



Bertelsmann Carbon Footprint and Environmental Indicators 2017

The Company

Bertelsmann is a media, services, and education company that operates in about 50 countries around the world. It includes the broadcaster RTL Group, the trade book publisher Penguin Random House, the magazine publisher Gruner + Jahr, the music company BMG, the service provider Arvato, the Bertelsmann Printing Group, the Bertelsmann Education Group, and Bertelsmann Investments, an international network of funds.



www.bertelsmann.com

The company has approximately 119,000 employees and generated revenues of €17.2 billion in the 2017 financial year. Bertelsmann stands for creativity and entrepreneurship. This combination promotes first-class media content and innovative service solutions that inspire customers around the world.



Contents

1.	About this Report	4
2.	Environmental Policy at Bertelsmann	5
3.	Overview of Environmental Indicators According to GRI	8
4.	Development of Environmental Indicators by Division	9

Facts 2017

The Bertelsmann carbon footprint was reduced by 8 percent in 2017.

91 percent of the paper purchased by Bertelsmann came from recycled or certified sources – an increase of 5 percentage points compared to the previous year.

The use of renewable energies with certifications of origin increased by 34,600 MWh compared with the previous year.

Water usage fell by 4 percent compared with the previous year.

In 2017, 96 percent of the waste was recyclable.

1. About this Report

Bertelsmann considers environmental protection to be an integral component of its corporate responsibility. In its annual carbon footprint report, Bertelsmann provides a transparent account of the effects of its activities and those of its various divisions on the climate and the environment.

The report explains changes in key environmental figures of various business divisions from the viewpoint of the Group. An overview of the key environmental indicators recorded throughout the Group is presented in the form of a table in Chapter 3. Changes in the indicators and progress in realizing the Group-wide environmental objectives are presented and discussed in Chapter 4. This publication forms part of the comprehensive reporting on sustainability at Bertelsmann presented in the Corporate Responsibility Report and on the Bertelsmann website.

Reporting of the key environmental indicators is based on the standards of the Global Reporting Initiative (GRI). Greenhouse gas emissions are accounted for according to the "Corporate Accounting and Reporting Standard" and the "Scope 2 Guidance," and with reference to the "Corporate Value Chain (Scope 3) Standard" of the Greenhouse Gas Protocol (GHG Protocol).

In this Carbon Footprint Report, the environmental indicators of the Bertelsmann divisions RTL Group, Penguin Random House, Gruner + Jahr, Arvato, and Bertelsmann Printing Group are presented separately. Because of their comparatively small environmental impacts, the activities of the three independent divisions BMG, Bertelsmann

Education Group, and Bertelsmann Investments and Corporate are summarized in this report under the category "Other."

The data collection for the 2017 financial year included 386 companies at 451 locations across all business divisions. All production and logistics locations, as well as the Bertelsmann-owned data centers, were fully included in the data collection. The environmental data for 6 percent of the employees (full-time equivalent employees) at office locations was calculated based on average consumption values.

The reporting period of this publication is the 2017 financial year. The prior-year data presented for purposes of comparison has been adjusted as a result of the integration, with retroactive effect from January 1, 2017, of several digital marketing businesses of Arvato into the Bertelsmann Printing Group, and based on new knowledge from the data gathered recently concerning individual consumption values. In addition, the sources for selected CO₂ factors have been standardized and applied retroactively, which has also led to changes in the prior-year values.

2. Environmental Policy at Bertelsmann

Organization

The Bertelsmann environmental policy and the Bertelsmann paper policy form the framework for the responsible use of natural resources and for environmentally conscious procurement of energy and materials. In accordance with these policies, Bertelsmann and the companies in its various business units are striving to steadily reduce any negative impacts of their business activities on the environment.

Cross-divisional coordination of the environmental activities is entrusted to the “be green” working group. Under

the direction of the Corporate Responsibility & Diversity Management department, the “be green” representatives from the various business units regularly discuss current environment-related events and topics. This international group of experts, which reports to the Corporate Responsibility Council under the direction of the Chief Human Resources Officer, assesses and oversees the implementation of environmental measures in the various business units. Bertelsmann also uses this platform for the company-wide transfer of knowledge and best-practice examples.

Objectives

The Group-wide environmental objectives adopted by the Bertelsmann Corporate Responsibility Council provide orientation for the many different environmental protection measures of the Bertelsmann companies.

Bertelsmann supports the objective pursued by the international community of limiting global warming to less than 2° C. By the year 2025, the company is therefore striving to reduce its greenhouse gas emissions, adjusted for any changes to the portfolio, by 20 percent relative to 2014. As an intermediate step, the company is aiming to reduce emissions by 10 percent until 2020. The objective applies to the use of motor fuels and fuels for the company’s own generation of electrical power and heat (Scope 1) and to purchases of electricity and heat (Scope 2).

Because paper remains the most important resource in the traditional print and publishing businesses of Bertelsmann, responsible procurement and the use of paper play an important role for the company. As a supplement to the paper policy, Bertelsmann is therefore aiming to increase

the share of recycled paper and papers from certified sustainable forestry to more than 90 percent Group-wide until 2020. The certifications accepted in this regard must meet the requirements of FSC®, PEFC®, SFI® or comparable standards.

In many cases, the individual Bertelsmann units are already supporting the attainment of the Group-wide environmental protection objectives through their own guidelines. The RTL Group, for example, is aiming at a 20-percent reduction in greenhouse gas emissions until 2025 compared to 2016, and this includes Scope 1 and 2 emissions as well as emissions from business travel. Penguin Random House has set itself the goal of transitioning its paper purchasing to 100-percent sustainable paper by 2020. Gruner + Jahr, Arvato, and the Bertelsmann Printing Group have also set various targets at the company level and for individual locations with regard to energy efficiency, paper purchasing, and other environmental issues.

Digital data management with “green.screen”

Progress toward the Group-wide environmental objectives is measured by collecting environmental data from business units around the world each year. In order to professionalize environmental reporting, Bertelsmann is introducing the IT-platform “green.screen” for Group-wide reporting and the management of energy data. Bertelsmann is hereby also responding to growing requirements on the part of customers and business partners, as well as requirements that must be met for the certification of energy and environmental management systems.

Developed in cooperation with Arvato Systems, the web-based “green.screen” solution is expected to reduce the efforts required to report environmental data both at headquarters and at individual locations, and ensure faster availability of the latest data. The optimization of data-management processes also enables improved analysis options and forecasting accuracy.

