

ENVIRONMENTAL REPORT

2010 | 2011



GREEN INITIATIVES

The latest examples from
all over the world

THE FOREST ECOSYSTEM

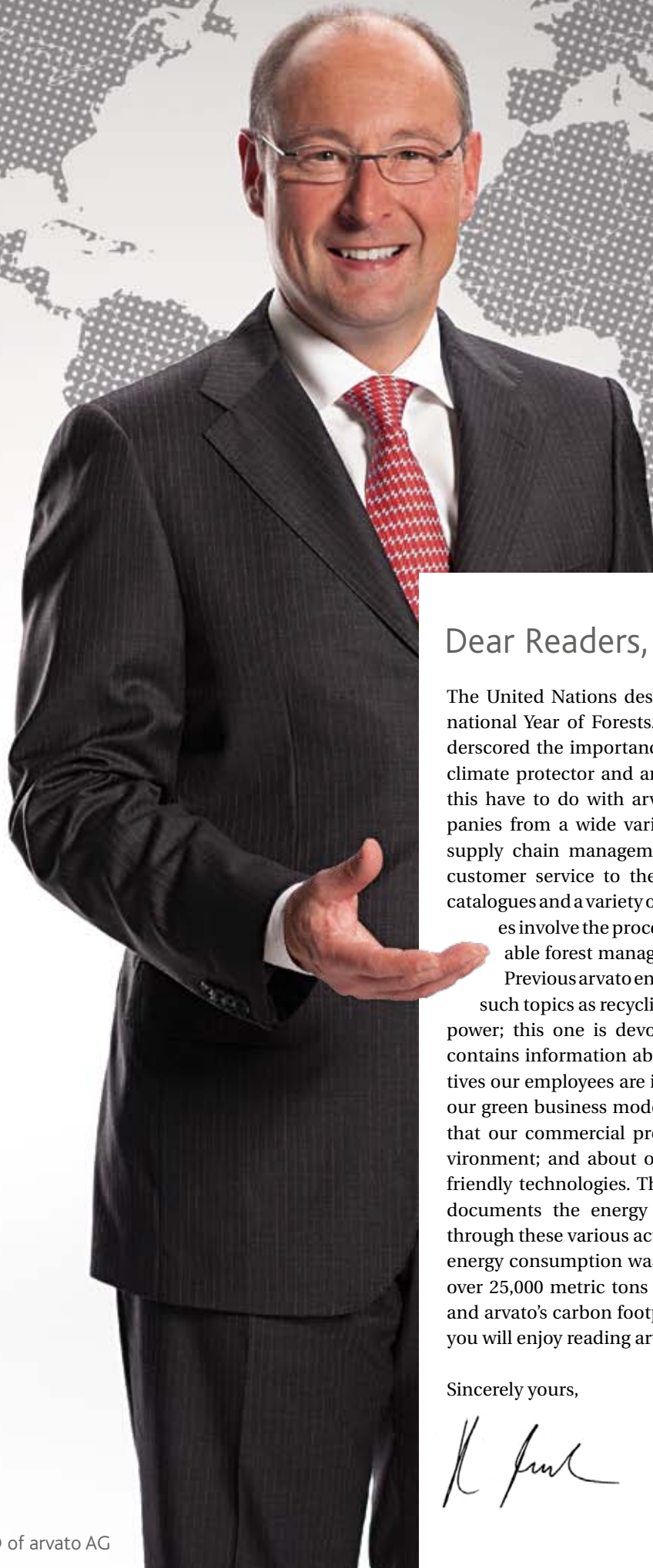
Living space and the resources needed for life

GREEN BUSINESS MODELS

Combining economics
and ecology

arvato
BERTELSMANN

At arvato, we consider the expansion of environmentally friendly technologies, targeted training for our employees and the development of »green« business models to be an investment not only in the future of our company, but also in the future of our society.



Dear Readers,

The United Nations designated the year 2011 as the International Year of Forests. All over the world, initiatives underscored the importance of forests as a living space, a key climate protector and an essential resource. But what does this have to do with arvato? We provide services for companies from a wide variety of industries. They range from supply chain management, financial and IT services and customer service to the production of books, magazines, catalogues and a variety of other print products. Our businesses involve the processing of paper. Accordingly, sustainable forest management is very much in our interest.

Previous arvato environmental reports have focused on such topics as recycling and the cogeneration of heat and power; this one is devoted to the topic of forests. It also contains information about the many environmental initiatives our employees are involved in all over the world; about our green business models, which are increasingly ensuring that our commercial processes reflect concern for the environment; and about our investments in environmentally friendly technologies. The key figures section of this report documents the energy savings that have been achieved through these various activities. During the reporting period, energy consumption was reduced by more than 12 percent; over 25,000 metric tons of packaging materials were saved; and arvato's carbon footprint declined by 22 percent. I hope you will enjoy reading arvato's environmental report.

