

be green.

The environmental initiative of Bertelsmann

Including
Environmental
Objectives
2020/2025

Bertelsmann Carbon Footprint and Environmental Indicators 2016

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 116,000 employees and generated revenues of €17.0 billion in the 2016 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.



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Facts 2016

86 percent of the paper purchased by Bertelsmann came from recycled or certified sources – an increase of 12 percentage points compared to the previous year.

For every 1 million euros of sales, Bertelsmann used 108.6 megawatt-hours of energy on average, approximately the same as in the previous year.

Water usage increased by 2 percent compared to the previous year.

The Bertelsmann Carbon Footprint was reduced slightly by 1 percent in 2016.

95 percent of waste was recyclable.

1. About This Report

Bertelsmann considers environmental protection to be an integral component of its corporate responsibility. The annual carbon footprint report discloses the effects of Bertelsmann's business activities and that of its various divisions on the climate and the environment.

The Bertelsmann carbon footprint report focuses on environmental effects of Group-wide relevance caused by business activities and explains the development of selected environmental indicators of the Group. The present publication is part of the comprehensive reporting of the [Bertelsmann website](#) and the Corporate Responsibility Report regarding sustainability at Bertelsmann¹.

Reporting of the key environmental indicators is based on the standards of the Global Reporting Initiative (GRI). Greenhouse gas emissions are accounted for based on the "Corporate Accounting and Reporting Standard," the "Scope 2 Guidance," and the "Corporate Value Chain (Scope 3) Standard" of the Greenhouse Gas Protocol (GHG Protocol). An overview of the key environmental indicators collected Group-wide is presented in Chapter 3.

In this carbon footprint report, the Bertelsmann divisions RTL Group, Penguin Random House, Gruner + Jahr, Arvato and Bertelsmann Printing Group are presented separately. As of January 1, 2016, the printing and replication businesses previously owned by Arvato were transferred to the newly created Bertelsmann Printing Group and the communications agency Medienfabrik was assigned to the division Gruner + Jahr. Furthermore, the strategic growth areas music and education as well as fund activities, which were previously reported under the heading Corporate Investments, were divided among the three independent corporate divisions BMG, Bertelsmann Education Group and Bertelsmann Investments. The activities of these three divisions and Corporate are summarized in this report under "Other".

The data collection for the 2016 financial year included 380 companies at over 390 locations from all divisions that together made up 90 percent of the employees (calculated in terms of full-time employment equivalents) and 87 percent of Group revenue.

The reporting period of this publication is the 2016 financial year, the editorial deadline was July 31, 2017. The prior-year data presented for purposes of comparison has been adjusted as a result of the new divisional structure of the company, the inclusion of additional companies in the data collection and based on new insights from the current data collection. Beginning this year, Bertelsmann presents energy-related emissions separately (Scope 3). Emissions values of the previous year have been recalculated accordingly.

To make the environmental effects of the various business activities of Bertelsmann easier to understand, the key environmental indicators of the individual divisions are presented and commented separately in Chapter 4.

In July 2017, under the leadership of the Chief Human Resources Officer, the Corporate Responsibility Council adopted Group-wide objectives for environmental protection for the first time and thereby adopted a framework for the various environmental protection activities of the Bertelsmann companies (Chapter 5).

The Bertelsmann-wide process of environmental data collection is described in Chapter 6. The methods used and the assumptions made when determining key indicators are also explained, as are any influences as a result of portfolio changes at the Group or division level, to the extent this is needed to understand changes in the key indicators.

In the following chapter, the direct and indirect greenhouse gas emissions of Bertelsmann's carbon footprint are reported, and the development of the carbon footprint is discussed.

2. Bertelsmann Carbon Footprint 2016

Bertelsmann is striving to achieve a portfolio that has higher rates of growth and is more digital, international and diversified. The company again made significant progress in its implementation of this strategy in fiscal year 2016. This is leading to changes that also have a long-term impact on the company's carbon footprint. The increasing digitization, intensified efforts to develop the education business and the investments in the core business are having a major effect on the growth of Bertelsmann's carbon footprint.

The report takes into account and weights the global warming potential of the most important greenhouse gases: carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O). The carbon footprint is thus expressed in CO₂ equivalents (CO₂eq).

In accordance with the Greenhouse Gas 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. In Scope 2, emissions arising indirectly from the generation of purchased electricity and heat are listed. In accordance with the GHG Protocol Scope 2 Guidance the overview of key indicators presented by Bertelsmann include both the emissions accounted for using the market-based method and the location-based emissions. In addition, selected Scope 3 emissions from the upstream value chain are listed.

¹ The Carbon Footprint Report does not describe the main areas of emphasis with regard to business policy; those are presented in detail in the 2016 Annual Report. Reading only this Bertelsmann Carbon Footprint Report may therefore lead to erroneous conclusions.