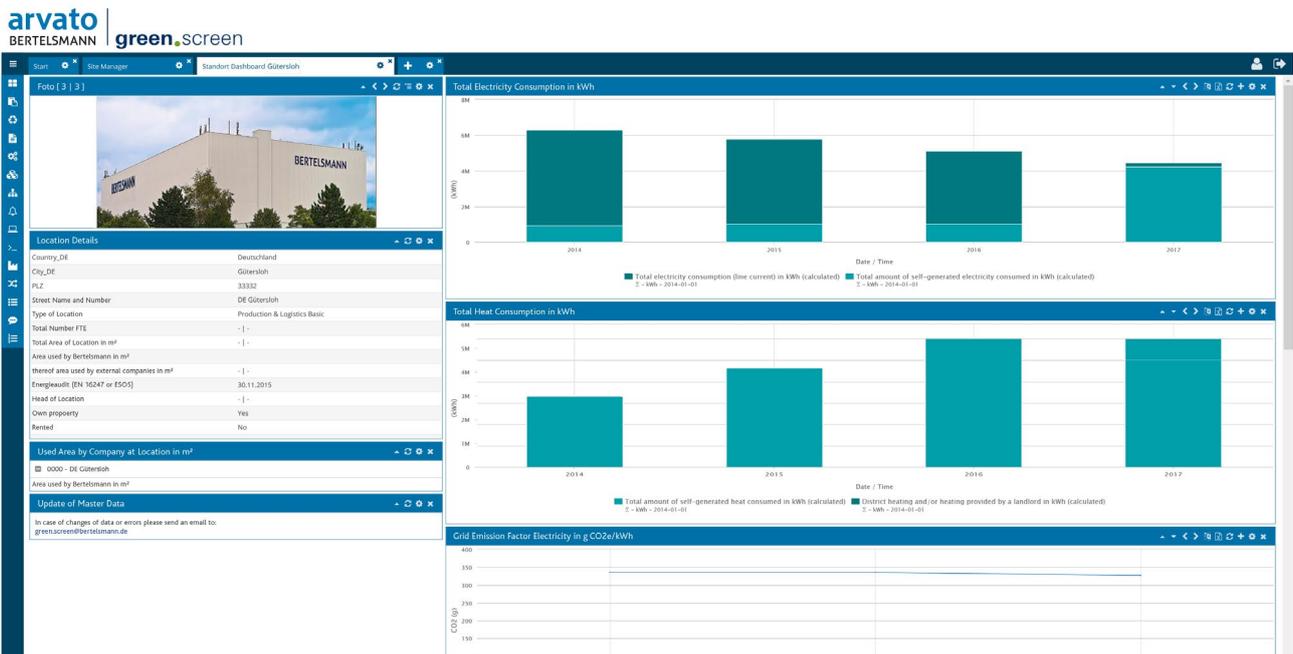


Figure 1: Exemplary dashboard for a location in green.screen

With regard to energy-data management, the platform offers pinpoint monitoring of energy data and provides tools for detailed analyses. The system facilitates the performance of energy audits and depicts the certification requirements of relevant ISO standards. It helps individual locations and companies to make better use of financial or energy-related savings potential, such as through optimized energy procurement, simplified audits, and increased transparency of power and heat consumption.

In the reporting year, the system was successfully used for the first time at more than 200 Arvato locations worldwide. For the reporting year 2018, the environmental data of the fully consolidated companies of all Bertelsmann divisions will be collected via “green.screen.”

“be green Day” campaign 2017

The Group-wide “be green Day” campaign took place in 2017. Under the motto, “Your help matters — united for more climate and environmental protection,” a total of 84 Bertelsmann locations in 20 countries participated and organized a day full of activities on behalf of climate and environmental protection.

The “be green” experts first launched the “be green Day” back in 2010, and this year it was held at many locations for the sixth time. Unlike in past years, the “be green Day” was celebrated locally at several days in the period from April to November 2017. The interactive “be green” world map on the intranet served as a hub for participants, a place where all the locations documented their local projects and activities. The map thus represented a central information platform and served as a source of encouragement for other locations to take part in the campaign.

Earth Day on April 22, was chosen by Penguin Random House USA to kick-off the “be green Day” campaign. The headquarters in New York widened its “Corporate Matching Gifts Program,” in which the company matched cash donations made by its employees, to environmental organizations. In addition, the company put together a comprehensive overview of books on various topics related to the environment and the climate.

Local “be green Days” took place at many other locations as well, such as São Paulo, Mexico City, Dakar, Madrid, London, Hamburg, Istanbul, Mumbai, Singapore, Hong Kong, and the Philippines. A small selection of the activities is shown in Figure 2.

The campaign wound down in October at Arvato Financial Solutions in Baden-Baden, where employees learned all about the basic physical principles of extracting, storing, and using energy at over 20 interactive exhibits and multimedia terminals that were set up in a large expedition vehicle. Amongst others, a model house presented many possibilities how to save energy at home.

The next “be green Day” campaign is scheduled to take place in 2019.

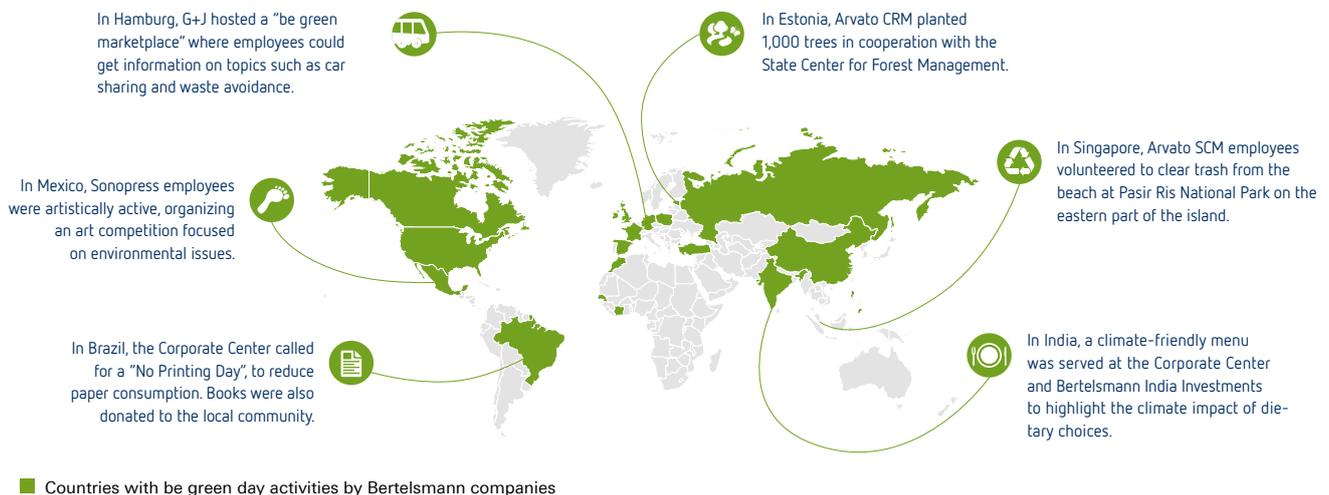


Figure 2: Some of the global activities being held during the “be green Day” campaign 2017.

