

# Bertelsmann Carbon Footprint and Environmental Indicators 2015



# 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.

## BERTELSMANN



[www.bertelsmann.com](http://www.bertelsmann.com)

The company has approximately 117,000 employees and generated revenues of €17.1 billion in the 2015 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.

The Annual Report 2015 and the report “The New Bertelsmann” can be accessed online at [ar2015.bertelsmann.com](http://ar2015.bertelsmann.com). Both reports are also available as a free app on the Apple App Store and in Google Play.

In the 2015 financial year, the period covered by this publication, the following Bertelsmann divisions were used for reporting purposes: RTL Group, Penguin Random House, Gruner + Jahr, Arvato and Be Printers (part of the Bertelsmann Printing Group since January 1, 2016). The activities of Corporate Investments and Corporate Center are presented in this report under CI + CC.



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# Facts 2015

2% reduction in energy consumption

3% decline in reported greenhouse gas emissions (Scope 1-3)

72% of the paper purchased by Bertelsmann comes from recycled or certified sources – an increase of 12 percentage points compared to last year

2° C Bertelsmann supports the objective of limiting global warming to at most 2° C.

## 1 About This Report

**Bertelsmann considers environmental protection to be an integral component of its corporate social responsibility. With this carbon footprint report, the company is disclosing the effects of its business on the climate and the environment for the fifth time since 2008.**

The Bertelsmann carbon footprint report focuses on the main environmental effects of the business activities and explains the development of key environmental indicators that the company considers relevant. The environmental reporting thus complements the comprehensive reporting of the Bertelsmann website and the current Corporate Responsibility Magazine regarding sustainability and corporate responsibility at Bertelsmann.<sup>1)</sup>

The reporting period of this publication is the 2015 financial year. The prior-year data presented for purposes of comparison has been adjusted as a result of the inclusion of other companies in the data collection and based on new knowledge from the data gathered most recently.

The Bertelsmann-wide process used to gather environmental data is explained in Chapter 3. The data collection for the 2015 financial year included companies from all divisions that together make up 85 percent of the employees (calculated in terms of FTE equivalents) and 86 percent of Group revenue.

Because of the very diverse business activities of the Bertelsmann divisions, and for the sake of reader-friendliness and ease of analysis, the key environmental indicators of the individual divisions are presented separately along with comments (Chapter 4).

Reporting of the key environmental indicators is based on the guidelines of the Global Reporting Initiative (GRI G4). Greenhouse gas emissions are accounted for by adhering closely to the "Corporate Accounting and Reporting Standard," the "Scope 2 Guidance," and the "Corporate Value Chain (Scope 3) Standard" of the Greenhouse Gas Protocol. An overview of the key environmental indicators according to GRI is presented in Chapter 5.

Where there are distorting influences as a result of portfolio changes at the Group or division level, comments are provided, to the extent this is needed to understand changes in the key indicators (Chapter 6).

Scientists of the Institut für Energie- und Umweltforschung Heidelberg (IFEU) provided assistance with the selection and proper use of data sources, emission factors and calculation methods, the review of the key environmental indicators, and the calculation of greenhouse-gas emissions.

In the following chapter (Chapter 2), the direct and indirect greenhouse-gas emissions considered in the calculation of Bertelsmann's carbon footprint are reported, and the development of the "carbon footprint" is explained.

"Responsible behavior with respect to society and the environment is set down in the Bertelsmann Essentials as part of our corporate culture. We view the transformation of our businesses as an opportunity increase our value contribution in a sustainable way."

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



<sup>1</sup> The Carbon Footprint Report does not describe the core areas of business that the company is focusing on; those are presented in detail in the 2015 Annual Report. Reading only this Bertelsmann Carbon Footprint Report may therefore lead to erroneous conclusions.

## 2 Overview of the Bertelsmann Carbon Footprint 2015

In 2012, the Bertelsmann Executive Board established the goal of pursuing four strategic directions in order to strengthen the Group’s growth, focus more attention on digital technology, and become a more international company. This strategy is leading to changes that have an impact on the company’s carbon footprint too. As declining CO<sub>2</sub>-intensive print and replication businesses are scaled back, digitization spreads, and intensified efforts get underway to develop the education business, there is an immediate impact on Bertelsmann’s carbon footprint.

The carbon footprint describes the amount of greenhouse gas emissions arising from the production, procurement, and transformation of electrical energy, cooling and heating energy, and fuels. The report takes into account and weights the global warming potential of the most important greenhouse gases: carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O). The carbon footprint is thus expressed in CO<sub>2</sub> equivalents (CO<sub>2</sub>eq).

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. For the first time, we are now reporting both the location-based CO<sub>2</sub>eq emissions and the market-based CO<sub>2</sub>eq emissions in accordance with the “GHG Protocol Scope 2 Guidance” [see Chapter 6 – Explanatory Notes EN16]. In addition, an optional declaration is provided for the Scope 3 emissions, which are those that occur throughout the whole value chain and cannot be directly influenced by Bertelsmann.



**Mark Fabisch**

As Director Corporate Responsibility/Environment at Bertelsmann, Mark Fabisch develops strategies and initiatives for cross-divisional environmental topics.

“Over the last year, we’ve significantly increased Group-wide cooperation on environmental topics like energy efficiency and climate protection. The transition to annual collection of environmental data, the organization of the international Bertelsmann “be green Day,” and the performance of energy efficiency audits are just three initiatives that represent the successful cooperation at Bertelsmann in matters of environmental protection.”