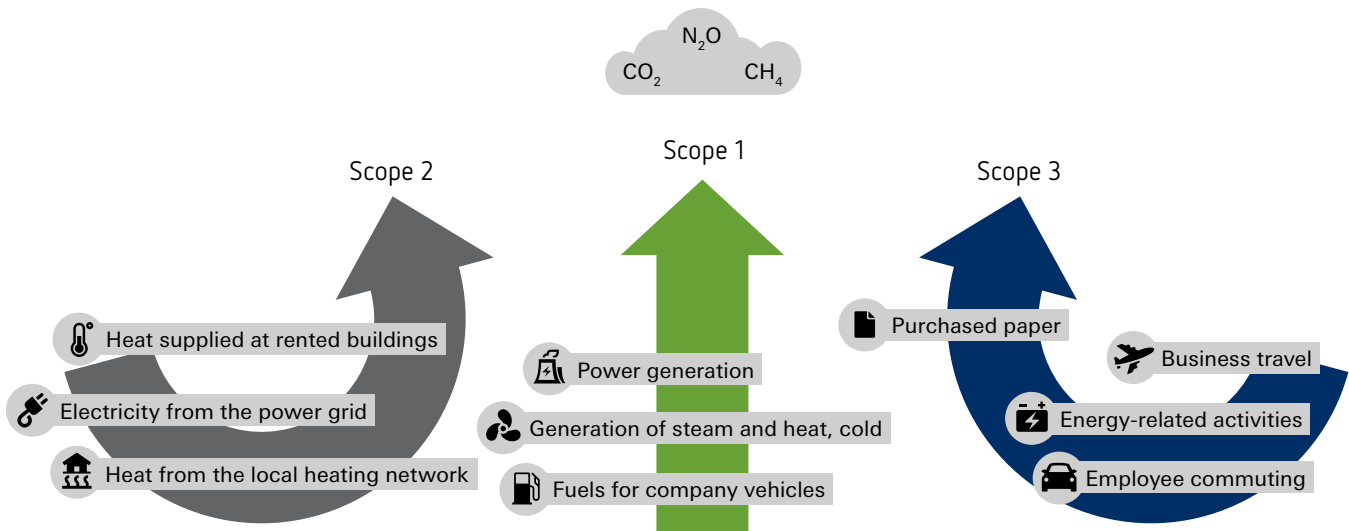


Figure 1: Greenhouse gas emissions of Bertelsmann in accordance with the Greenhouse Gas Protocol.

The Group-wide environmental indicator for the company is the Bertelsmann Carbon Footprint, which includes direct greenhouse gas emissions (Scope 1) as well as indirect emissions (Scope 2).

In 2016, Bertelsmann's total carbon footprint amounted to 572,300 metric tons of CO₂eq (2015: 577,600 metric tons). That is a slight decrease of 1 percent from the previous year. Of that quantity, there were 286,000 metric tons of Scope 1 emissions (2015: 287,900 metric tons). Of the Scope 1 emissions, 38 percent were attributable to the generation of electricity, 55 percent to heating and 7 percent to the consumption of fuel in company-owned vehicles.

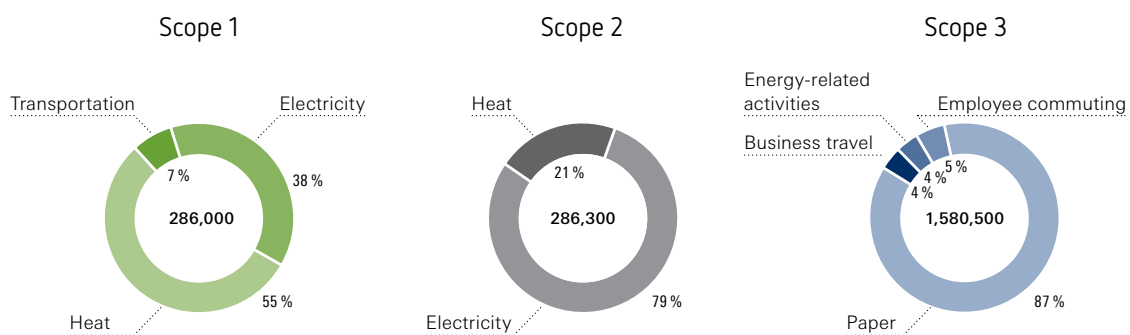
The indirect CO₂eq emissions from the purchase of energy (Scope 2) amounted to 286,300 metric tons (2015: 289,700 metric tons).

Of that amount, the consumption of electricity accounted for 79 percent of the emissions, and the use of district heating or heating provided by lessors accounted for 21 percent. The calculation of Scope 2 emissions uses the market-based method in accordance with the GHG Protocol Scope 2 Guidance.

The intensity of greenhouse gas emissions (Scope 1 and 2) is based on the turnover of the subsidiary companies for which environmental data has been collected. The emission intensity decreased from 39.0 metric tons of CO₂eq per 1 million euros of sales in 2015 to 38.6 metric tons of CO₂eq per 1 million euros of sales in 2016.

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

Figure 2: Greenhouse gas emissions of Bertelsmann (in metric tons of CO₂eq)



Scope 3 emissions decreased by 3 percent from 1.63 million metric tons of CO₂eq in 2015 to 1.58 million metric tons of CO₂eq. This is primarily the result of a slight decrease in the quantities of paper purchased by the publishing houses and print shops, which made up 87 percent of the emissions accounted for under Scope 3. Emissions from employee commuting amounted to 5 percent of the Scope 3 emissions. Business travel and energy-related activities each accounted for 4 percent of the Scope 3 emissions.

As in previous years, the business travel emissions were partially offset by certified climate-protection projects. For example, emissions from the German company vehicles of Arvato, the Random House Deutschland publishing group, Gruner + Jahr, and Corporate were entirely offset by climate-protection projects in Brazil, India and China, which are strategic growth regions for Bertelsmann. Furthermore, the carbon dioxide emissions from Gruner + Jahr employee air travel were again neutralized in 2016 through the ongoing climate-protection project "Geo schützt den Regenwald" ("Geo protects the rainforest") in Nepal.