3. Overview of Environmental Indicators According to GRI

Environmental indicators according to GRI standards		Unit	2016	2017	Δ
Materials					
301-1	Paper (total)	t	1,851,300	1,829,400	-1%
301-2	Recycled and certified paper	t	1,427,200	1,386,800	-3%
	Share of recycled and certified paper	%	77%	76%	-
301-1	Paper (Bertelsmann's own purchases)	t	1,134,200	1,137,200	0%
301-2	Recycled and certified paper	t	971,000	1,033,400	6%
	Share of recycled and certified paper	%	86%	91%	-
Energy					
302-1	Energy consumption (total)	MWh	1,672,900	1,665,500	0%
	Electricity	MWh	860,600	852,200	-1%
	Heat and cold	MWh	727,800	732,500	1%
	Fuels	MWh	84,500	80,800	-4%
302-3	Energy intensity	MWh/million €	99.1	96.9	-2%
Water					
303-1	Total fresh water withdrawal	m ³	4,867,700	4,691,300	-4%
	Groundwater (from company wells)	m ³	3,094,800	3,029,500	-2%
	From public/private supply systems	m ³	1,766,300	1,654,000	-6%
	Other sources (rainwater, surface water, etc.)	m ³	6,000	7,800	30%
Greenhouse gas emissions (GHG emissions)					
305-1	Direct GHG emissions (Scope 1)	t	256,900	261,900	2%
305-2	Indirect GHG emissions (Scope 2 market-based)	t	286,200	238,100	-17%
	Indirect GHG emissions (Scope 2 location-based)	t	282,600	276,400	-2%
305-3	Other indirect GHG emissions (Scope 3)	t	1,414,600	1,420,600	0%
	Business travel	t	67,900	67,700	0%
	Employee commuting	t	71,100	72,900	3%
	Paper	t	1,204,900	1,211,800	1%
	Energy-related emissions	t	70,700	68,200	-4%
305-4	Intensity of the GHG emissions (Scope 1+2)	t CO ₂ e/million €	32.2	29.1	-10%
Effluents and waste					
306-1	Total water discharge	m ³	3,930,400	3,885,300	-1%
306-2	Total weight of waste	t	319,600	314,600	-2%
	Disposable waste	t	12,200	11,500	-3%
	Recyclable waste	t	307,400	303,100	-1%
	Hazardous waste	t	1,600	1,700	6%

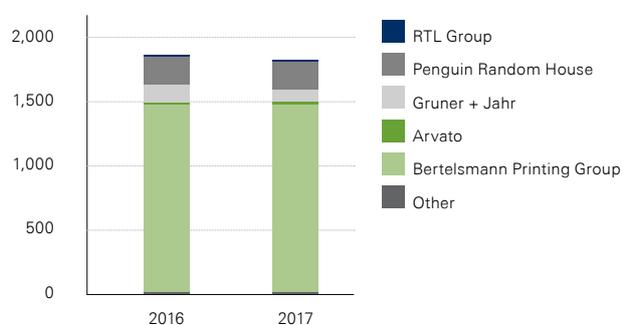
4. Development of Environmental Indicators by Division

The environmental indicators that are relevant from the Group's perspective are listed below and are itemised/subdivided into the companies divisions, according to corporate division. In addition to paper consumption, the key indicators for energy, greenhouse gas emissions, business travel, water, and waste are reported, and changes with respect to the previous year are explained.

Paper

In the reporting period, the volume of paper purchased throughout Bertelsmann decreased slightly by about 22,000 metric tons from 1.85 million to 1.83 million metric tons. This represents a decline of 1 percent. Of the total quantity of paper purchased in 2017, Bertelsmann acquired 62 percent of it at its own expense (1.14 million metric tons; previous year: 1.13 million metric tons). In the publishing businesses, the paper is purchased for Bertelsmann's own print products, but in the printing companies, a significant share of the paper is procured and provided by customers. The quantities of paper purchased by the Bertelsmann printers themselves remained almost unchanged, whereas the quantities of paper supplied by customers fell by 3 percent after accounting for consolidation effects.

Fig. 3: Paper consumption (in thousands of metric tons)



The largest paper consumption by far (1.47 million metric tons) occurred at the Bertelsmann Printing Group. Large quantities of paper were likewise needed in the publishing businesses of Penguin Random House (0.22 million metric tons) and Gruner + Jahr (0.12 million metric tons).

While the reported amounts of paper at the Bertelsmann Printing Group remained nearly unchanged compared to the previous year, Gruner + Jahr registered a marked decline of 19 percent. In addition to smaller circulations and volumes, the decline is largely due to the qualitative and economical reorientation of the paper furnishing, which has reduced the paper requirements for individual titles by up to 20%. On the other hand, Penguin Random House reported a slight increase in paper quantities (2 percent) as a result of

significant upticks in the publishing business in Great Britain. At Arvato, more logistics locations reported data on packaging materials, which led to greater disclosure of paper consumption (79 percent more) compared to the previous year.

Tab. 1: Total paper consumption (in metric tons)

	2016	2017	Δ
Bertelsmann (total)	1,851,300	1,829,400	-1%
RTL Group	200	200	0%
Penguin Random House	219,800	224,200	2%
Gruner + Jahr	142,700	115,700	-19%
Arvato	11,000	19,700	79%
Bertelsmann Printing Group	1,474,300	1,469,500	0%
Other	3,300	100	-97%

In 2017, the total share of paper from sustainable sources which was bought by Bertelsmann companies added up to 91%. That represents an increase of 5 percentage points compared to the previous year (previous year: 86 percent).

Penguin Random House UK significantly boosted the share of certified sustainable papers from 85 to 92 percent. The publishing houses in Great Britain have set themselves the goal of relying 100-percent on FSC-certified paper by 2020. Penguin Random House US has already reached its goal ahead of schedule buying 100 percent of the paper from certified sources.

Gruner + Jahr has significantly increased its share of certified papers by almost 10 percent, from 88 percent to over 97 percent.

For the Bertelsmann Printing Group, Prinovis Deutschland added another 40,000 metric tons to the quantity of certified paper. The three German production locations thus used almost exclusively FSC or PEFC-certified paper purchased at their own expense. Mohn Media increased its share of sustainably sourced papers again. Whereas the volumes it buys itself come almost entirely from recycled fiber or certified virgin fibers, the share of sustainable paper including quantities provided by customers was over 95 percent.

Since 2017, music authors and songwriters at BMG have been able to use the MyBMG app to view income from sales of their titles. By eliminating the need for account statements in paper form, it was possible to reduce paper consumption by approximately 30,000 kilograms within a year.

Compared to the base year of the Group-wide objective (2014), the share of papers from recycled or certified sources has increased by 31 percentage points (2014: 60 percent).