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

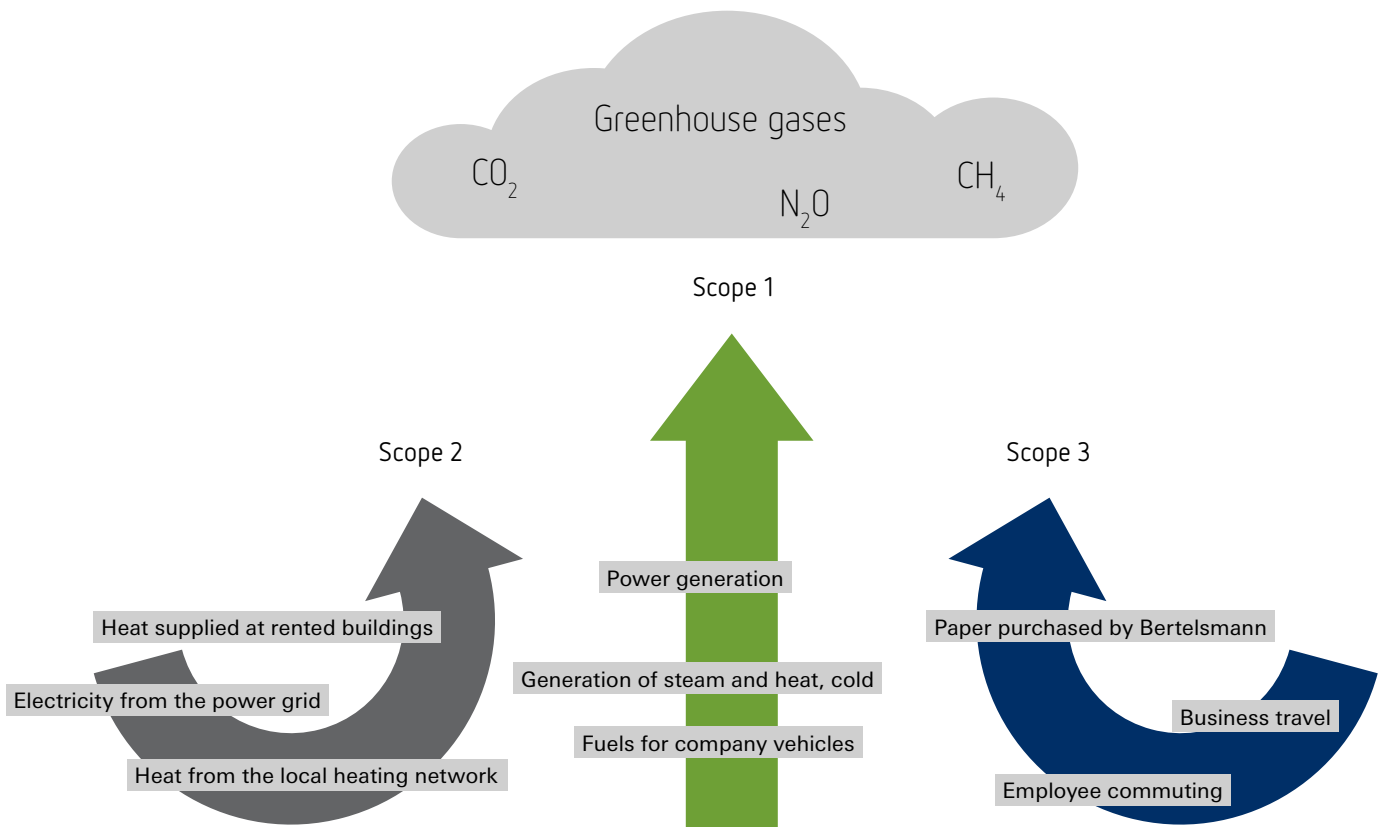
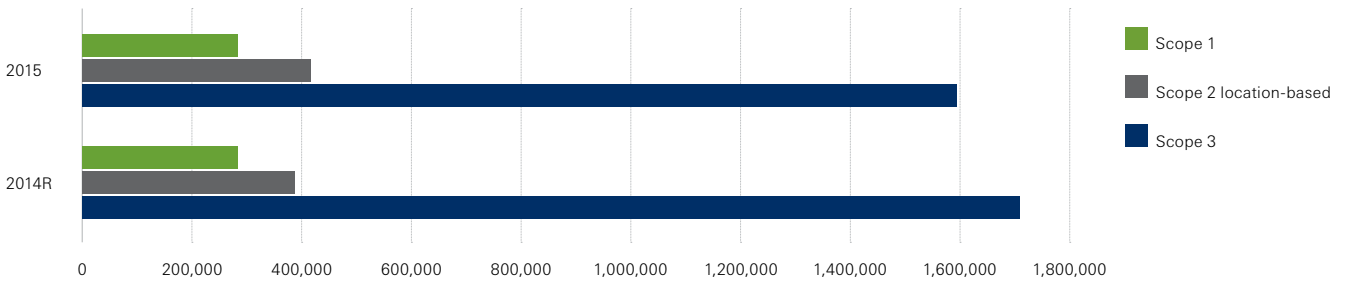


Fig. 2: Greenhouse gas emissions of Bertelsmann (Scope 1–3) in metric tons (CO<sub>2</sub>eq)



The key environmental indicator for the company is the “Bertelsmann Carbon Footprint,” which includes direct greenhouse gas emissions [EN15] as well as indirect emissions from the purchase of energy [EN16]. In 2015, the company’s total CO<sub>2</sub> emissions amounted to 697,900 metric tons of CO<sub>2</sub>eq. Of that quantity, there were 283,000 metric tons of Scope 1 emissions and 414,900 metric tons of Scope 2 emissions.

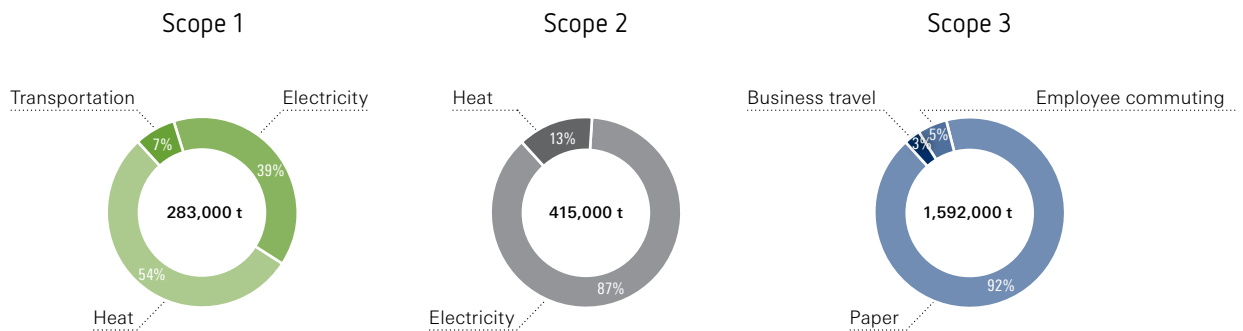
Compared with 2014, the Bertelsmann carbon footprint increased by five percent. Approximately two thirds of the emissions are attributable to power consumption. This accounts for 39 percent of the Scope 1 emissions and 87 percent of the Scope 2 emissions. The use of heat is responsible for somewhat less than a third of total emissions and makes up 54 percent of Scope 1 and 13 percent of Scope 2 emissions. Only 3 percent of the carbon footprint is attributable to company-owned vehicles; they make up 7 percent of Scope 1 emissions.