3. Overview of Environmental Indicators According to GRI

Key environmental indicators according to GRI standards		Unit	2015	2016	Δ
Materials					
301-1	Paper (total)	t	1,862,200	1,852,200	-1 %
301-2	Recycled and certified paper	t	1,237,800	1,359,900	10 %
	Share of recycled and certified paper	%	66 %	73 %	-
301-1	Paper (purchased by Bertelsmann)	t	1,175,500	1,134,000	-4 %
301-2	Recycled and certified paper	t	870,500	970,800	12 %
	Share of recycled and certified paper	%	74 %	86 %	-
Energy					
302-1	Energy consumption (total)	MWh	1,608,900	1,608,700	0 %
	Electricity	MWh	838,100	827,600	-1 %
	Heat and cold	MWh	701,600	711,300	1 %
	Fuels	MWh	69,200	69,800	1 %
302-3	Energy intensity	MWh/€ million	108.7	108.6	0 %
302-4	Reduction of energy consumption	%	-2 %	0 %	-
Water					
303-1 EN8	Total water withdrawal	m ³	4,693,800	4,802,000	2 %
	From company wells	m ³	2,796,100	3,094,800	11 %
	From public supply	m ³	1,897,700	1,707,200	-10 %
Greenhouse gas emissions (GHG emissions)					
305-1	Direct GHG emissions (Scope 1)	t	287,900	286,000	-1 %
305-2	Indirect energy-related GHG emissions (Scope 2 location-based)	t	282,900	280,600	-1 %
	Indirect energy-related GHG emissions (Scope 2 market-based)	t	289,700	286,300	-1 %
305-3	Other indirect GHG emissions (Scope 3)	t	1,632,200	1,580,500	-3 %
	Business travel	t	56,900	55,600	-2 %
	Employee commuting	t	71,600	75,900	6 %
	Energy-related emissions	t	68,400	67,800	-1 %
	Paper	t	1,435,300	1,381,200	-4 %
305-4	Intensity of the GHG emissions (Scope 1+2)	t CO ₂ eq/million €	39.0	38.6	-1 %
305-5	Reduction in GHG emissions (Scope 1+2, market-based)	%	-1%	-1%	-
Effluents and waste					
306-1	Total water discharge	m ³	3,558,800	3,879,500	9 %
306-2	Total weight of waste	t	314,300	318,800	1 %
	Hazardous waste	t	1,700	1,600	-6 %
	Disposable waste	t	14,300	12,900	-10 %
	Recyclable waste	t	298,300	304,300	2 %

4. Development of Key Environmental Indicators by Division

The environmental indicators that are most relevant from the Group's perspective are listed below, broken down according to corporate division. In addition to paper consumption, the key indicators for energy, water, greenhouse gas emissions and waste are reported. Any significant changes relative to the previous year are explained.

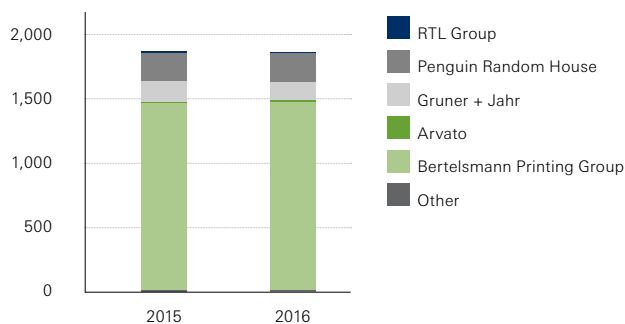
Paper

The businesses of Bertelsmann use a large variety of papers for the production of books, magazines, catalogues and other printed products as well as the provision of printing services and in office communication. Of the total amount of materials used at Bertelsmann, paper consumption accounts for the largest share. The company places a special emphasis on using this resource responsibly, efficiently, and sparingly.

For the purchase of paper, Bertelsmann has adopted a [Paper Policy](#) as a supplement to its environmental policy in 2006. With the Paper Policy, the company seeks to promote sustainable forestry. For example, recycled fiber is generally favorable to virgin fiber in terms of the carbon footprint, resource and energy consumption as well as wastewater contamination. Therefore, Bertelsmann companies use recycled paper whenever technically possible and economically feasible.

The digital transformation of the businesses and the associated decline of print media are also reflected in the key indicators for paper consumption. In the reporting period, paper consumption decreased by 10,000 metric tons to 1.85 million metric tons, which is a slight decline of 1 percent relative to 2015.

Figure 3: Paper consumption (in thousands of metric tons)



Gruner + Jahr registered the largest percentage decline in paper quantities (-14 percent), primarily as a result of the sale of foreign businesses in Austria and Spain as well as further drops in circulation numbers for print magazines. Paper quantities at Arvato decreased by 7 percent. At Penguin Random House, reported paper volumes fell by 2 percent. This is due to lower sales figures for printed books.

Table 1: Total paper consumption (in metric tons)

	2015	2016	Δ
Bertelsmann (total)	1,862,200	1,852,200	-1 %
RTL Group	200	200	0 %
Penguin Random House	223,500	219,800	-2 %
Gruner + Jahr	165,900	142,800	-14 %
Arvato	11,700	10,900	-7 %
Bertelsmann Printing Group	1,457,400	1,475,200	1 %
Other	3,500	3,300	-6 %

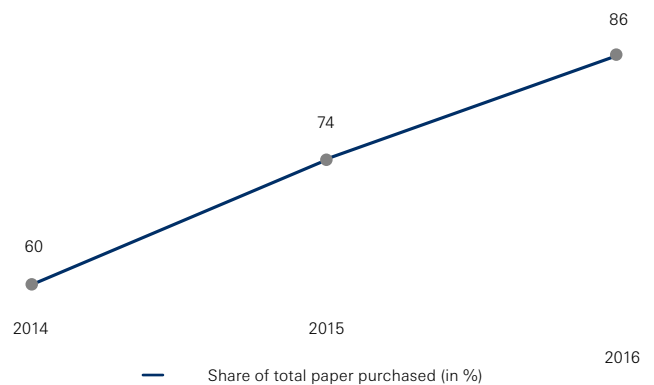
Contrary to the overall trend, paper consumption at Bertelsmann Printing Group increased slightly by 1 percent. For example, the gravure printing business in UK attracted two new major customers, which contributed to the increase in paper consumption.

Of the total quantity of paper purchased in 2016, 61 percent was bought by Bertelsmann on its own account (1.13 million metric tons). While the quantity of paper purchased by the Bertelsmann Printing Group itself decreased by 2 percent, the amount of paper supplied by customers rose by 5 percent after adjustments of inter-company shipments. At Bertelsmann level, the total amount of own paper purchases decreased by 4 percent compared to 2015 (1.175 million metric tons).

Bertelsmann has been documenting both the quantities of recycled paper and the volume of paper from sustainably certified sources according to the criteria of the Forest Stewardship Council (FSC®), the Programme for the Endorsement of Forest Certification (PEFC®), the Sustainable Forestry Initiative (SFI®) or similar standards.

86 percent of all paper purchased by Bertelsmann companies in 2016 was manufactured either from recycled fiber or from virgin fiber from certified sources (2015: 74 percent). While the share of recycled paper increased slightly (+1 percentage point) to 22 percent, the share of certified paper rose markedly to 64 percent (2015: 53 percent). The large increase in the amount of paper from sustainable sources is attributable in part to greater transparency concerning existing certifications in paper purchasing as well as changes in how customers and purchasing agents place their orders.