Fig. 4: Objective for the procurement of paper from sustainable sources (in percent)



While the print shops and publishing houses with large purchasing volumes had already reached the threshold level of 90 percent in 2017, a number of units in the Group are still working on achieving transparency and transitioning their procurement sources.

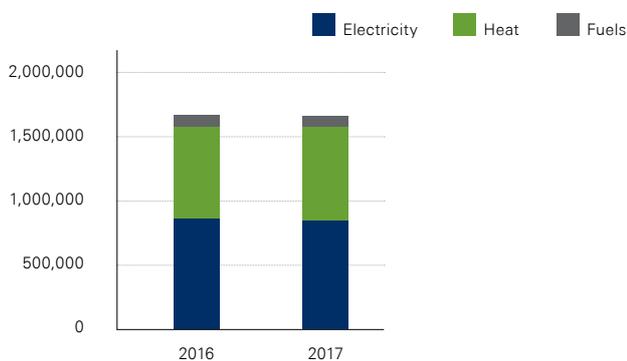
This positive development since 2014 is attributable, to the gradual transitioning of procurement to certified sustainable papers, the increase in transparency and traceability, and changes in what customers are ordering. In 2017, the share of FSC or PEFC-certified papers among the volumes purchased by Bertelsmann was 70 percent (previous year: 64 percent). The share of recycled paper was 21 percent (previous year: 22 percent).

Energy

Although increasing digitization makes Bertelsmann less dependent on limited natural resources, it is simultaneously leading to rising energy consumption for data management. Energy, and the environmental impact of its generation and use, therefore makes up a primary area of emphasis in the cross-divisional cooperation on environmental and climate protection. In the international “be green” network and in the Bertelsmann Energy Efficiency Network in Germany, the use of energy-saving technology and renewable energies is a principal focus and topic of discussion.

Compared with the previous year, total energy consumption at Bertelsmann remained virtually unchanged in the reporting year at 1.67 million MWh. The energy intensity, the ratio of the sum of the reported energy-consumption values in megawatt-hours to sales (in millions of euros) as reported in the consolidated financial statements, was 96.9 megawatt-hours (per 1 million euros of Group sales) and thus below the value of the previous year (previous year: 99.1).

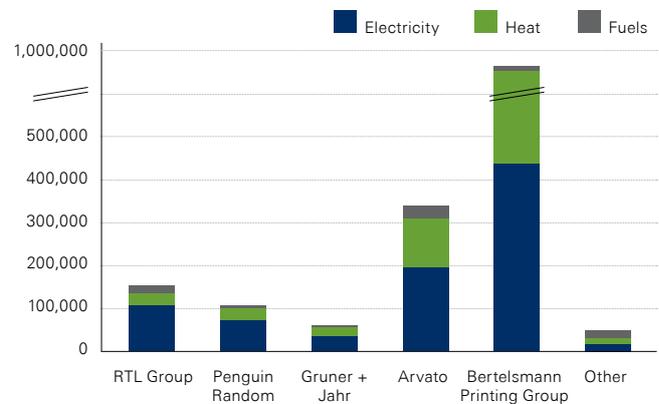
Fig. 5: Energy consumption (in megawatt-hours)



While heat consumption rose slightly by 1 percent in 2017 to 732,500 megawatt-hours (previous year: 727,800 megawatt-hours), the consumption of electrical power fell by 1 percent in the same period to 852,200 megawatt-hours (previous year: 860,600 megawatt-hours). Energy consumption from motor fuels also fell slightly from 84,500 megawatt-hours in 2016 to 80,800 megawatt-hours.

There were large differences among the individual divisions in the amounts of energy they consumed as a share of total consumption at Bertelsmann. The largest share of energy, approximately 60 percent, was used by Bertelsmann Printing Group, followed by Arvato with 20 percent, and the RTL Group with about 10 percent. Smaller amounts of energy were consumed by Penguin Random House (6 percent), Gruner + Jahr (4 percent), and the “other” units of the company (3 percent).

Fig. 6: Energy consumption by division (in megawatt-hours)



Gruner + Jahr registered large declines in electricity and heat consumption (9 percent), especially as a result of the relocation of Deutscher Pressevertrieb and a reduction in floor space. The sale of the Dutch media business as well as optimization measures at Prisma Media in France, such as the optimization of the ventilation system and heat pump at the location in Paris, contributed to the lower electricity and heat consumption of Gruner + Jahr, too.

Declining consumptions were also reported by the Bertelsmann Printing Group (2 percent) because of the decrease in production volumes at some locations in Germany and the United States, the implementation of numerous efficiency measures, and the closure of a location at Sonopress in the United States. At Prinovis UK, on the other hand, higher capacity utilization led to an increase in energy consumption.

Despite the first-time inclusion of SpotX and other Fremantle locations in the collection of environmental data, the RTL Group also reported a slight decrease of its energy consumption by 2 percent. The main factors behind the decrease were ongoing efficiency measures at many locations of the group and the use of an energy-management system by the M6 Group in France.

Tab. 2: Energy consumption (in megawatt-hours)

	2016	2017	Δ
Bertelsmann (total)	1,672,900	1,665,500	0%
RTL Group	154,200	151,100	-2%
Penguin Random House	106,100	106,100	0%
Gruner + Jahr	64,400	58,900	-9%
Arvato	310,400	338,500	9%
Bertelsmann Printing Group	988,800	964,600	-2%
Other	49,000	46,300	-6%

On the other hand, Arvato reported a major increase in energy consumption (of 9 percent), which was especially due to the new logistics locations which were reporting for the first time. The inclusion of Intervalor in Brazil also contributed to the increase in power consumption for the unit. At many Arvato locations, the implementation of energy-efficiency measures led to notable savings. At the Gütersloh data centers of Arvato Systems, about 1.2 Gigawatthours of electrical power were saved compared

to the previous year. This saving, which corresponds roughly to the consumption of 240 four-person households, was realized through the use of a new absorption refrigerator. The heat needed for this is produced by a highly efficient combined heat and power plant. Additional energy savings were achieved through the introduction of energy-efficient IT at the Arvato CRM locations in Berlin and Tallinn.

Penguin Random House implemented energy-efficiency measures, including the replacement of over 7,000 incandescent bulbs in the ceiling lighting of its Broadway location (New York) with LED bulbs. These use less energy, last longer, consist of non-toxic materials, and are recyclable. The energy consumption of Penguin Random House remained constant compared with the previous year.

Lower consumption at the Education Group and in the Corporate area contributed to a decline (6 percent) in energy use in the "Other" category.