The emission intensity decreased from 55 t CO<sub>2</sub>eq per 1 million euros of sales in 2014 to 47 t CO<sub>2</sub>eq per 1 million euros of sales in 2015. This represents a decline of about 15 percent.

The other indirect emissions from the upstream value chain (Scope 3) were reduced by 7 percent from 1.71 million metric tons of CO<sub>2</sub>eq in 2014 to 1.59 million metric tons CO<sub>2</sub>eq [EN17]. This was primarily the result of a slight decrease overall in the quantities of paper used in the publishing houses and print shops.

Figure 3 illustrates what shares of emissions are attributable to each scope.

Fig. 3: Breakdown of emissions according to scopes.



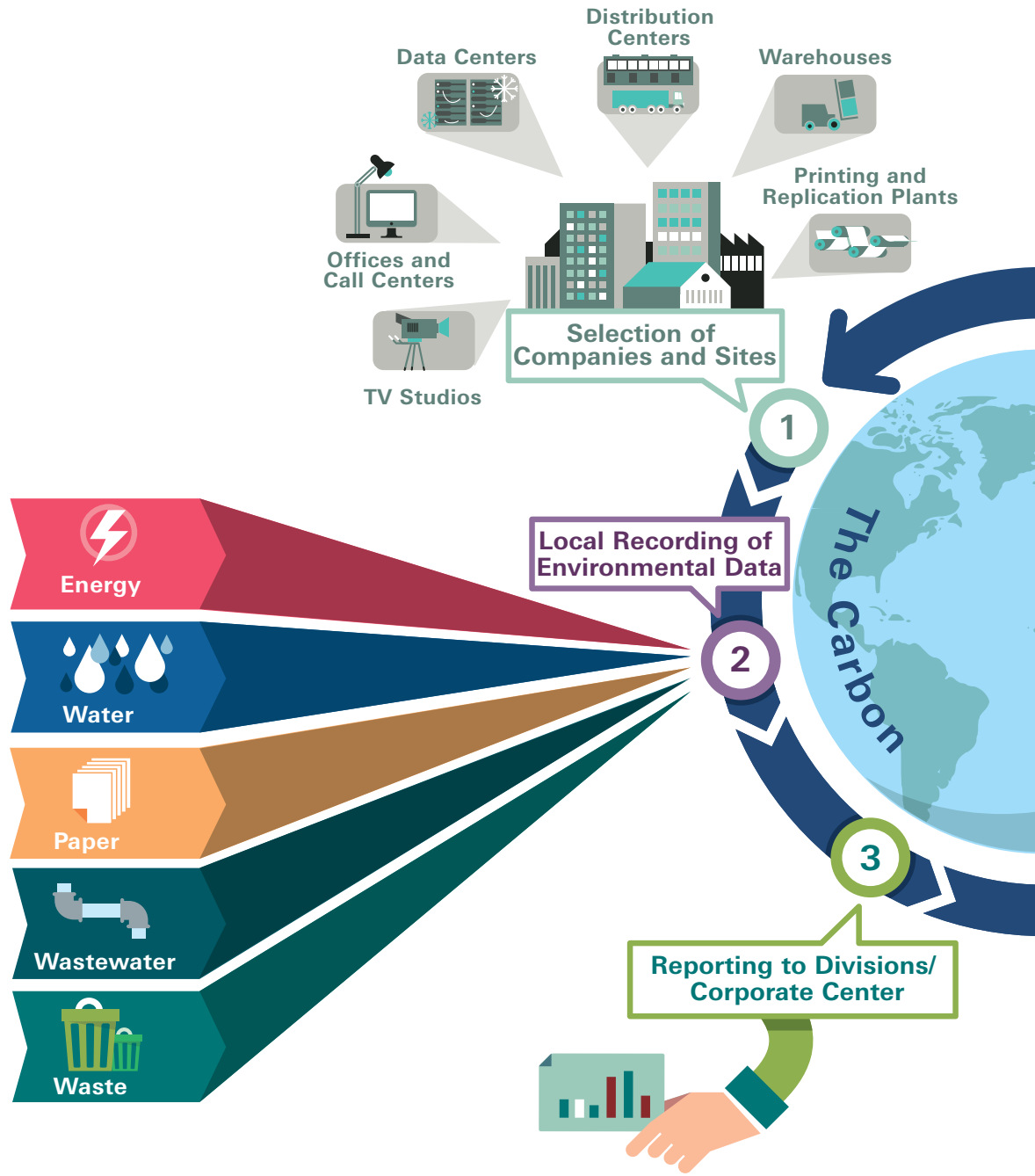
Approximately 92 percent of the emissions reported under Scope 3 are attributable to the paper purchased by Bertelsmann [EN1]. Other emissions sources reported as Scope 3 emissions are employee commuting (5 percent) and the business travel of employees (3 percent), to the extent that such travel did not use company vehicles, in which case it is already reported under Scope 1.

The emissions resulting from business travel increased by 5 percent, and the emissions from daily employee commuting rose by 10 percent compared with the previous year. The increase in these emissions is primarily due to an increase in the number of employees taken into account in the reporting.

The business travel emissions were again partially offset by investments in certified climate-protection projects. For example, as in previous years, emissions from the German company vehicles of Arvato, the Random House Deutschland publishing group, Gruner + Jahr, and the Corporate Investments and Corporate Center divisions 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 2015 through the ongoing climate-protection project “Geo schützt den Regenwald” (“Geo protects the rainforest”) in Nepal.