Figure 4: Paper from sustainable sources (in percent)

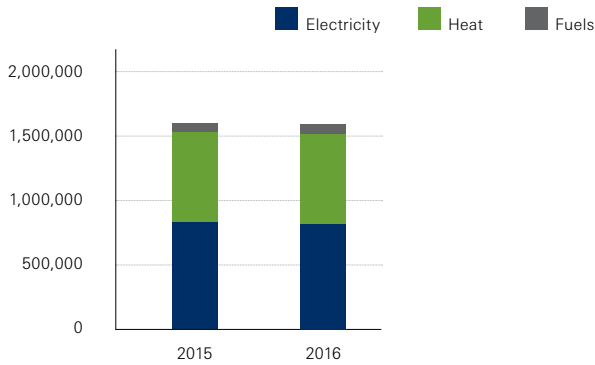


Since 2016, Prinovis Deutschland purchases only certified paper. The standard certification is PEFC®, FSC®-certified paper is used upon customer's requests.

Energy

Total energy consumption remained nearly unchanged compared to the previous year at 1.61 million megawatt-hours. In 2016, the consumption of electricity decreased slightly by 1 percent compared with 2015 to 827,600 megawatt-hours (2015: 838,100 megawatt-hours). In the same period, the consumption of heat increased slightly by 1 percent to 711.300 megawatt-hours (2015: 701.600 megawatt-hours), while energy consumption from fuels rose slightly by 1 percent from 69.200 megawatt-hours in 2015 to 69.800 megawatt-hours.

Figure 5: Energy consumption (in megawatt-hours)



Energy intensity remained nearly unchanged compared to the previous year. On average, 108.6 megawatt-hours were used per 1 million euros of sales in 2016 (2015: 108.7 megawatt-hours per 1 million euros of sales).

Gruner + Jahr registered a large decline in energy consumption of 17 percent, which is primarily due to the sale of foreign activities.

The expansion of business at existing locations and the construction of new sites led to an increase in energy consumption at Arvato. First-time inclusion of new logistics locations contributed to a large increase in heat consumption. Additional electricity consumption of new sites was nearly offset through energy-efficiency measures at other locations. At Arvato SCM in Singapore, for example, numerous improvements were made, resulting in a reduction of energy consumption of 36 percent.

At the Bertelsmann Printing Group, the closure of one US location of Sonopress and energy-efficiency measures at many locations, such as in the field of air conditioning and ventilation technology, contributed to a slight decline in energy consumption of 6,600 megawatt-hours (-1 percent) at the Bertelsmann Printing Group.

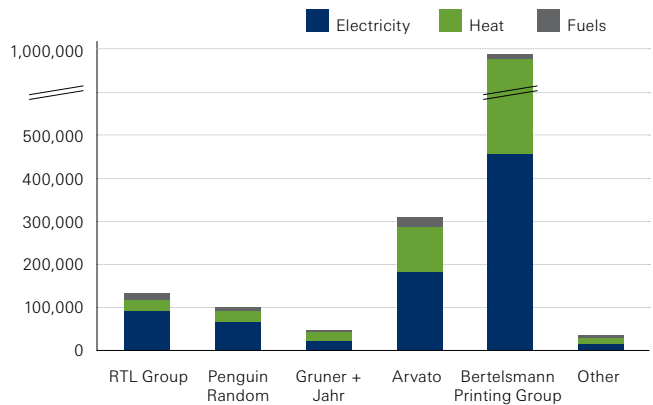
The energy consumption of the RTL Group remained nearly unchanged compared to the previous year. While the consumption of electricity declined because of the closure of one location and performance optimizations in broadcasting at the long-wave station in Luxembourg, reported heat consumptions increased slightly at locations of UFA and Mediengruppe RTL Deutschland. Lower heat consumption led to a small decrease in overall energy consumption at Penguin Random House.

The expansion of the education business with Relias Learning and Alliant International University led to a 7 percent increase in reported energy consumption at the other divisions compared to the previous year.

Table 2: Energy consumption (in megawatt-hours)

	2015	2016	Δ
Bertelsmann (total)	1,608,900	1,608,700	0 %
RTL Group	131,900	131,500	0 %
Penguin Random House	98,500	97,500	-1 %
Gruner + Jahr	55,100	46,000	-17 %
Arvato	295,400	310,100	5 %
Bertelsmann Printing Group	996,100	989,500	-1 %
Other	31,900	34,100	7 %

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

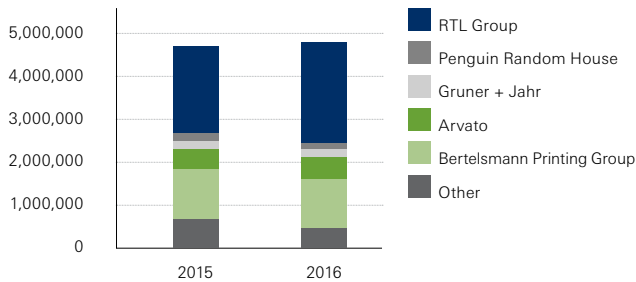


For every 1 million euros of sales, Bertelsmann used 108.6 megawatt-hours of energy on average in 2016.

Water

In the 2016 financial year, water usage increased by 2 percent to a total of 4.8 million cubic meters (2015: 4.7 million cubic meters). The types of water use vary greatly among the individual corporate divisions, and likewise, there are considerable differences in the changes in consumption relative to 2015.

Figure 7: Water usage (in cubic meters)



The quantities of water reported by the RTL Group for the 2016 financial year rose by approximately 14 percent compared with the previous year. This water is mostly drawn from well systems and used as an energy-efficient means of cooling buildings and TV broadcasting facilities. At Penguin Random House, there was likewise a major increase in water usage of 10 percent compared with 2015, above all because of increases in consumption at the publishing businesses in Great Britain, Spain and Australia. The 10 percent increase in water usage at Arvato is primarily due to the expansion of business at existing locations and the inclusion of new locations for the first time.