Greenhouse gas emissions

The greenhouse gas emissions are expressed in CO₂ equivalents (CO₂e) and in accordance with the GHG protocol. According to the GHG Protocol, the emissions are categorized into three different scopes. Scope 1 includes the direct emissions from Bertelsmann, such as those resulting from its own power generation or the operation of printing machines. Scope 2 covers emissions that arise indirectly from the generation of purchased electricity and heat, or

from the generation and delivery of heat supplied by landlords. In accordance with the “Scope 2 Guidance” of the GHG Protocol, the summary of environmental indicators provided by Bertelsmann includes a breakdown of emissions calculated according to the market-based method and emissions calculated according to the location-based method. Selected Scope 3 emissions from the upstream value chain are also stated.

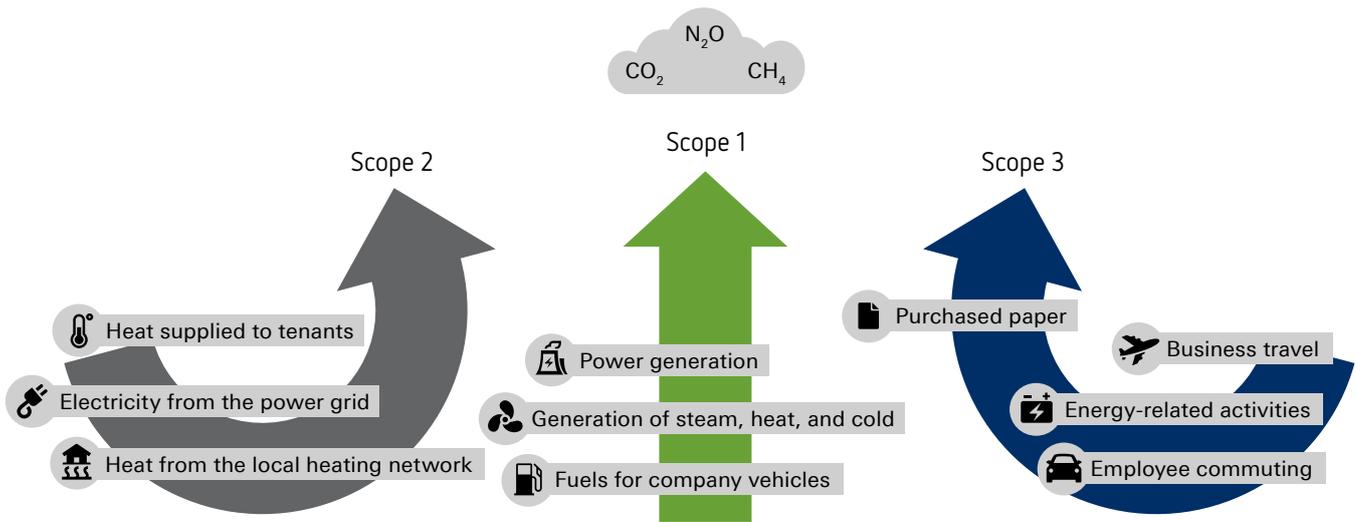
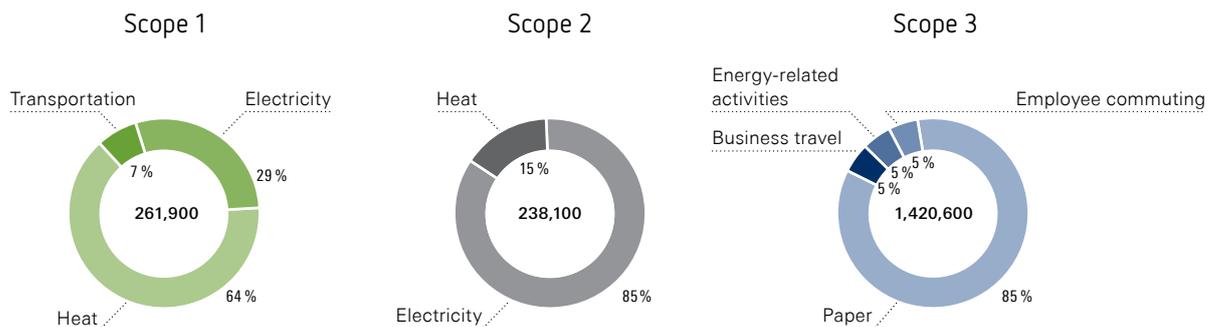


Fig. 7: Greenhouse gas emissions of Bertelsmann in accordance with the Greenhouse Gas Protocol

The total reported direct and indirect greenhouse gas emissions fell compared with last year by slightly less than 2 percent from 1.96 million metric tons of CO₂e in 2016 to 1.92 million metric tons of CO₂e in the year 2017. While the

Scope 3 emissions remained more or less the same, and the Scope 1 emissions increased by 2 percent, the Scope 2 emissions fell considerably by 17 percent compared with the previous year.

Fig. 8: Greenhouse gas emissions of Bertelsmann (in metric tons of CO₂e)



The Group-wide indicator for the company is the Bertelsmann “carbon footprint,” which includes direct greenhouse gas emissions (Scope 1) as well as indirect emissions (Scope 2). Bertelsmann is striving to achieve a business portfolio that is more growth-oriented, digital, international, and diversified. Increasing digitization, the expansion of the growth platforms, and the investment in the core business are also having a long-term effect on the carbon footprint of the company.

In 2017, the Bertelsmann carbon footprint was 500,000 metric tons of CO₂e (previous year: 543,100 metric tons). This represents a significant decline of 8 percent relative to the previous year. There were 261,900 metric tons of Scope 1 emissions (previous year: 256,900 metric tons). 29% of the Scope 1 emissions attribute to power generation, 64 percent to the generation of heat, and 7 percent to motor fuel consumption of Bertelsmann-owned vehicles.

The indirect CO₂e emissions from the purchase of energy (Scope 2) amounted to 238,100 metric tons (previous year: 286,200 metric tons). Here, 85 percent of the emissions were due to the consumption of electricity, and 15 percent were due to the consumption of district heating or heat supplied by landlords. The Scope 2 emissions were calculated according to the market-based method as indicated in the “Scope 2 Guidance” of the GHG Protocol.

The specific greenhouse gas emissions (Scope 1 and 2) fell from 32.2 metric tons of CO₂e per 1 million euros of Group revenue in 2016 to 29.1 metric tons of CO₂e per 1 million euros of Group revenue in 2017.

