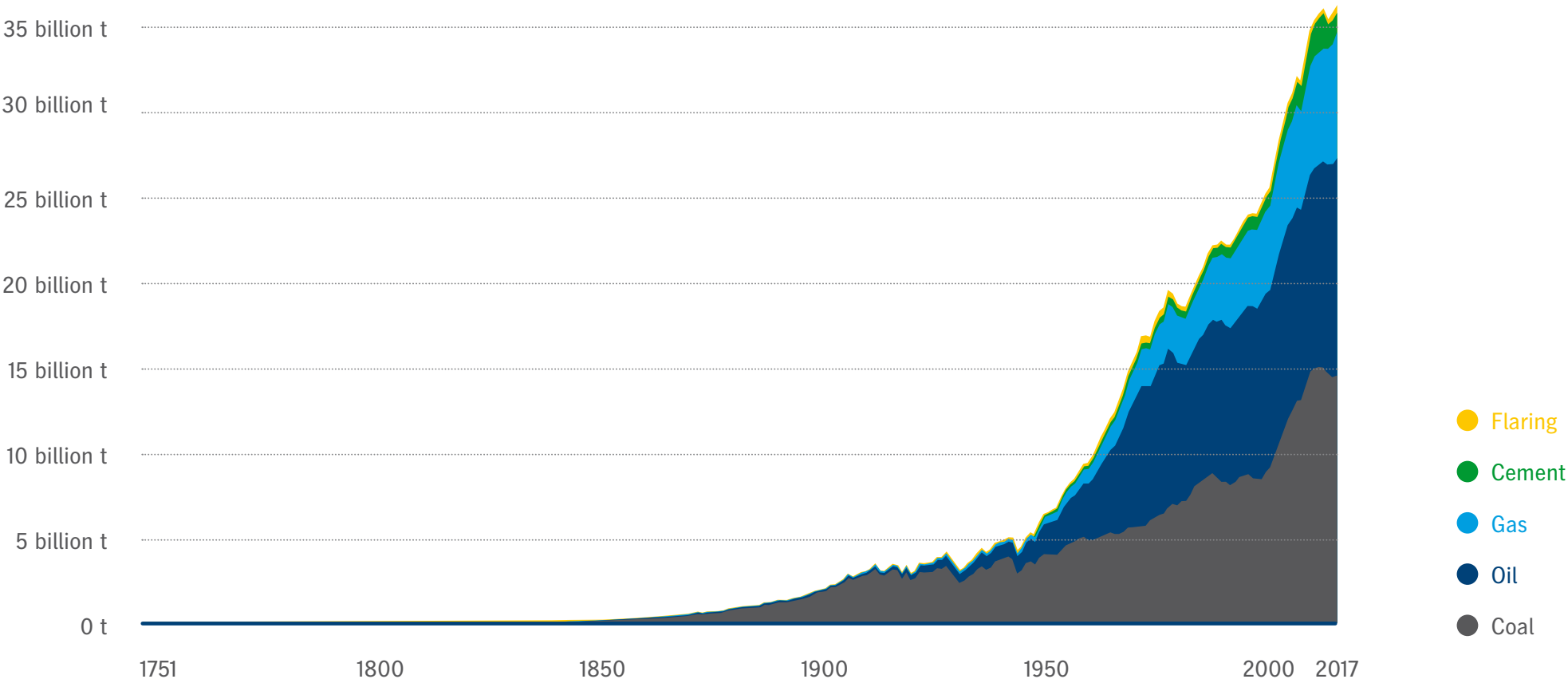
<sup>1</sup> [https://ec.europa.eu/clima/policies/international/negotiations/paris\\_en](https://ec.europa.eu/clima/policies/international/negotiations/paris_en)

<sup>2</sup> [https://ec.europa.eu/clima/policies/strategies/2030\\_en](https://ec.europa.eu/clima/policies/strategies/2030_en)

# CO<sub>2</sub> emissions worldwide

## CO<sub>2</sub> emissions by fuel type, worldwide

Annual carbon dioxide (CO<sub>2</sub>) emissions from different fuel types, measured in tonnes per year.