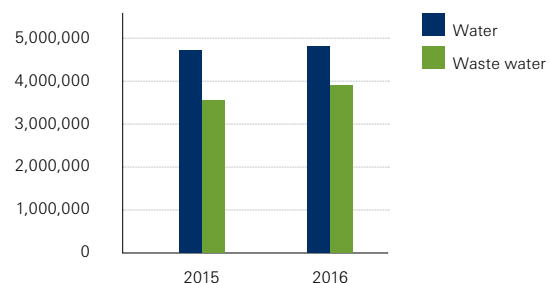
Table 3: Water usage (in cubic meters)

	2015	2016	Δ
Bertelsmann (total)	4,693,800	4,802,000	2 %
RTL Group	2,052,800	2,347,400	14 %
Penguin Random House	161,500	177,400	10 %
Gruner + Jahr	186,400	173,100	-7 %
Arvato	438,300	484,100	10 %
Bertelsmann Printing Group	1,174,600	1,164,300	-1 %
Other	680,200	455,700	-33 %

In the printing businesses, water is mainly used for heating and cooling. The rotogravure printing operations require steam production and free cooling. At Bertelsmann Printing Group, water usage decreased slightly by 1 percent in 2016 compared to 2015. At Gruner + Jahr, reported water consumption declined markedly by 7 percent as a result of the sale of foreign businesses. Furthermore, there was a large decrease of 33 percent in water consumption at the other corporate divisions. The decline compared with 2015 is due to changes at Alliant University at the San Diego location.

While 4.8 million cubic meters of fresh water were used, a total of 3.88 million cubic meters of industrial and waste water were discharged. That represents an increase of 9 percent over the previous year (2015: 3.56 million cubic meters).

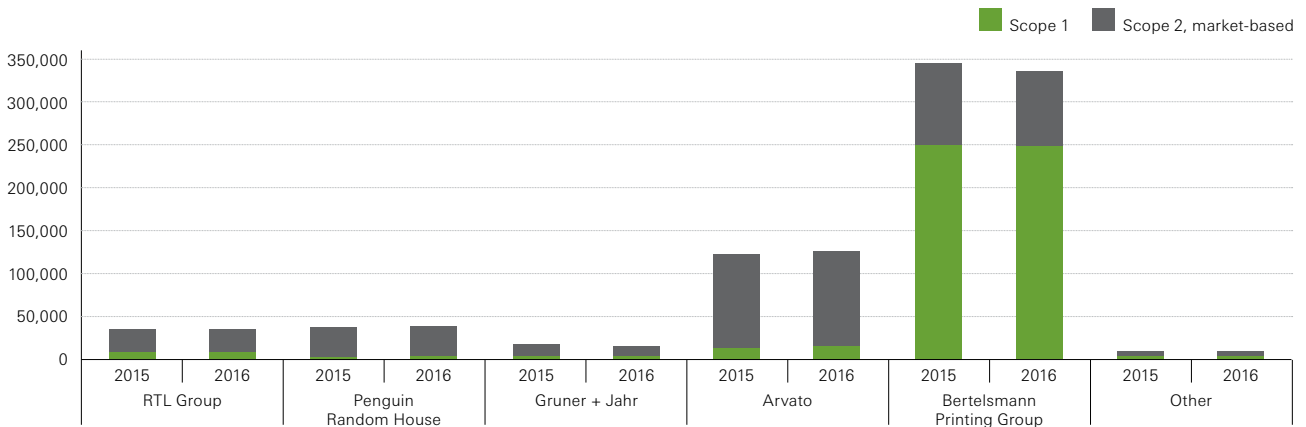
Figure 8: Water and waste water (in cubic meters)



Water usage increased slightly by 2 percent compared to the previous year.

Greenhouse gas emissions

Figure 9: Comparison of reported Scope 1 and Scope 2 emissions (in metric tons of CO₂eq)



The total reported direct and indirect greenhouse gas emissions decreased by almost 3 percent from 2.21 million metric tons of CO₂eq in 2015 to 2.15 million metric tons of CO₂eq in the year 2016. While the Scope 1 and Scope 2 emissions each fell by approximately 1 percent, the reported Scope 3 emissions declined by 3 percent compared with 2015.

Largest contributors to the total Scope 1 and Scope 2 emissions at Bertelsmann are the divisions Bertelsmann Printing Group (338,400 metric tons CO₂eq) and Arvato (126,300 metric tons CO₂eq). In particular, the carbon footprint of these divisions reflects the consumption of electricity, natural gas, and heat by printing machinery and other production facilities as well as the operation of logistics centers.

Table 4: Scope 1 and 2 emissions (in metric tons of CO₂eq)

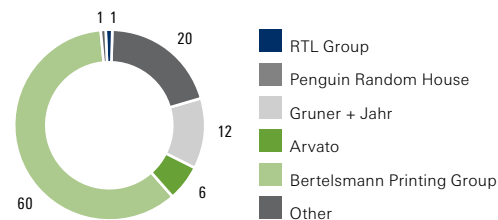
	2015	2016	Δ
Bertelsmann (total)	577,600	572,200	-1 %
RTL Group	37,600	38,100	1 %
Penguin Random House	39,200	38,900	-1 %
Gruner + Jahr	20,600	18,000	-13 %
Arvato	123,200	126,300	3 %
Bertelsmann Printing Group	345,000	338,400	-2 %
Other	12,000	12,500	4 %

Compared with the previous year, the reported emissions of by far the largest emitter, Bertelsmann Printing Group, declined by 2 percent. Slight decreases in energy consumptions and lower emissions values for the purchased quantities of electricity in the relevant markets led to a reduction in reported emissions in 2016. At Arvato, the 3 percent increase in reported emissions was due in large part to greater heat consumption as a result of new locations in eastern Europe. The increase in emissions at Arvato was mitigated somewhat by the lower emissions values of the purchased electricity, among other factors.