The largest share of the Scope 1 and 2 emissions from Bertelsmann were attributable to the services divisions of Bertelsmann Printing Group (291,100 metric tons of CO₂e)

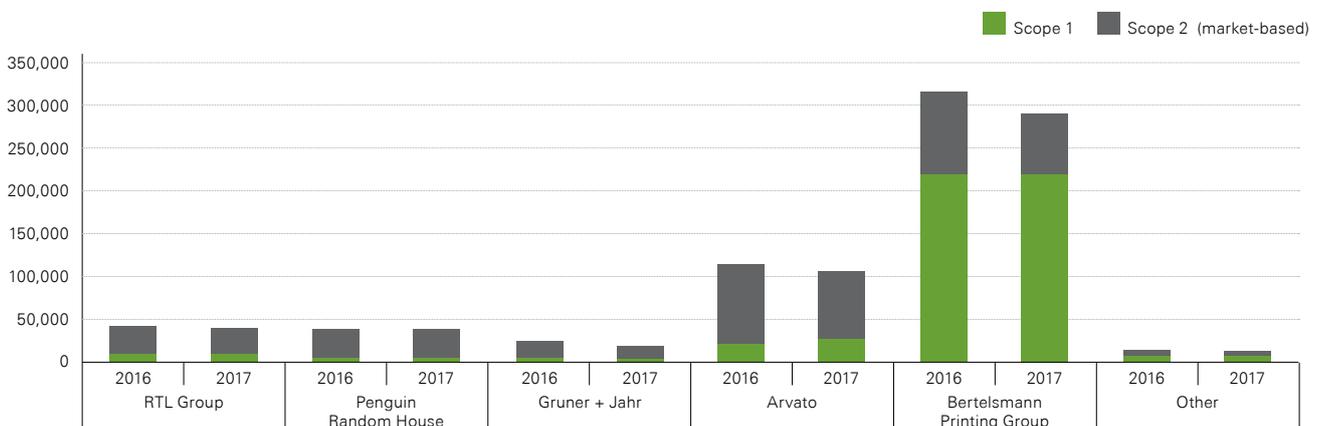
and Arvato (105,700 metric tons of CO₂e). In particular, the consumption of electricity, natural gas, heat by printing machinery and other production facilities as well as the operation of materials-handling equipment and lighting at logistics locations are reflected in the carbon footprints of these corporate divisions.

The decline in emissions was driven in large part by the move to renewable energies and the use of climate friendly energy sources. In German businesses of Arvato, the RTL Group, and Gruner + Jahr, the move to suppliers that generate a large share of their power from wind or hydro led to a decline in emissions of more than 20,000 metric tons of CO₂e. Overall, there was a 120-percent increase in the use of renewable energies with certifications of origin to just less than 63,000 gigawatt-hours, this accounted for 4 percent of the total energy consumption (previous year: 1.8 percent).

The largest decrease in Scope 1 and 2 emissions in absolute terms was reported by the Bertelsmann Printing Group with a saving of 24,900 metric tons of CO₂e (8 percent). The main reason is the shift to green electricity by the printing company GGP Media. Other contributors to a decline in energy-related greenhouse gas emissions included decreases in production outputs at Prinovis Deutschland and the use of efficient rotary printing presses at Mohn Media.

Emissions were also reduced, in some cases substantially, at the other corporate divisions: RTL Group, Gruner + Jahr, Penguin Random House and Arvato. At Gruner + Jahr, for example, Scope 1 and 2 emissions were reduced by 26 percent or 5,600 metric tons of CO₂e in the reporting year. Key reasons for this were the reduced energy consumption figures reported at Deutscher Pressevertrieb and at Prisma Media in France.

Fig. 9: Comparison of reported Scope 1 and Scope 2 emissions (in metric tons of CO₂e)



Despite a major increase in energy consumption, Arvato was also able to reduce Scope 1 and 2 emissions by approximately 7,400 metric tons of CO₂e. This represents a decrease of 7 percent compared with the previous year. The decrease is due primarily to improved emissions factors of the electricity it receives and the fact that Arvato has obtained green electricity certificates for several locations in Germany. Other factors were the increase in its generation capacity through efficient combined heat and power plants in Germany, and the use – for the first time – of the year-round output of the solar-power system at the Arvato SCM logistics facility in Landsberg.

By using more efficient engineering, the RTL Group achieved an 8-percent reduction in its Scope 1 and 2 emissions (3,300 metric tons of CO₂e). At RTL City, the new headquarters of the RTL Group in Luxembourg as of April 2017, a highly efficient cogeneration plant is supplying heat and power. The cooling in the new buildings takes advantage of thermoactive concrete and natural ventilation, which also contributed to the decline in emissions.

The reduction in emissions at Bertelsmann was also due in part to the elimination of 900 metric tons or 2 percent of CO₂e emissions at Penguin Random House. In this case, the savings were a result of lower electricity consumption at the publishing houses in Great Britain, Australia, and North America.

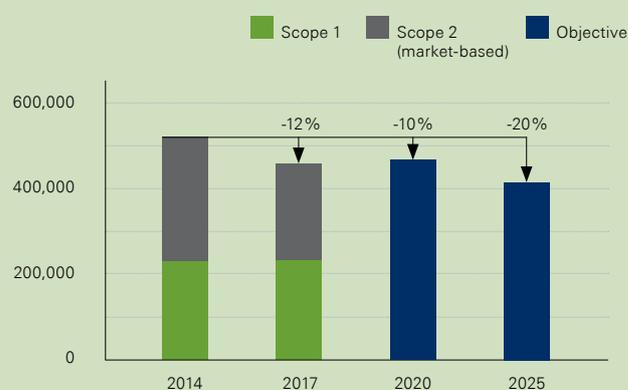
A reduction of 8 percent (1,000 metric tons CO₂e) was reported for the divisions listed under “Other,” above all because of lower consumption by Bertelsmann Education Group and the Corporate area.

Tab. 3: Scope 1 and 2 emissions (in metric tons of CO₂e)

	2016	2017	Δ
Bertelsmann (total)	543,100	500,000	-8%
RTL Group	43,000	39,700	-8%
Penguin Random House	37,200	36,300	-2%
Gruner + Jahr	21,900	16,300	-26%
Arvato	113,100	105,700	-7%
Bertelsmann Printing Group	316,000	291,100	-8%
Other	11,900	10,900	-8%

With reference to the emissions objective and the base year of 2014, and adjusted for changes to the portfolio, the Scope 1 emissions have increased slightly (1 percent), while the Scope 2 emissions have fallen considerably (by 22 percent). In total, the decline comes to 12 percent. The company has thus successfully embarked on the course that will ultimately lead to the long-term objective of a 20-percent reduction by the year 2025. The milestone of a 10-percent reduction in greenhouse gas emissions relative to 2014, a milestone set for 2020, has already been achieved in the reporting year for the first time.

Fig. 10: Objective for Scope 1 and 2 emissions (in metric tonnes of CO₂e)



All the divisions of Bertelsmann have succeeded in lowering their emissions since the base year of the Group-wide objective. In absolute terms, the Bertelsmann Printing Group has contributed the most by eliminating 41,000 metric tons of CO₂e compared with 2014. Considering that this development is due in part to fluctuations in capacity utilizations, the companies are continuing to work on steady improvements in their energy efficiency and carbon footprint.