Source: Global Carbon Project (GCP), CDIAC  
[OurWorldInData.org/co2-and-other-greenhouse-gas-emissions/](https://OurWorldInData.org/co2-and-other-greenhouse-gas-emissions/)

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# We want to be responsibly minded: consumers and investors are demanding more sustainability

Not least since the establishment of the Fridays for Future movement in summer 2018, public awareness of environmental issues has heightened dramatically. More and more sections of the population are attaching importance to sustainable and environmentally compatible products that are also packaged in an environmentally friendly way.

Many start-ups as well as young and globally established companies are seizing upon this trend, using new materials with a high percentage of recycled content or developing zero-waste and circular economy models.

Plastics are increasingly frowned upon in packaging, while folding boxes are considered one of the most sustainable packaging solutions today. Companies failing to engage with this transformation may lose out massively on market power in the coming years.

The topic of sustainability has finally also reached the financial markets. Corporate and private investors as well as institutional investment vehicles such as sovereign wealth funds or pension funds are now turning their backs on stocks and bonds issued by companies whose ecological or social standards do not stand up to scrutiny. Special indices like the Dow Jones Sustainability Index (DJSI) and rating agencies like ISS or MSCI are already offering guidance on sustainable investing.<sup>3</sup>

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<sup>3</sup> Thomas Krick: Verantwortung als Chance: das Transformationsthema Sustainability [Responsibility as Opportunity: Sustainability as a Transformation Topic] <https://www2.deloitte.com/de/de/pages/risk/articles/sustainability-transformation.html>  
Available in German only



# Aspects of corporate sustainability

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Sustainable corporate strategies are not, however, limited to the implementation of environmentally sound processes. Sustainability also includes corporate social responsibility. Among other things, this includes “responsibly minded corporate management in the interest of the internal and external stakeholders” as well as “making all value-added steps in the corporate sphere of influence socially and environmentally compatible”. Any voluntary commitment to sustainable action needs to go far beyond the statutory provisions.<sup>4</sup>

To ensure a positive brand image nowadays, it is therefore no longer enough to offer products and services that impress solely on quality or price. Only companies that make their processes sustainable at

all levels will be perceived in the market in the future as a driver of innovation. Here, too, the use of environmentally sound packaging solutions is now playing an important role.

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<sup>4</sup> adelphi und Institut für ökologische Wirtschaftsforschung (IÖW) GmbH: Handlungsfelder unternehmerischer Nachhaltigkeit. Praxisbeispiele und Entwicklungsbedarf [https://www.adelphi.de/de/system/files/mediathek/bilder/Handlungsfelder\\_unternehmerischer\\_Nachhaltigkeit.pdf](https://www.adelphi.de/de/system/files/mediathek/bilder/Handlungsfelder_unternehmerischer_Nachhaltigkeit.pdf)  
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“Some retail groups are gradually switching over the paper packaging for their own private label products to more environmentally friendly alternatives to enhance their brand image. This puts pressure on the competition to act.”

**Susanne von Eisenhart-Rothe**, Segment Marketing Manager, Heidelberg Digital Unit

# Packaging: Tackling the negative image

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Packaging manufacturers are feeling the pressure from customers for greater sustainability especially keenly. For example, fast-food giant McDonald's responded to consumer criticism by long ago replacing polystyrene packaging, then commonplace, with recyclable, printed cardboard boxes.<sup>5</sup> And retail chains that are swapping their traditional plastic bags for recycling solutions or withdrawing products in plastic packaging from their range now have the edge with customers. Even discounters like Aldi and Lidl are highlighting their activities around sustainability in their advertising.

Social media is amplifying these trends and can act as "reputation generators"<sup>6</sup> in both the positive and the negative sense. Never before have consumers been able to articulate their demands and requirements as directly and effectively. By making as many as possible of their processes climate-neutral, companies are putting in place company-wide sustainability strategies to avoid negative headlines and portray a positive brand image.