Compared to the print and service businesses, the aggregate emissions reported by the remaining corporate divisions were much lower. RTL Group was responsible for 38,100 metric tons of CO₂eq (+1 percent compared with the previous year); Penguin Random House accounted for 38,900 metric tons of CO₂eq (-1 percent relative to 2015); and Gruner + Jahr was the source of 18,000 metric tons of CO₂eq, which was a 13 percent decrease from 2015. The decrease in emissions from Gruner + Jahr is due to the sale of foreign businesses.

The further indirect greenhouse gas emissions from the upstream value chain (Scope 3) significantly exceeded the reported Scope 1 and Scope 2 emissions. With 60 percent, Bertelsmann Printing Group was responsible for the largest share of Scope 3 emissions, followed by Penguin Random House with 20 percent and Gruner + Jahr with 12 percent. At these three divisions, the large quantities of paper used in the print and publishing businesses play a major role, which accounted for over 90 percent of the reported Scope 3 emissions in each case.

Figure 10: Scope 3 emissions by division (in percent)



Arvato accounted for a 6 percent share of Scope 3 emissions. In the division with the largest number of employees, more than 50 percent of these emissions were due to commuting. The remaining Scope 3 emissions of Arvato were attributable to business travel (19 percent), energy-related activities (17 percent), and paper (12 percent).

At RTL Group, business travel accounted for about half of the emissions in this category, and employee commuting and energy-related activities each accounted for one quarter.

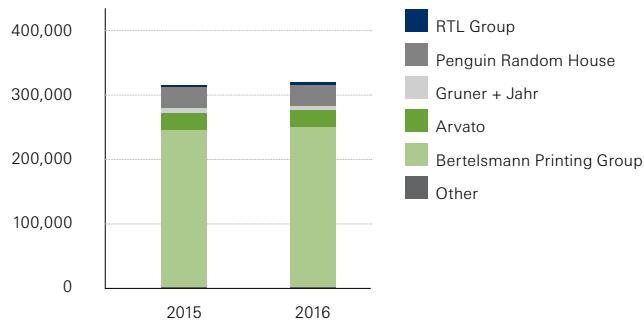
Of the Scope 3 emissions reported by the other corporate divisions, over 40 percent were due to business travel, about 30 percent were due to emissions from paper manufacturing, and roughly equal portions were due to employee commuting and energy-related activities.

The Bertelsmann Carbon Footprint was reduced by 1 percent in 2016.

Waste

The quantities of waste reported increased by 1 percent Bertelsmann-wide in the 2016 financial year to 318,800 metric tons (2015: 314,300 metric tons).

Figure 11: Waste quantities (in metric tons)

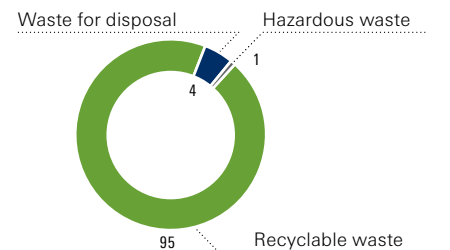


At Gruner + Jahr, waste quantities fell by 26 percent compared with the previous year. The decline resulted to a great extent from the sale of foreign businesses and greater efficiency in business processes. At RTL Group, waste quantities increased by 22 percent because of the inclusion of waste data at additional locations in France. The divisions Penguin Random House and Arvato likewise registered an increase in waste of about 5 percent each. Compared with the previous year, there was an increase of about 1 percent in the waste quantities of Bertelsmann Printing Group in line with a small increase in production volumes.

Table 4: Waste quantities (in metric tons)

	2015	2016	Δ
Bertelsmann (total)	314,300	318,800	1 %
RTL Group	1,800	2,200	22 %
Penguin Random House	32,900	34,500	5 %
Gruner + Jahr	8,100	6,000	-26 %
Arvato	25,700	27,000	5 %
Bertelsmann Printing Group	244,900	248,100	1 %
Other	900	1,000	11 %

Figure 12: Waste by type (in percent)



In 2016, the quantity of recyclable waste amounted to 304,300 metric tons across Bertelsmann as a whole (2015: 298,200 metric tons). This represents a 95 percent share of total waste, the same share reported last year. 78 percent of the waste produced Bertelsmann-wide is due to the print shops of the Bertelsmann Printing Group. By far the largest share of this waste (93 percent) consists of paper residues.

In 2016, there were 1,600 metric tons of hazardous waste in total. This is a decrease of approximately 6 percent compared to the previous year's value of 1,700 metric tons.

95 percent of waste was recyclable.

5. Environmental Objectives at Bertelsmann

In July 2017, the Bertelsmann Corporate Responsibility Council under the leadership of the chief human resources officer adopted Group-wide environmental objectives, which henceforth constitute a framework for the numerous improvements in environmental performance in the Bertelsmann companies.

“In the context of increasing expectations from its businesses and society, Bertelsmann has developed Group-wide environmental objectives. We thus have a common framework for our various environmental protection measures in our companies worldwide.”

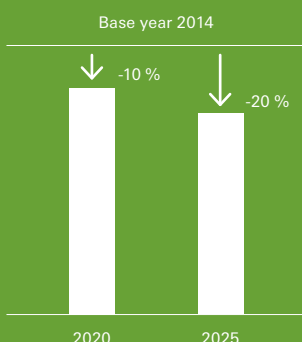
Dr. Immanuel Hermreck
Chief Human Resources Officer and Chair
of the Bertelsmann Corporate Responsibility Council

10 %

fewer greenhouse gas emissions by 2020,
20 percent reduction by 2025

Bertelsmann supports the international community’s target of limiting global warming to at most 2° C. In accordance with the Science-Based Targets methodology, the “be green” experts have calculated what contribution the company must make in the interest of achieving the <2°C target. Based on these analyses, Bertelsmann is striving to reduce direct and indirect greenhouse gas emissions by 10 percent compared to 2014 levels prior to 2020 and by 20 percent before the year 2025. To help achieve these objectives, Bertelsmann intends to pursue central measures, including the creation of an IT-supported system of energy-data management, improvement in environmental reporting, and the promotion of knowledge transfer across divisions. The overall effort will also be supported by local measures in the fields of energy efficiency, climate-friendly energy procurement and decentralized energy generation with highly efficient cogeneration plants and renewable energies.