### 3 Collection of Environmental Data at Bertelsmann

#### 3.1 How Is Our Carbon Footprint Report Created?

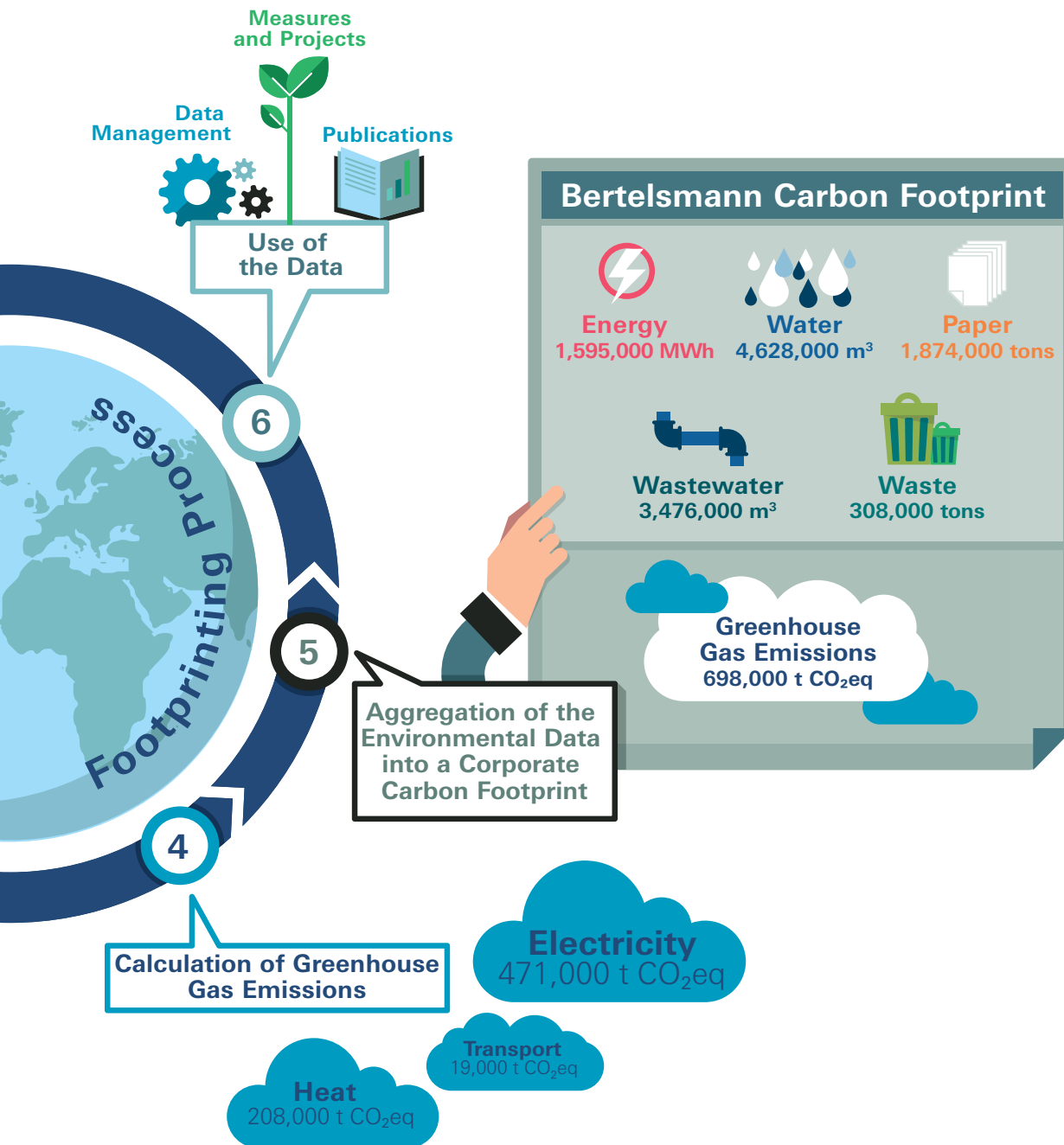


#### 3.2 Data Collection Process

At Bertelsmann, 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 representatives of all corporate divisions and Bertelsmann Corporate Center.

Detailed guidelines for environmental reporting and regular communication supported the employees involved in the data collection. Controls at the division and corporate level, such as the release of reporting packages and validation of the key indicators, ensure the reported data is comprehensive and of high quality.





### 3.3 Academic Support

For the fifth consecutive time, Bertelsmann entrusted the IFEU Institut für Energie- und Umweltforschung Heidelberg with the task of overseeing and supporting the continued development of the Group-wide data collection. Throughout the course of the process, the IFEU Institute gave feedback on the definitions of the key indicators and on the data collection forms. In addition, the researchers checked the validity of the environmental data collected by individual companies.

“This year, Bertelsmann implemented the recommendation to carry out its reporting annually for the first time. As a result, the quality of the environmental data was improved once again compared with last time,” says Dr. Achim Schorb of the IFEU Institute.

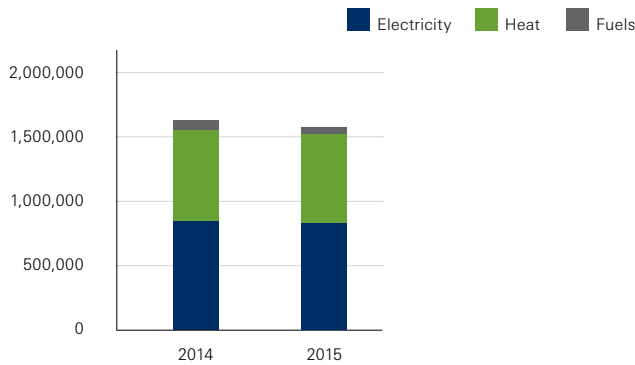
## 4 Development of Key Environmental Indicators by Division

The environmental indicators that are most relevant from the Group’s perspective are listed below, broken down according to corporate division. In addition to energy consumption, the key indicators for paper, water, greenhouse gas emissions, and waste are reported. Changes in the data relative to the previous year are also explained, where such changes are considerable.

### 4.1 Energy

In the 2015 financial year, energy consumption fell by 2 percent across Bertelsmann as a whole compared with the previous year. The reduction in heating consumption (-4 percent) was somewhat more pronounced than the decrease in electricity consumption (-1 percent). On the other hand, the energy consumption from fuels increased slightly (+4 percent).

Fig. 4: Energy consumption in megawatt hours (MWh)



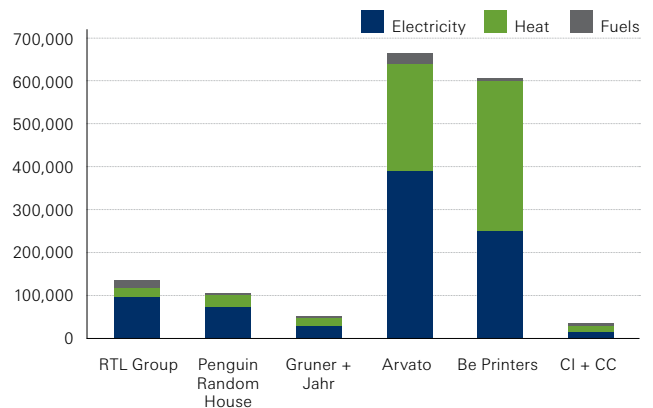
Penguin Random House registered a significant decline in energy consumption of 19 percent. The merging of storage capacities in the course of the integration of Penguin and Random House led to considerable gains in efficiency here.

There were slight declines in energy consumption at Arvato (-3 percent), particularly as a result of more efficient heat generation at the offset printing machines at Mohn Media. Lower energy consumption was recorded at RTL Group too (-2 percent).