A study conducted by Smithers Pira in the five European markets of Germany, Great Britain, France, Italy, and Spain back in 2017 found that 96 percent of the companies surveyed were of the view that sustainable packaging was important for their business even then.<sup>7</sup>

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<sup>5</sup> [https://www.interpack.de/de/TIGHTLY\\_PACKED/NEWS/NAHRUNGSMITTELVERPACKUNGEN/News/McDonald%E2%80%99s\\_Verpackungen\\_als\\_Markentr%C3%A4ger](https://www.interpack.de/de/TIGHTLY_PACKED/NEWS/NAHRUNGSMITTELVERPACKUNGEN/News/McDonald%E2%80%99s_Verpackungen_als_Markentr%C3%A4ger)  
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<sup>6</sup> Michael Pütter: Social Impact: Der Einfluss sozialer Medien auf unsere Kaufabsichten [Social Impact: Social Media's Influence on our Buying Intentions] in Journal für korporative Kommunikation [The Journal for Corporate Communication], March 21, 2019  
<https://journal-kk.de/michael-puetter-social-impact-der-einfluss-sozialer-medien-auf-unsere-kauf-absichten/>  
Available in German only

<sup>7</sup> <https://www.absatzwirtschaft.de/haendler-sind-sich-einig-nachhaltige-verpackungen-sind-gut-fuers-geschaeft-103917/>  
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# 96 %

of the companies interviewed in a study by Smithers Pira in 2017 stated that sustainable packaging was a very important factor for their companies.

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# Our sustainably designed product portfolio reduces CO<sub>2</sub> emissions – and does even more for sustainability

With development and production sites in five countries as well as around 250 sales agencies, Heidelberg Druckmaschinen AG is one of the biggest solution providers worldwide for the printing industry. It has been investing in sustainable production and sustainable economic activity for many years. It also helps print shops implement their own sustainability strategies.

Wherever possible, Heidelberg® boosts the energy efficiency of its products and reduces the paper waste, process emissions, and process waste that occur during operation. Heidelberg also optimizes the overall efficiency of complete production lines, including all production steps from prepress, through press, to postpress.

All Heidelberg presses for prepress, press, and postpress are now available in CO<sub>2</sub>-neutral versions. Heidelberg has agreed a process with the Fraunhofer Institute for Environmental, Safety, and Energy Technology that allows it to issue certificates to its customers verifying the CO<sub>2</sub> neutrality of the respective presses.

Well-thought-out improvements like efficient dryers, where the round nozzles work with the smallest possible clearance to the printed sheet, improve the environmental compatibility of the printing process. Standby mode, a feature only available in Heidelberg printing presses, reduces the system's energy consumption compared with operating mode from 10 to 3 kW.



“Sustainable business not only strengthens the company, but also radiates out to society as a whole. A company that purchases a CO<sub>2</sub>-neutral press for packaging printing from Heidelberg is supporting a reforestation project in Ethiopia through their action.”

Harald Woerner, Environment & Sustainability Management, Heidelberg Druckmaschinen AG



“Cardboard has the biggest CO<sub>2</sub> footprint in packaging production. It is also the most expensive raw material in printing. Cardboard made from fresh fibers from sustainably managed forests such as FSC- or PEFC-certified materials as well as those with a high recycling content are especially environmentally friendly.”

Harald Woerner, Environment & Sustainability Management, Heidelberger Druckmaschinen AG