Since the base year, Gruner + Jahr has undergone a major transformation as a result of the effects of digitization and portfolio changes. Even after adjustment for changes in the portfolio, the division is still contributing to the objective with a large decrease in emissions.

At Penguin Random House, the synergy effects arising from the merger of Penguin and Random House in 2014 have played a key role in a steep decline in greenhouse gas emissions. The RTL Group contributed to the reduction in emissions above all through efficiency measures and improved CO₂ factors among the energy suppliers.

At Arvato, too, emissions have fallen slightly since 2014 when adjusted for changes in the portfolio. The many steps taken to increase energy efficiency and lower energy-related emissions were more than enough to offset the effects of the organic growth of the logistics services in particular.

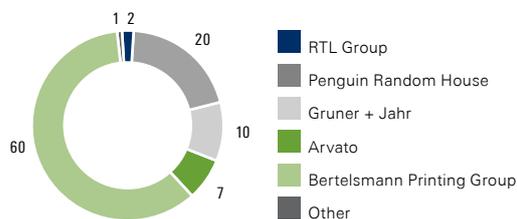
The emissions reported within the Scope 3 category are indirect greenhouse gas emissions from the production of paper that Bertelsmann buys itself, emissions from energy-related activities (outside of Scope 1 and 2), emissions from business travel, and emissions from employee commuting.

Bertelsmann Printing Group was responsible for the largest share of Scope 3 emissions with 60 percent, followed by Penguin Random House with 20 percent, and Gruner + Jahr with 10 percent. In these three divisions, emissions are mainly attributable to the amount of paper from the print and publishing businesses.

The Scope 3 emissions reported by Arvato accounted for 7 percent of the total. At Arvato, which has more employees than any other division, employee commuting made up almost 45 percent of the Scope 3 emissions. Accounting for other emissions sources proves to be difficult because of the complex business relationships in the international services business. Arvato has not been able to completely account for shipments and packaging papers in the reporting year. The Scope 3 emissions of the RTL Group and the "other" corporate units accounted for only 3 percent of the total Scope 3 emissions of Bertelsmann.

Across the Group, the reported Scope 3 emissions increased less than 1 percent from 1.41 million metric tons of CO₂e in 2016 to 1.42 million metric tons of CO₂e in the year 2017. This was primarily the result of a slight increase in the quantities of paper purchased by the publishing houses and print shops, which together accounted for 85 percent of the Scope 3 emissions. The reported emissions from the paper supply chain come to 1.21 million metric tons of CO₂e (previous year: 1.2 million metric tons). Each of the other reported sources of Scope 3 emissions accounted for 5 percent of the total. The Scope 3 emissions from energy-related activities were 68,200 metric tons of CO₂e (previous year: 70,700 metric tons). Business travel resulted in 67,700 metric tons of CO₂e emissions (previous year: 67,900 metric tons). The emissions from daily commuting of employees amounted to 72,900 metric tons of CO₂e (previous year: 71,100 metric tons).

Fig. 11: Reported Scope 3 emissions by division (in percent)



Use of certified climate-protection projects

As in past years, business travel emissions were partially offset by investments in certified climate-protection projects. For example, the emissions of the German company cars of Arvato, the publishing group Random House Deutschland, Gruner + Jahr and the Corporate area were completely offset by climate-protection projects in Brazil, India, and China, which are also strategic growth regions for Bertelsmann.

Furthermore, the carbon dioxide emissions from Gruner + Jahr employee air travel were again neutralized in 2017 through the ongoing climate-protection project "Geo schützt den Regenwald" ("Geo protects the rainforest") in Nepal. Since 2017, the Random House Publishing Group has been producing "climate-neutral" books for the first time at selected publishers. As a compensation measure, emissions totaling 268,700 kg of CO₂e have been offset via climate-protection projects in the reporting year at Penguin Random House.

Other environmental indicators

Business travel

Measured in terms of distance traveled, business travel decreased slightly by 1 percent from 305 to 301 million kilometers across the Group. Most of this distance, approximately 80 percent, is traveled by airplane. The business trips by train and by rental car accounted for 13 and 7 percent of total business travel, respectively. While the number of kilometers traveled by airplane rose slightly compared to the previous year, the distances traveled by train or rental car fell in the reporting year.

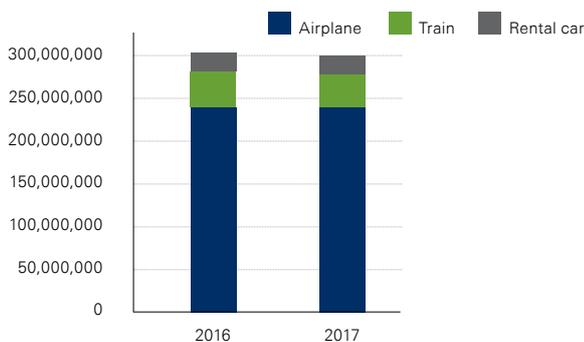
With 30 percent, Arvato had the largest share of total business travel at Bertelsmann. This resulted mainly from the

On the one hand, the RTL Group reported a significant rise of kilometers travelled for business. This is particular due to increasing levels of international activity at the business units in Germany, Luxembourg and Hungary. The inclusion of SpotX for the first time also contributed to more business travel in the RTL Group.

Tab. 4: Business travel (in millions of kilometers)

	2016	2017	Δ
Bertelsmann (total)	305	301	-1%
RTL Group	72	81	13%
Penguin Random House	63	63	0%
Gruner + Jahr	37	33	-11%
Arvato	89	87	-2%
Bertelsmann Printing Group	8	5	-38%
Other	36	32	-11%

Fig. 12: Business travel (in kilometers)



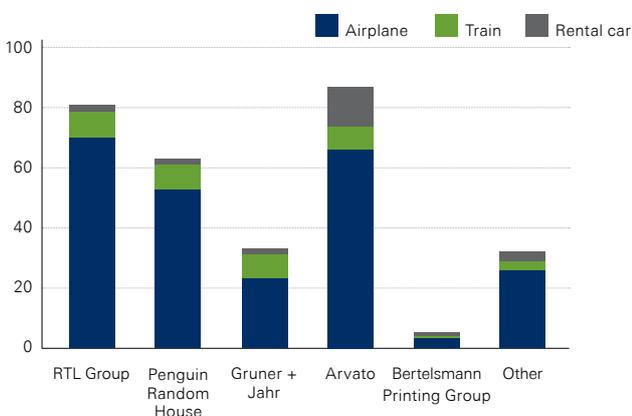
large number of employees and the internationalization of the businesses. Compared with the previous year, the number of kilometers traveled at Arvato remained almost unchanged.

While the business travel kilometers did not change at Penguin Random House, the other Bertelsmann divisions reported lower travel distances for 2017 compared to 2016. The Bertelsmann Printing Group, for example, registered a large decrease in business trips at Prinovis Deutschland.