Table 1: Energy consumption in megawatt hours (MWh)

	2014	2015	Δ
<b>Bertelsmann (total)</b>	<b>1,634,800</b>	<b>1,594,800</b>	<b>-2%</b>
RTL Group	134,100	131,900	-2%
Penguin Random House	126,200	101,800	-19%
Gruner + Jahr	53,100	53,000	0%
Arvato	689,600	667,700	-3%
Be Printers	603,700	606,800	1%
CI + CC	28,100	33,600	20%

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



The energy consumption for electricity and heat remained constant compared with the previous year at Gruner + Jahr and Be Printers. On the other hand, CI + CC registered a 20-percent year-on-year increase because of the inclusion, for the first time, of the education businesses of Relias Learning and Alliant International University.



**Bernhard Lembeck** manages the Logistics Engineering unit of Arvato SCM Solutions.

“As a result of the close cooperation in the areas of site efficiency, energy-efficiency audits and environmental data collection, we’ve achieved considerable synergies. This has led to better energy data and a significant reduction in the outlays for energy audits.”



**Stephan Voigt** is Director of Energy Management at Arvato CRM Solutions.

“With the Europe-wide introduction of an energy management system according to DIN EN ISO 50001 at Arvato CRM Solutions, we now have a platform with which we can improve ourselves ‘energetically,’ step by step.”

## 4.2 Paper

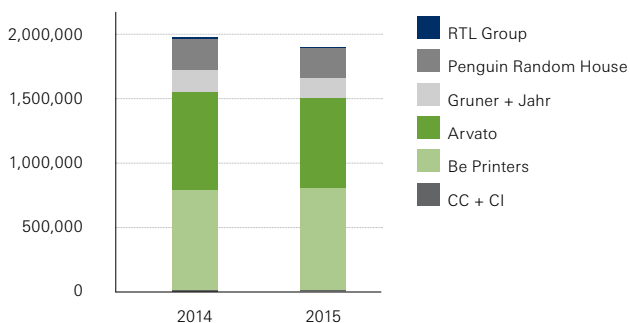
The businesses of Bertelsmann use a variety of papers for the production of books, magazines, catalogues and other printed products as well as for providing printing services and in office communication. Bertelsmann places a special emphasis on using this resource responsibly, efficiently, and sparingly.

The digital transformation of the businesses and the associated decline in the printing businesses of Bertelsmann are also reflected in the key indicators for paper consumption. During the reporting period, the quantities of paper purchased fell slightly. In the 2015 financial year, the quantities fell by 4 percent overall compared with 2014 to 1.87 million metric tons [EN1].

Table 2: Total paper consumption in metric tons (t)

	2014	2015	Δ
<b>Bertelsmann (total)</b>	<b>1,946,010</b>	<b>1,873,800</b>	<b>-4%</b>
RTL Group	180	170	-6%
Penguin Random House	237,200	219,900	-7%
Gruner + Jahr	181,100	164,400	-9%
Arvato	750,100	699,600	-7%
Be Printers	773,900	786,200	2%
CI + CC	3,530	3,530	0%

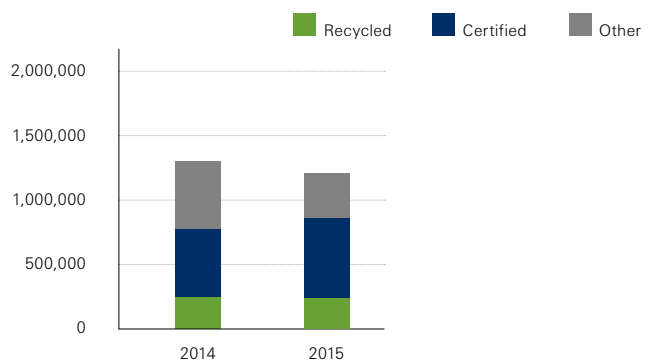
Fig. 6: Paper in metric tons (t)



Gruner + Jahr registered the largest percentage decline in paper quantities (-9 percent) as a result of further drops in circulation numbers for print magazines. At Penguin Random House and Arvato, the reported paper quantities fell by 7 percent each. At the publishers of Penguin Random House, the year-on-year decline in paper use was a result of the comparatively large bestseller editions of 2014. At Arvato, the decline was primarily due to purchasing effects, since an increase was simultaneously noted in the quantities of paper supplied by customers. At Be Printers, on the other hand, there was a decline in the quantities of paper supplied by customers and a slight increase (+2 percent) in the amount of paper the unit bought itself after consolidation effects. The quantities of office paper of RTL Group, Corporate Investments, and the Bertelsmann Corporate Center changed only marginally.

The Bertelsmann companies, in accordance with the Bertelsmann paper policy, seek to use paper efficiently and responsibly. 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.

Fig. 7: Paper bought by Bertelsmann in metric tons (t)



Since 2014, Bertelsmann has been documenting both the quantities of recycled paper as well as 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®), or the Sustainable Forestry Initiative (SFI®) [4].

About 72% of all paper purchased by Bertelsmann companies in 2015 was manufactured either from recycled fiber or from virgin fiber from certified sources (2014: 60 percent). While the share of recycled paper increased slightly (+1 percentage point) to 20 percent, the share of certified paper rose markedly to 52 percent (2014: 41 percent). The increase resulted from both a demand-driven expansion in the amounts of certified paper purchased as well as efforts to boost transparency regarding the certifications, especially at Gruner + Jahr and Penguin Random House. The other paper purchased sometimes included further certified quantities that were not captured in the current data collection.



**Michael DeFazio**

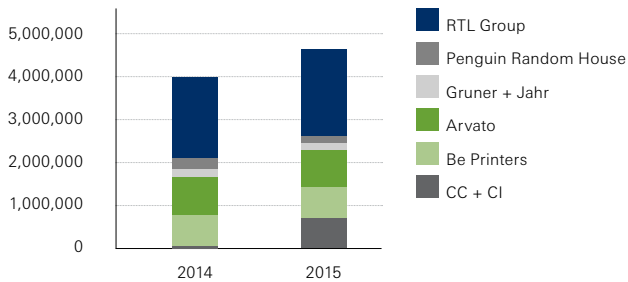
is Vice President of Paper Purchasing and Production Planning at Penguin Random House/ US.

“We’re especially proud of the fact that we use environmentally friendly paper for our books. In 2015, a total of 93 percent of the paper purchased at Penguin Random House came from sources certified as sustainable and/or from recycled materials.”