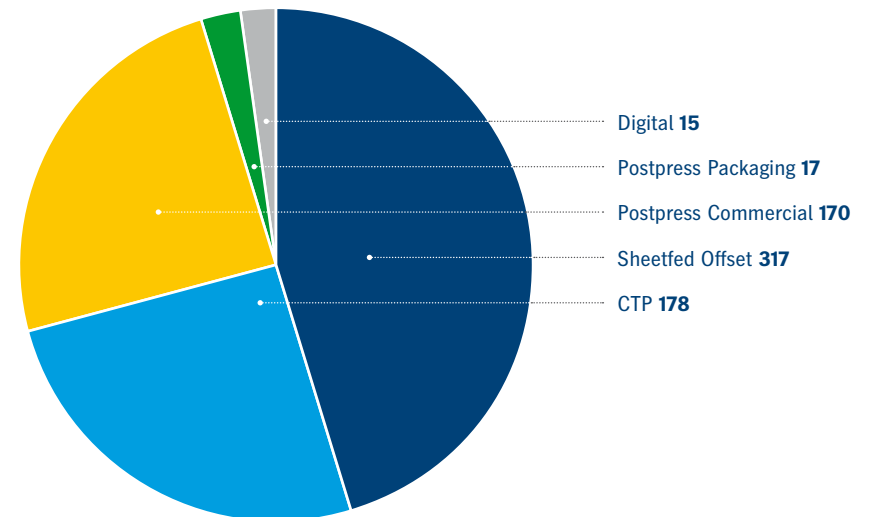
In the highly efficient washup programs of Speedmaster printing presses, just a few centiliters of detergent are enough to clean the printing units.

In addition, Heidelberg is constantly expanding its range of green consumables. The mineral oil-free printing inks, chemical-free printing plates, and VOC-reduced dampening solutions offered by Heidelberg in its consumables product line Saphira® Eco minimize harmful

emissions like VOCs, ammonia, and fine dust. They are based on renewable raw materials, are recyclable for the most part, and meet all the requirements of the REACH Regulation (Registration, Authorization and Restriction of Chemicals).

### Heidelberg promotes CO<sub>2</sub>-neutral production processes

There are currently already some 645 CO<sub>2</sub>-neutral Heidelberg presses in use in some 48 countries around the world. In this way, Heidelberg customers are not only helping to reduce greenhouse gas emissions, but also indirectly supporting the diverse ecological and social sustainability projects by means of which Heidelberg wants to make our world a little bit better.



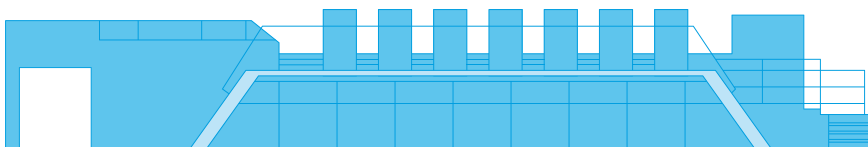
Date: March 17, 2021

## Speedmaster XL 106-6+L – the intelligent solution for complex tasks in packaging printing

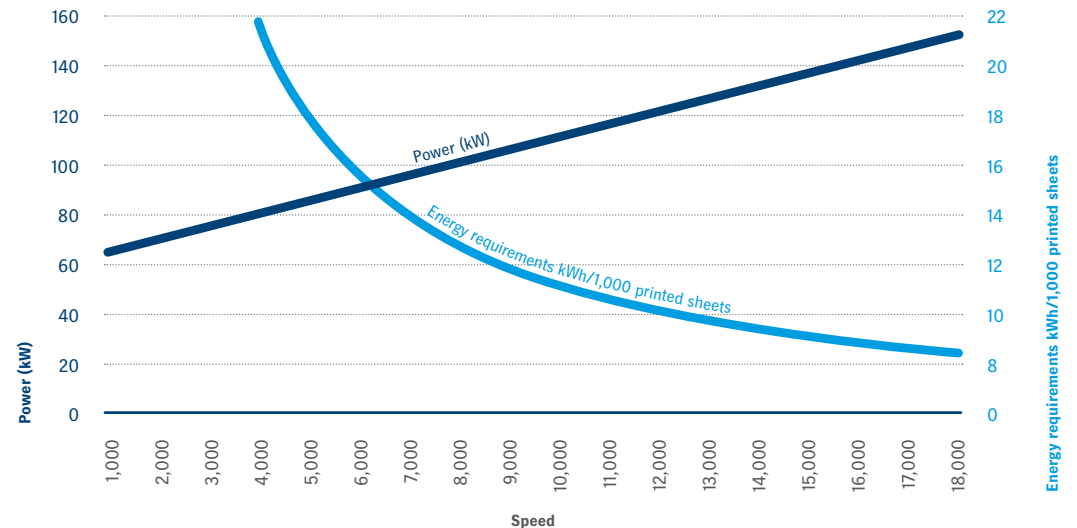
The Kyoto Protocol, adopted in 1997, stated that industrial processes in the year 2020 would have to be at least 20 percent more efficient compared with the Protocol's base year of 1990.