The business travel recorded by Gruner + Jahr and Penguin Random House decreased compared to the previous year. At Gruner + Jahr, this was due to the switch from air travel to travel by train and rental car.

The units in the "Other" category also registered a decrease in the number of kilometers traveled on business trips because fewer flights were taken in the Corporate unit and by Bertelsmann Education Group.

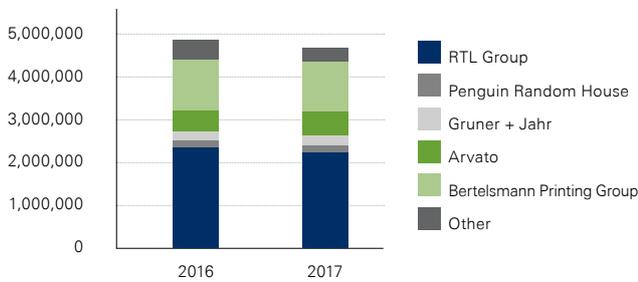
Fig. 13: Business travel by division (in millions of kilometers)



Water

In the financial year 2017, water usage decreased by 4 percent to a total of 4.69 million cubic meters (previous year: 4.87 million cubic meters). Water withdrawal varied significantly among the individual divisions. While the RTL Group accounted for almost half of the total water usage, 2.25 million cubic meters, a volume of 1.17 million cubic meters (25 percent) was used by the Bertelsmann Printing Group. The remaining volume of 25 percent was used by Arvato (12 percent), Penguin Random House and Gruner + Jahr (4 percent each), and "other" units of Bertelsmann (7 percent).

Fig. 14: Water usage (in cubic meters)



Tab. 5: Water usage (in cubic meters)

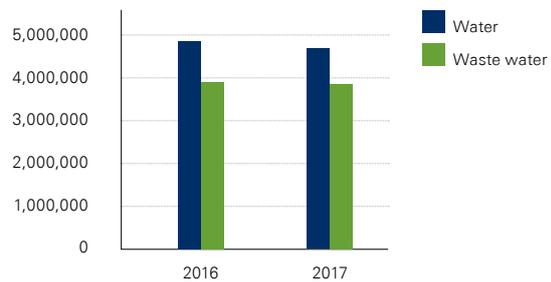
	2016	2017	Δ
Bertelsmann (total)	4,867,700	4,691,300	-4%
RTL Group	2,368,300	2,253,500	-5%
Penguin Random House	191,000	193,300	1%
Gruner + Jahr	200,200	208,300	4%
Arvato	472,700	556,700	18%
Bertelsmann Printing Group	1,170,400	1,170,800	0%
Other	465,100	308,700	-34%

At the RTL Group, where most of the water was pumped from well systems and used for energy-efficient cooling of buildings, the total water usage fell in the reporting year from 2.37 to 2.25 million cubic meters. One major reason for this was a lower consumption by RTL Medien-gruppe Deutschland. At Penguin Random House, there was a slight increase of 1 percent in water usage, while Arvato reported a significant increase of 18 percent in water consumption as a result of the inclusion of new locations in the report. The volumes of water reported by the "other" units for the 2017 financial year fell by 34 percent from 0.46 to 0.31 million cubic meters. This is due in part to lower consumption at Bertelsmann Education Group.

In the printing businesses, water is used primarily for heating and cooling systems. At the rotogravure printing sites, for example, process steam is generated and free cooling is used. Water usage at the Bertelsmann Printing Group remained more or less unchanged compared to the previous year. At Gruner + Jahr, the reported water consumption increased by a small amount (4 percent). Above all, this was due to the increased use of well water for cooling purposes.

While 4.69 million cubic meters of fresh water were used, a total of 3.89 million cubic meters of industrial and waste water were discharged. This represents a decline of approximately 1 percent relative to the previous year (previous year: 3.93 million cubic meters)

Fig. 15: Water and waste water (in cubic meters)



Waste

In 2017 the reported quantities of waste fell Group-wide by 2 percent to 314,600 metric tons (previous year: 319,600 metric tons). The printing houses of the Bertelsmann Printing Group accounted for the largest share of total waste at 78 percent. 95 percent of the waste reported by the printing houses were paper residues that were forwarded for recycling. Penguin Random House and Arvato were each responsible for slightly less than 10 percent of the total waste. While Penguin Random House registered decreasing quantities of waste as a result of changes in the way it documents the flow of goods, Arvato reported a 10-percent increase in waste compared with the previous year. The main reason was the startup of new locations abroad. Taken together, the waste quantities of the "other" units amounted to less than 3 percent of the total.

In 2017, the quantity of recyclable waste amounted to 303,100 metric tons across the Group (previous year: 307,400 metric tons). This represents a 96-percent share of total waste, the same share reported last year. The recyclable waste was either returned to the resource cycle or recycled in waste-to-energy systems. The remaining waste (4 percent) was waste for disposal. In 2017, there were 1,700 metric tons of hazardous waste in total. That was a slight increase over the 1,600 metric tons of the previous year.

Fig. 16: Waste quantities (in metric tons)

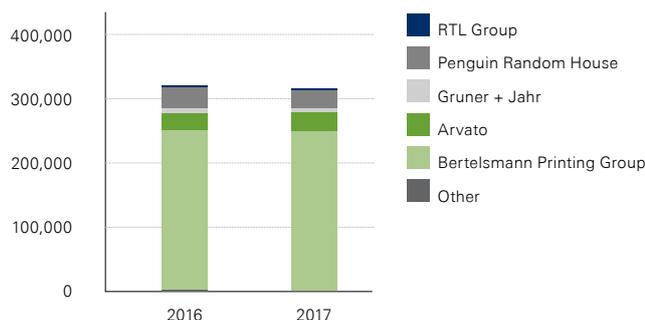
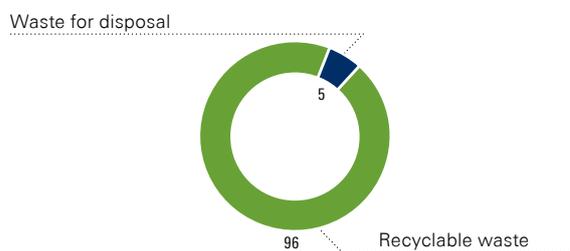


Fig. 17: Waste by type (in percent)



Tab. 6: Waste quantities (in metric tons)

	2016	2017	Δ
Bertelsmann (total)	319,600	314,600	-2%
RTL Group	3,100	3,000	-3%
Penguin Random House	34,900	28,800	-17%
Gruner + Jahr	6,800	6,500	-4%
Arvato	26,700	29,400	10%
Bertelsmann Printing Group	246,800	245,800	0%
Other	1,300	1,100	-15%

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The Carbon Footprint Report is also available in German.

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