## 4.3 Water

In the 2015 financial year, water consumption increased to a total of 4.63 million cubic meters (2014: 3.97 million). This increase of 17 percent can be attributed above all to better data quality and to companies in the education field that are now, for the first time, being included in the Corporate Investments (CC + CI) data.

Fig. 8: Water usage in cubic meters (m<sup>3</sup>)



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 2014. For example, the quantities of water reported by RTL Group for the 2015 financial year rose by 8 percent compared with 2014. This water was mostly drawn from well systems and used to cool buildings and broadcasting facilities.

In the printing businesses, water is mainly used for heating and cooling. Rotogravure printing requires steam production and free cooling. In the rotogravure printing operations at Be Printers, water usage increased by 5 percent in 2015 compared to 2014.

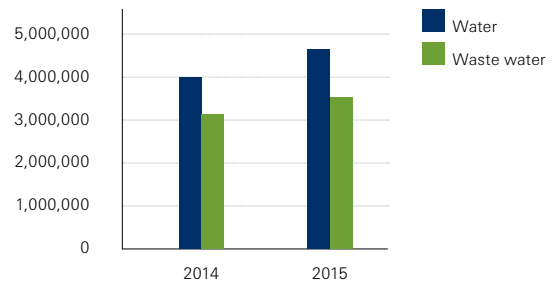
At Penguin Random House, there was a significant drop of 40 percent in water consumption. The decline relative to 2014 was due to the merging of warehouse, logistics, and administrative processes as the businesses were integrated. Gruner + Jahr and Arvato likewise reported lower water use, with declines of 9 percent and 5 percent respectively.

While 4.63 million cubic meters of fresh water were used, a total of 3.48 million cubic meters of industrial and waste water were discharged.

Table 3: Water usage in cubic meters (m<sup>3</sup>)

	2014	2015	Δ
<b>Bertelsmann (total)</b>	<b>3,967,700</b>	<b>4,627,800</b>	<b>17%</b>
RTL Group	1,895,700	2,052,800	8%
Penguin Random House	240,000	143,600	-40%
Gruner + Jahr	205,000	185,800	-9%
Arvato	865,300	817,800	-5%
Be Printers	712,500	747,700	5%
CI + CC	49,200	680,100	1300%

Fig. 9: Water and waste water in cubic meters (m<sup>3</sup>)



**Tun van Rijswijk**  
is Chief Operating Officer of BCE,  
Europe's market leader for technical services  
in the fields of television, radio, production  
and telecommunication. In 2012, he was appointed  
Chief Environmental Officer of RTL Group.



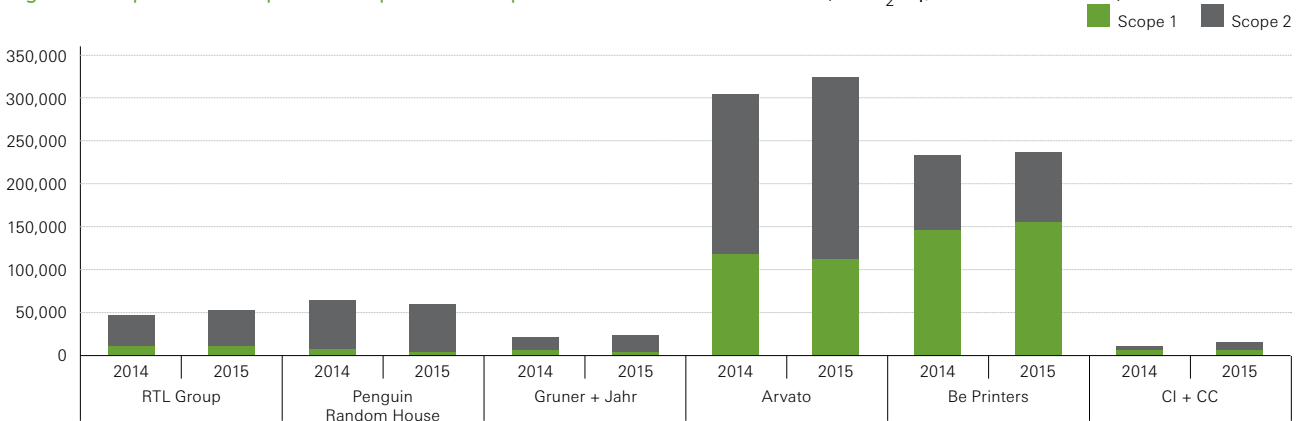
“Cooling buildings and broadcasting facilities with groundwater results in an intelligent cooling system in which the water is returned to nature again at the end of the cooling cycle. This process conserves resources, protects the environment, and is also economical.”



## 4.4 Greenhouse Gas Emissions

The total reported direct and indirect greenhouse gas emissions fell compared with last year by slightly more than 3 percent from 2.37 million metric tons of CO<sub>2</sub>eq in 2014 to 2.29 million metric tons of CO<sub>2</sub>eq in the year 2015. While Scope 1 and Scope 2 emissions increased slightly, there was a decline in reported Scope 3 emissions.

Fig. 10: Comparison of reported Scope 1 and Scope 2 Emissions in metric tons (t CO<sub>2</sub>eq, location-based)



The Scope 1 and Scope 2 emissions of Bertelsmann were largely due to the divisions Arvato (318,900 metric tons CO<sub>2</sub>eq) and Be Printers (233,900 metric tons CO<sub>2</sub>eq). In particular, the consumption of electricity, natural gas, and heat by printing machinery and other production facilities as well as the operation of distribution centers are reflected in these corporate divisions' carbon footprints.

Table 4: Scope 1 and Scope 2 Emissions (t CO<sub>2</sub>eq)

	2014	2015	Δ
<b>Bertelsmann (total)</b>	<b>665,400</b>	<b>697,900</b>	<b>5%</b>
RTL Group	45,400	51,200	13%
Penguin Random House	61,800	57,200	-7%
Gruner + Jahr	21,000	23,100	10%
Arvato	299,000	318,900	7%
Be Printers	228,500	233,900	2%
CI + CC	9,700	13,600	40%

Compared with the previous year, the reported emissions of the companies that are by far the largest emitters, Arvato and Be Printers, rose by 7 percent and 2 percent, respectively. Although energy consumption declined slightly, higher emissions factors for the purchased quantities of electricity in the relevant markets led to an increase in reported emissions in 2015.