Figure 13: Reduction objectives for Scope 1 and 2 emissions at Bertelsmann

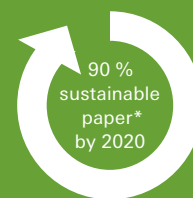


90 %

sustainably sourced paper by 2020

Although the media environment is becoming increasingly digitized, printed books, magazines, brochures and catalogues will nevertheless continue to have their established place. Paper therefore remains the most important resource in the traditional printing and publishing businesses of Bertelsmann. The responsible procurement and use of paper therefore plays a special role at Bertelsmann. In addition to the aims set out in the [Paper Policy](#), Bertelsmann is striving to increase the share of paper that is either recycled or produced through certified sustainable forestry to more than 90 percent Group-wide by the year 2020. The certifications must correspond to the requirements of FSC®, PEFC®, SFI® or similar standards.

Figure 14: Paper from sustainable sources (in percent)



* Recycled paper or certified according to FSC®, PEFC®, SFI® or a similar standard

The individual Bertelsmann divisions are already making important contributions to the achievement of the Group-wide environmental objectives. Since 2010, for example, RTL Group has been pursuing the goal of reducing its greenhouse gas emissions by 20 percent by 2020. Penguin Random House strives to procure 100 percent sustainable paper* by 2020. At Arvato and Bertelsmann Printing Group, there are also a variety of objectives at the company level in the areas of energy efficiency, paper purchasing and other environmental issues.

6. Explanatory Notes

Collection of environmental data at Bertelsmann

During the annual collection of environmental data, the individual companies report their business and environmental data to designated contacts in the corporate divisions, who then forward the data to Bertelsmann Corporate Center after an initial plausibility check. Based on this data, Corporate Center performs the review, aggregation, and analysis of the key indicators as well as the calculation of emissions values. The Group-wide process is coordinated by the “be green” experts, a group made up of rep-

resentatives of Bertelsmann Corporate Center and all the corporate divisions presenting data in the carbon footprint report. The employees involved in the collection of environmental data have been assisted by the creation and distribution of detailed guidelines for environmental reporting as well as regular communication. Controls at the division and corporate level, such as the release of reporting packages and validation of the key indicators, ensure that the reported data is comprehensive and of high quality.

Companies included

The collection and reporting of environmental data covers the primary business activities of Bertelsmann SE & Co. KGaA and its fully consolidated subsidiaries. An overview of all the fully consolidated subsidiaries of Bertelsmann can be found at the [Bertelsmann website](#). In order to draw meaningful conclusions regarding the carbon footprint for the entire Bertelsmann Group, the scope of companies to be included is defined before data is gathered. At least 80 percent of sales and employees are to be covered by the data collection. The data collection for the 2016 financial year included 380 companies at over 390 locations from all divisions that together

made up 90 percent of the employees (calculated in terms of full-time employment equivalents) and 87 percent of Group revenue. The environmental data of the companies involved was included in the report in their entirety, i.e., 100 percent of the environmental data was included, even for companies in which Bertelsmann owns less than a 100 percent capital share. Companies that were acquired or sold during the fiscal year are exempt from the obligation to provide environmental data to Bertelsmann. Acquired companies will become subject to the environmental reporting obligation in the fiscal year following the year of acquisition.

Organizational changes

As of January 1, 2016, the offset and rotogravure printing activities of the Group have been concentrated in the division Bertelsmann Printing Group. This division includes the companies Mohn Media, GGP Media and Vogel Druck, which were previously located in the Arvato division, the rotogravure printing activities of Prinovis in Germany and Great Britain, which were previously operated under Be Printers, and the offset and digital print shops of Be Printers in the United States. The new division also includes other businesses that were previously assigned to the Arvato division, such as RTV Media Group, the lettershop busi-

ness Campaign and the storage-media replication business SonoPress. The result has been a shift of consumptions from Arvato to the Bertelsmann Printing Group. As a result of the merger of Gruner + Jahr Corporate Editors and Medienfabrik to form Territory in 2016, the emissions of Medienfabrik are now reported at Gruner + Jahr and not at Arvato, as previously. At Gruner + Jahr, the data of the publishing businesses in Austria and Spain, which were sold in the course of 2016, were no longer recorded for the 2016 reporting year.

Estimating procedures

To the extent that data is missing for the reporting companies that were included (e.g., consumption at particular sites or in particular months), the gaps uncovered in the data have been closed using suitable estimates. To arrive at estimates, Bertelsmann

Corporate Center has used data from previous years as well as factors that were derived by averaging the data of the reporting companies per employee.

Paper [GRI 301-1]

Since 2014, Bertelsmann has been reporting the amount of paper purchased during the fiscal year in order to increase transparency regarding the responsible sourcing of what is the most important resource for many Bertelsmann businesses. Paper is generally purchased by the company at its own expense. The printing businesses represent a special case, as they are sometimes supplied with paper by their customers. Bertelsmann is therefore

reporting the amount of paper it purchases itself as an additional piece of information. The quantities of paper published in this Carbon Footprint Report are adjusted for shifts in quantities between business units (“consolidation effects”). In individual cases, there may therefore be differences between the paper quantities presented here and the data published by the business units.

Recycled and certified paper [GRI 301-2]

Bertelsmann reports as sustainably sourced paper all paper consisting of recycled materials as well as paper from virgin fiber that meets the criteria of one of the following three certification systems: Forest Stewardship Council (FSC®), Programme for the Endorsement of Forest Certification (PEFC®) or Sustainable Forestry Initiative (SFI®). Bertelsmann is aware that these three systems have different requirements. Because of the varying geographic distribution and availability of

certified papers in the required amounts, the corporate divisions use the certification systems as they deem fit according to the [Bertelsmann Paper Policy](#) and market requirements. The calculation of the key indicator for sustainably sourced paper includes only paper the company has bought itself. In other words, it does not include quantities supplied by customers in the printing businesses.