Comparing the flagship product from Heidelberg Druckmaschinen AG in 1990, the Speedmaster® CD 102-6+L, and the flagship product of today, the Speedmaster XL 106-6+L, not only has efficiency been increased by 40 percent, but productivity has also been increased by over 100 percent. The requirement outlined in the Kyoto Protocol was therefore doubled.

As a result, compared with the Speedmaster CD 102-6+L (13.8 kWh/1,000 printed sheets), energy consumption on the Speedmaster XL 106-6+L has been reduced to 8.0 kWh/1,000 printed sheets. This is equivalent to an energy efficiency gain of over 40 percent.



### Speedmaster XL 106-6 + L



Integrated energy meters provide the proof: the faster and more productive the press, the more energy efficient the business.

- 1 Continuous process optimization through artificial intelligence
- 2 Improvement of overall equipment efficiency (OEE) through intelligent automation
- 3 Waste ejection eliminates the need for subsequent quality inspection

## Heidelberger Druckmaschinen AG: sustainability at the Wiesloch site

The pursuit of sustainability shapes all operations at the head office of Heidelberg in the Baden-Württemberg town of Wiesloch, with the employees receiving sustainability training to drive home the importance of sustainable processes and sustainable action.

Also, from a technical point of view, the entire company complex in Wiesloch is designed for sustainability: solar modules on the roof of the research and development center, the Innovation Center, are used for environmentally friendly energy generation and to control the climate in office spaces.

The company's own gas-powered CHP plant with two generators produces both power and heat. The waste heat is used as process heat for manufacturing the presses as well as to heat offices and production buildings. This enables a fuel or primary resource saving of up to 40 percent compared with conventional separate generation of power and heat.

Biodiversity instead of a concrete jungle: a wildflower meadow is being cultivated right on the company site in Wiesloch. Acting on their own initiative, enthusiastic apprentices designed an insect hotel to provide an attractive habitat for the useful little insects.



“We understand sustainability to mean long-term harmony between ecology, economy, and social responsibility.”

**Harald Woerner**, Environment & Sustainability Management,  
Heidelberger Druckmaschinen AG

# Heidelberg strives for sustainability goals: sample projects

Around 260 metric tons of CO<sub>2</sub> are produced during the manufacturing process for the Speedmaster XL 106-6+L. Heidelberg offsets these greenhouse gases for the presses in the Print Media Center by purchasing climate protection certificates. These certificates can also be purchased by customers for their machines.

By purchasing these certificates for CO<sub>2</sub>-neutral Heidelberg printing presses, print shops are supporting the ecological and social sustainability initiatives Heidelberg is running in the forest regeneration region of Sodo in Ethiopia. By doing this, they also have the opportunity to make their own image “sustainable”. The possible positive domino effect achieved by initiating further projects in the sense

of the UN sustainable development goals is quite intentional.

## **Reforestation in Sodo, Ethiopia, following the principle of FMNR**

Tony Rinaudo, also known as the “forest maker”, was named the winner of the Alternative Nobel Prize, the “Right Livelihood Award” in 2018. He developed the Farmer-Managed Natural Regeneration (FMNR) method, by means of which new roots can be coaxed from the roots of fallen trees in the Sahel Zone. In this way, together with the local population, he succeeded in pushing back the desert and developing new habitats.



Reforested mountain slopes in Mount Damota, Sodo in Ethiopia.

If companies buy their Heidelberg presses CO<sub>2</sub> neutral, they will support image-enhancing activities, which are good for promoting their business.

**Harald Woerner**, Environment & Sustainability Management, Heidelberger Druckmaschinen AG



This project supports the expansion of these children's school in the Mount Damota region.