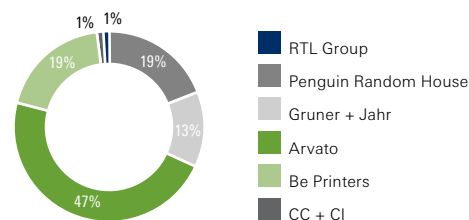
The other divisions reported significantly fewer emissions: a total of 145,100 metric tons in all. Of that total, RTL Group was responsible for 51,200 metric tons of CO<sub>2</sub>eq (+13 percent compared with last year); Penguin Random House accounted for 57,200 metric tons of CO<sub>2</sub>eq (-7 percent relative to 2014); and Gruner + Jahr was the source of 23,100 metric tons of CO<sub>2</sub>eq, which was a 10-percent increase over 2014.

The other indirect greenhouse gas emissions from the upstream and downstream value chain (Scope 3) significantly exceeded the Scope 1 and Scope 2 emissions. Arvato was responsible for the largest share of Scope 3 emissions, at 47 percent, followed by Be Printers and Penguin Random House with 19 percent each.

Gruner + Jahr accounted for a 13-percent share of Scope 3 emissions. At these four divisions, the large quantities of paper used in the print and publishing businesses played a major role, with the latter accounting for over 90 percent of the reported Scope 3 emissions in each case.

On the other hand, two thirds of the emissions at the Group were due to business travel, and a third resulted from employee commuting. The Scope 3 emissions reported for Corporate Investments and the Bertelsmann Corporate Center were marginal and distributed relatively evenly.

Fig. 11: Scope 3 Emissions According to Division



“Decentralized natural gas CHP units are an important element on the path to achieving a sustainable energy supply — as are energy conservation and the expansion of renewable energy. Nevertheless, they represent only a transitional technology, since mainly fossil fuels are still used.”



**Lars Peters**  
is head of Energy Management at Prinovis Germany and reports environmental data for the units Prinovis Germany and UK as well as for the Bertelsmann Printing Group print shops in the U.S.



**Sven Wolter**

is head of Internal Services at G+J in Germany, in which role he is responsible for corporate real estate management.

“The data on business travel at G+J reflects the responsible behavior of our employees – both in the selection of means of transportation (e.g., train instead of plane) and in the reduction of trips overall (e.g., use of videoconferences).”



**Markus Becker**

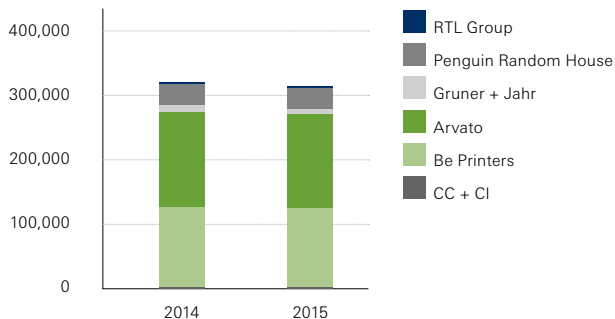
is head of Facility Management at Arvato Systems.

“Efficient cooling is vitally important for running our computer centers in a way that is climate-friendly. We hope to make more improvements in this area based on our analyses in 2015.”

## 4.5 Waste

The quantities of waste reported declined by 2 percent Bertelsmann-wide in the 2015 financial year to 307,900 metric tons.

Fig. 12: Waste in metric tons (t)

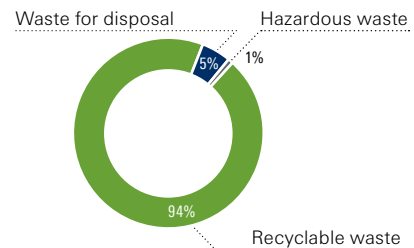


In the divisions Penguin Random House, Gruner + Jahr and Arvato, there was a moderate decline in waste quantities compared with last year. The drop-off was attributable to more efficient production processes and declining business in print media. At Be Printers, the reported waste quantities remained at the level of the previous year.

Table 5: Waste in metric tons (t)

	2014	2015	Δ
<b>Bertelsmann (total)</b>	<b>314,300</b>	<b>307,900</b>	<b>-2%</b>
RTL Group	2,200	1,800	-18%
Penguin Random House	31,200	30,600	-2%
Gruner + Jahr	8,400	8,200	-2%
Arvato	148,700	143,800	-3%
Be Printers	123,000	122,900	0%
CI + CC	800	700	-13%

Fig. 13: Breakdown of the types of waste



In 2015, the quantity of recyclable waste amounted to 288,400 metric tons across Bertelsmann as a whole. This represents a 94-percent share of total waste, the same amount reported last year.

Approximately 79 percent of the waste produced Bertelsmann-wide is created in the printing houses of Arvato and Be Printers. The largest share of this waste (95 percent) consists of paper residues.

In 2015, there were 2,300 metric tons of hazardous waste in total. This is a decline of about one fourth relative to the adjusted prior-year value of 3,100 metric tons.

## 5 Overview of Environmental Indicators According to GRI G4 (Global Reporting Initiative)

Key environmental indicators according to GRI G4		Unit	2014	2015	Δ
<b>Materials</b>					
EN1	Paper (total)	t	1,946,000	1,873,800	-4%
EN2	<i>recycled and certified paper</i>	t	1,119,700	1,191,700	6%
	<i>share of recycled and certified paper</i>	%	58%	64%	-
EN1	Paper (Bertelsmann own purchases)	t	1,297,700	1,200,100	-8%
EN2	<i>recycled and certified paper</i>	t	778,300	869,600	12%
	<i>share of recycled and certified paper</i>	%	60%	72%	-
<b>Energy</b>					
EN3	Energy consumption (total)	MWh	1,634,800	1,594,800	-2%
	<i>electricity</i>	MWh	847,500	835,000	-1%
	<i>heat and cold</i>	MWh	722,300	692,500	-4%
	<i>fuels</i>	MWh	65,000	67,300	4%
EN5	Energy intensity	MWh/€ million	134	108	-19%
EN6	Reduction of energy consumption	%	-	-2%	--
<b>Water</b>					
EN8	Total fresh water	m <sup>3</sup>	3,967,700	4,627,800	17%
	<i>from company wells</i>	m <sup>3</sup>	2,668,000	2,788,900	5%
	<i>from public supply</i>	m <sup>3</sup>	1,299,700	1,838,900	41%
<b>Greenhouse gas emissions (GHG emissions)</b>					
EN15	Direct GHG emissions (Scope 1)	t	281,700	283,000	0%
EN16	Indirect energy-related GHG emissions (Scope 2 location-based)	t	383,700	414,900	8%
	Indirect energy-related GHG emissions (Scope 2 market-based)	t	343,300	348,600	2%
EN17	Other indirect GHG emissions (Scope 3)	t	1,705,500	1,591,700	-7%
	<i>business travel</i>	t	50,400	53,100	5%
	<i>paper</i>	t	1,590,000	1,466,900	-8%
	<i>employee commute</i>	t	65,100	71,700	10%
EN18	Intensity of the GHG emissions (Scope 1+2, location-based)	t CO <sub>2</sub> eq / million €	55	47	-22%
EN19	Reduction in GHG emissions (Scope 1+2, location-based)	%	-	+5%	-
<b>Effluents and Waste</b>					
EN22	Total water discharge	m <sup>3</sup>	3,126,500	3,476,200	11%
EN23	Total weight of waste by type	t	314,300	307,900	-2%
	<i>hazardous waste</i>	t	3,100	2,300	-26%
	<i>disposable waste</i>	t	17,100	17,200	1%
	<i>recyclable waste</i>	t	294,100	288,400	-2%