Energy intensity [GRI 302-3]

The declared energy intensity is the ratio of the sum of the reported energy-consumption values in megawatt-hours to total sales (in millions of euros) as reported in the consolidated finan-

cial statements. Only the sales of companies included in environmental data collection are taken into account; these made up 87 percent of Group sales in 2016.

Direct greenhouse gas emissions (Scope 1) [GRI 305-1]

All greenhouse gases from sources that are owned by Bertelsmann or its fully consolidated subsidiaries are classified under the Scope 1 category. Scope 1 emissions are, for example, electricity or heat generation in company-owned cogeneration

plants, generators and heating plants. Emissions from company vehicles (e.g., company cars, trucks, forklifts) are likewise assigned to the Scope 1 category.

Indirect greenhouse gas emissions (Scope 2) [GRI 305-2]

Greenhouse gas emissions from the generation of purchased energy (electricity or district heating) are among the Scope 2 emissions. These emissions are created when energy is produced at the supplier and are therefore only indirectly attributable to Bertelsmann's business activities. Examples of Scope 2 emissions include electrical, heating and cooling energy that are purchased from the grid. According to the GHG Protocol Scope 2 Guidance, the greenhouse gas emissions attributable to purchased energies are to be reported according to the location-based as well

as the market-based procedures. For the location-based method, Bertelsmann uses the national emissions values of the International Energy Agency (IEA) from the year 2014. Greenhouse gas emissions are calculated according to the market-based method by using the contract-specific emissions factors for electricity that are provided by the energy supplier, to the extent they are available. If emissions factors from the energy suppliers are not available, residual emissions values or national emissions values of the IEA are used.

Indirect greenhouse gas emissions (Scope 3) [GRI 305-3]

Other indirect greenhouse gas emissions that are created due to business activities outside of the companies are reported under the Scope 3 category. This carbon footprint report includes information on the following Scope 3 emissions: manufacturing of materials (paper), emissions from energy-related activities (outside of Scope 1 and Scope 2), business travel, and emissions from employee commuting with vehicles that were not already contained in Scope 1. In this carbon footprint report, the energy-related emissions are presented separately in Scope 3 for the first time; the emissions values for Scope 1 and Scope 2 of the previous year have been recalculated accordingly.

Relevant emission sources not yet reported include transport for the procurement of raw materials and other intermediate goods and for the distribution of final products such as books, magazines or data carriers and, increasingly, energy consumption at external data centers. In addition to the significance of indirect greenhouse gas emissions, the scope of the reporting is also defined to a great extent by the availability, robustness and sensitivity of individual pieces of emissions data. Bertelsmann is therefore working on a gradual expansion of data collection and reporting for greenhouse gas emissions related to upstream and downstream value creation.

Emissions from the manufacture of materials (paper)

Unlike the calculation of emissions for carbon-neutral printed matter, the calculation of the Scope 3 emissions from paper manufacture given here is performed using a simplified approach. This is due to the limited availability and consistency of CO₂ data, since the manufacture and transport of paper purchased by the Bertelsmann companies is carried out by suppliers and service providers. Therefore, the CO₂ emissions for the current carbon footprint report are calculated on the basis of LCA data from Eco-Inventory V3.1 2014 for selected types of paper.

Emissions from the manufacture of about 1.1 million metric tons of paper, which represents only part of the overall amount of paper used, are included in the Bertelsmann carbon footprint report. The reason for this is that Bertelsmann does not purchase all of its paper for printing purposes itself; instead, some of the paper is provided by business customers. This paper, which remains the property of the customer, is not included in the Bertelsmann carbon footprint report. Transport logistics from the supplier to the factory gates and distribution from the factory gates to the customer were not taken into account in the Scope 3 reporting.

Emissions from energy-related activities (outside of Scope 1 and Scope 2)

Beginning this year, Bertelsmann is presenting the energy-related emissions (outside of Scope 1 and Scope 2) separately in the Scope 3 category. Energy-related emissions are the greenhouse gases created in the upstream value chain in the context of producing and supplying energy. This covers activities such as the extraction, refinement and transportation of energy sources and supplied electricity and heat. Since emissions from the upstream chain of the purchased electricity were previously reported under Scope 2, the emissions values of the previous year have been recalculated accordingly.

The reporting is based on the total quantity of the energy sources used for the energy generation or transportation as well as the purchased quantities of electricity, heat and cold. Scope 3 emissions are calculated with individual “well-to-tank” factors of the DEFRA. Each energy source that was used for energy generation or transportation is multiplied by its specific “well-to-tank” emissions factor. The purchased quantity of heat is multiplied by an emissions factor that also takes distribution losses into account. The purchased electricity is multiplied by a country-specific factor that takes into account both the emissions created upstream in the production of the electricity and transmission and distribution losses.

Emissions from employee commuting

The basis for the figures is the Group-wide data collection concerning the use of available transportation modes that was carried out at the Bertelsmann companies’ primary sites in 2014. This data collection took place in a decentralized fashion and with varying degrees of precision. Voluntary employee surveys were conducted in some locations, while in others extrapolation or estimation

were used. Overall, the distribution of transportation mode utilization was recorded for over half of all employees (63,000). On average, across all Bertelsmann employees included in the survey, 40 percent commuted by car, 50 percent used public transportation, and 10 percent arrived at work by bike or on foot. DEFRA factors were used to calculate greenhouse gas emissions.

Emissions from business travel

Business travel covers distances traveled by employees with the main modes of transportation, including travel by airplane, train, rental cars and company-owned cars. Cars owned by the company

are not included when calculating these Scope 3 emissions, since they are already taken into account in Scope 1 emissions. TREMOD factors have been used to determine greenhouse gas values.

Intensity of greenhouse gas emissions [GRI 305-4]

The calculation of the intensity of greenhouse gas emissions is similar to the calculation of energy intensity [GRI 302-3]. It is the ratio of the sum of the reported Scope 1 and Scope 2 emissions in metric tons of CO₂ equivalents (CO₂eq) to the sales (in millions

of euros) included in the consolidated financial statements. Only the sales of companies included in environmental data collection were taken into account; these made up 90 percent of Group sales in 2016.

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