Heidelberg seized upon Rinaudo's method to reforest Mount Damota near Sodo in Ethiopia, around 300 km to the south of the capital Addis Ababa, and make the soil fertile again. The trees grown in this way from old roots or stumps can bind CO<sub>2</sub> right from the beginning, more quickly and more effectively than young saplings. The local population assumes responsibility itself for the project's continuation and the care of the new tree population. This

meant it was also possible to create jobs in the region.

#### **Investment in education and infrastructure**

Along with the ecological aspect of the sustainability project in Ethiopia, Heidelberg also focuses on the expansion of educational facilities and local infrastructure. For example, Heidelberg is supporting a project to extend a school.



#### **Evaluation of the situation in 2020:**

##### **Tree-planting campaigns run by Heidelberg**

Up to the end of 2020, a total of around 240,000 trees were planted as part of climate-protection activities by Heidelberg – on a total surface area measuring around 5.7 million square meters. This is equivalent to roughly 800 soccer pitches with 300 trees each or eight times the area of the Heidelberg site in Wiesloch.

# United Nations' sustainable development goals: the new roadmap for responsible corporate action

Under the global plan of the 2030 Agenda, the 17 goals are to be achieved by 2030 as a way of promoting lasting peace, prosperity, and the protection of our planet. Core topics here are reducing poverty and inequality.<sup>8</sup>

Sustainability is an integrated process at Heidelberg, extending well beyond direct, corporate interests and including a multitude of ecological and social projects all over the world with mutually beneficial effects. All in all, sustainability activities of Heidelberg in the region of Sodo support eleven of the 17 sustainable development goals defined by the United Nations in the 2030 Agenda:

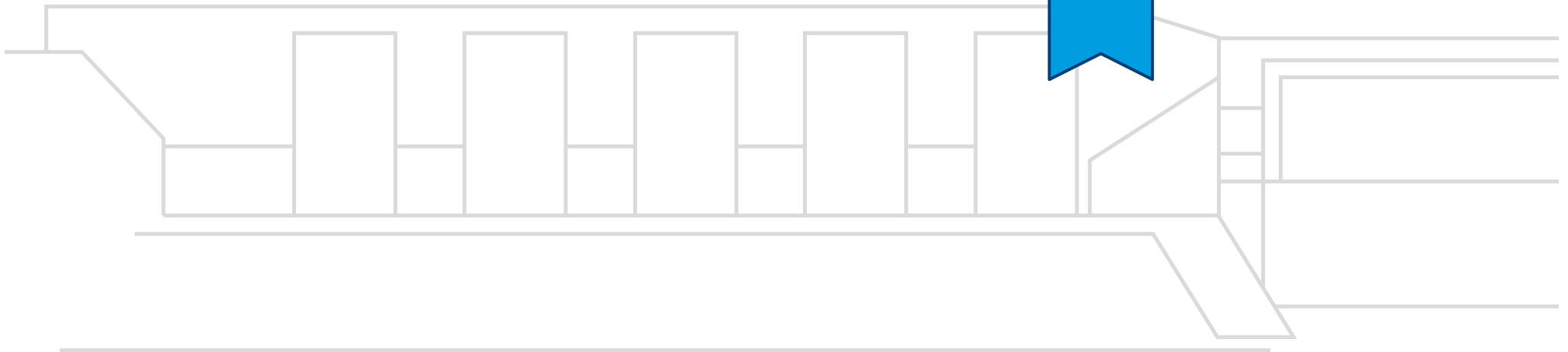


Overall, the sustainability activities by Heidelberg contribute to eleven of the 17 Sustainable Development Goals (SDGs) set by the United Nations

<sup>8</sup> <https://unric.org/de/17ziele/>

# Summary: sustainability as an integrated task

Sustainability concerns us all and requires all of our input. Heidelberger Druckmaschinen AG is leading by example: all production sites are today already certified to the environmental management standard ISO 14001. All internal workflows, production processes, and products are continuously optimized with regard to their ecological compatibility and energy efficiency.



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