## 6 Explanatory Notes

### Companies involved

The environmental data collection and reporting includes all business activities that are controlled by Bertelsmann SE & Co. KGaA within the meaning of IFRS 10. Control exists if Bertelsmann has the power over the investee as well as the exposure, or rights, to variable returns from its involvement with the investee and is able to exercise its power over the investee such that it can affect the amount of these returns. In order to draw meaningful conclusions regarding the carbon footprint for the entire Bertelsmann Group, the scope of companies to be included was defined in advance (at least 80 percent of sales and employees were to be covered

by the data collection). 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

In the divisions Corporate Investment and Corporate Center, there were organizational changes that had an impact on the 2015 Carbon Footprint Report. The education businesses Alliant International University Inc. and Relias Learning, LLC were added and became subject to environmental reporting for the first time in the 2015 financial year. As of 2015, the book club

Family Leisure Club Ltd. is no longer fully consolidated by Bertelsmann and is therefore no longer included in the collection and reporting of environmental data. At Penguin Random House, the data of the Author Solutions businesses, which were sold at the beginning of 2016, were no longer recorded for the 2015 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 in the data were closed using suitable estimates. For estimates for office and administrative sites, the

Bertelsmann Corporate Center in some cases used factors that were derived by averaging the data of the reporting companies per employee.

### [EN1] Paper

Since 2014, Bertelsmann has been reporting the amount of paper purchased in order to increase transparency regarding the responsible sourcing of what is the most important natural 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. 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 paper quantities published by the business units.

### [EN2] Recycled and certified paper

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. Bertelsmann reports as sustainably sourced paper all paper consisting of recycled materials as well as paper from virgin fiber that meets the criteria 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 paper in the required amounts, the corporate divisions use the certification systems individually according to market requirements.

### [EN5] Energy intensity

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

consolidated financial statements. Only the sales of companies included in environmental data collection are taken into account; these made up 86 percent of Group sales in 2015.

### [EN15] Direct greenhouse gas emissions (Scope 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., trucks, forklifts, company cars) are likewise assigned to the Scope 1 category.



**[EN16] Indirect greenhouse gas emissions (Scope 2)**

Greenhouse gas emissions from the generation of purchased energy 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 both the location-based and the market-based procedure. For the location-based method, Bertelsmann uses the respective national emissions values of the International Energy Agency (IEA). For the calculation of the market-based greenhouse gas emissions, the emissions factors provided by the energy supplier are used, to the extent they are available. Gaps in the data are filled with national emissions values, if no other appropriate estimates can be used.

**[EN17] Indirect greenhouse gas emissions (Scope 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 raw materials (paper), business travel, as well as emissions from employee commuting with vehicles that are not already contained in Scope 1. Significant 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 reporting is also determined by the availability and robustness of data; and by the extent to which emissions can be influenced. Bertelsmann is therefore working on further expansion of data collection and reporting for greenhouse gas emissions related to upstream and downstream value creation.

**Emissions from the manufacture of raw materials (paper)**

Unlike the calculation of emissions for carbon-neutral printed matter, 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 CO<sub>2</sub> data, since the manufacture and transport of paper purchased by the Bertelsmann companies is carried out by suppliers and service providers. Therefore, the CO<sub>2</sub> emissions for the current carbon footprint report are calculated on the basis of LCA data from e.g. Eco Invent V3.1 2014 for selected types of paper. Emissions from the manufacture of about 1.2 million 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 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 esti-

mation was 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, and rental cars. Cars owned by the company are not included

when calculating Scope 3 emissions, since they are already taken into account in Scope 1 emissions. TREMOD factors are used to determine GWP values.

**[EN18] Intensity of greenhouse gas emissions**

The calculation of the intensity of greenhouse gas emissions is similar to the calculation of energy intensity (EN5). It is the ratio of the sum of the reported Scope 1 and Scope 2 emissions in metric tons of CO<sub>2</sub> equivalents (CO<sub>2</sub>eq) to the sales (in millions

of euros) reported in the consolidated financial statements. Only the sales of companies included in environmental data collection are taken into account; these made up 86 percent of Group sales in 2015.

Further information regarding eco-efficiency at Bertelsmann can be found in the Bertelsmann Corporate Responsibility Magazine 2015.

Together with our employees and in dialogue with our stakeholders, we strive to make our diverse businesses as environmentally friendly as possible.

1

#### What do we mean?

By eco-efficiency, we mean the responsible and efficient use and sustainable sourcing of energy and natural resources. Paper, the most important resource for our businesses involving printed media, is of particular relevance here.

2

#### Why is it important?

Protecting our natural environment and climate plays a key role for a sustainable, livable future for our society. Therefore, it is essential for us to reduce the negative impact of our operations on the environment and climate, to actively promote environmental protection, and to develop innovative products and solutions.

3

#### What's in it for us?

Efficiency drives success in any economic activity. Our actions are based not only on our own and societal aspirations, but also because in the short, medium, or long run, this pays off in terms of energy use and the procurement of raw materials.

4

#### What are the opportunities and challenges?

Digitization promotes the dematerialization of consumption and makes our businesses less dependent on limited natural resources. We meet increasing regulatory requirements by enhancing transparency concerning the environmental impacts across our value chain. In combination with effective energy management, we see an opportunity to save on operating costs and reduce our environmental footprint.

5

#### How are we taking action?

Energy and environmental management are handled locally by our companies' management teams. They receive support from a cross-divisional working group that develops Group-wide tools and coordinates projects like the compilation of Bertelsmann's carbon footprint, or Bertelsmann's global "be green Day."

## Contact

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