Sincerely yours,

CONTENTS

WHO WE ARE

Thinking globally, acting locally	6
A shared strategy for pursuing individual pathways	8



GREEN INITIATIVES	9
Green initiatives on the Green Isle	10
A favorable climate in computing centers	12
Drawers contain valuable materials	13
Taking a shuttle bus rather than a car	14
Let's do it: Reducing waste materials	16
A consistent focus on recycling	16
Modern technology reduces consumption and emissions	18
Efficiency for the environment	20
Global initiatives to achieve a common goal	22
»Together we can achieve more!«	24
Planting instead of talking	26



SPECIAL TOPIC	27
arvato's forest	29
Young tree sponsors	30



GREEN BUSINESS MODELS	31
Carbon balancing tool	32
Green packaging solutions	34
Managed print service	35
Value-added systems	35
Green services	36
Environmental management systems	38
Customer statement JACK WOLFSKIN: »At home outdoors« – a sustainable approach	40
Climate-neutral printing	42

ENVIRONMENTAL BALANCE SHEET	43
Global environmental balance sheet	44
Input and output at a glance	48
Key environmental figures	50

GLOSSARY

PRODUCTION CREDITS

ENVIRONMENTAL GUIDELINES

WHO WE ARE

Thinking globally, acting locally

An environmentally conscious approach to business – conserving energy, recycling materials, making the best possible use of resources – is not only beneficial to the environment and coming generations, but it also has positive effects on the cost side. Responsible, sustainable behavior and economic success are two sides of the same coin. arvato has long recognized that fact – sustainability has been an integral part of the corporate culture for decades.

As a globally active company, arvato devotes all of its innovative resources to making an effective contribution to sustainability. Since the 2008/2009 arvato Environmental Report was published, we have steadily upgraded our technology and expanded our expertise. We use these resources to improve our products and services, with the goal of securing jobs and profitability, protecting the environment and making our customers more successful.

Thanks to the commitment and good ideas of our employees, we have been able to undertake a number of green initiatives to improve our environmental impacts, and we have developed green business models that help our customers reduce their resource consumption. Several examples of our projects are described in this report.

Transparency continues to be central to arvato's fourth Environmental Report, which follows more closely the Global Reporting Initiative (GRI) in describing environmental impacts. The result is increased quality and precision when reporting on sustainability issues.

New trends, technologies and market developments bring about constant change in our businesses.

To maintain close proximity to our customers, we have reorganized the company's structure. As of the beginning of 2011, arvato is no longer made up of the Print, Digital Services, and Systems and Services divisions. Instead, it is now organized in strategic business units that focus specifically on certain industries, markets or regions. For the Environmental Report, this means that key environmental figures are summarized at the group level. A distinction is no longer made between production and service companies within the arvato group.

arvato is represented on every continent. We understand the challenges of international markets. In 35 countries, we design and implement solutions for a wide variety of business processes, tailored to the individual needs of our business customers all over the world. We are able to think globally and act locally.

Success requires understanding local circumstances while also keeping global factors in mind. Not only do we take advantage of our global experience when implementing local solutions; we also translate what we have learned in the local context into global action. We use our knowledge to benefit our customers as well as the environment.



cr.arvato.com

The Environmental Report is closely associated with the website cr.arvato.com. There you will find additional information, which is regularly updated, along with arvato's environmental guidelines.



The site cr.arvato.com can be directly accessed from a cell phone using the QR code. Fees vary with mobile phone rates.

A shared strategy for pursuing individual pathways

As different as our business units are and as individual as our solutions are, all of them are bound together by a common history, a shared perspective and a consistent strategy.

1. A three-dimensional growth strategy

Profitable growth is the foundation for responsible corporate behavior. Only successful companies can offer secure jobs and the opportunities needed for innovation and investment, for example, in protecting the climate and the environment. Accordingly, we will continue to grow in three dimensions – by developing new and sustainable services, acquiring new customers and expanding our international activities. Moreover, it continues to be our stated goal to open up new, as yet unexplored industries.

2. A focus on integrated service chains

We are located in close proximity to our customers, and are experts in our industries. In the interest of profitable growth, we plan to focus even more intently on the needs of our customers, and to design and implement customized solutions from the relevant markets. As we have developed into a provider of industry-specific integrated solutions, we have continued

to optimize our business model. Bundling our services has allowed us to provide integrated services, all from a single source, rather than individual, interchangeable products. This is arvato's strength, our USP. Starting from a specialized unit, we develop ideas, designs, products and services that are tailored to our customers and their needs.

3. arvato's DNA

Innovation, customer focus, performance and people make up our DNA, the core of how we perceive ourselves as entrepreneurs. New things are the result of creativity, trial and error, fine-tuning and exchanges with others. For us, innovation means taking risks and accepting the fact that not every business model will immediately prove successful. Another of our strengths is our proximity to our customers. It is when we focus most strongly on the interests of our customers that we achieve the greatest success. Devoting all of our energy to our customers requires

lean and unbureaucratic structures. We also stand for entrepreneurial productivity. We provide the highest quality for our customers, and are efficient and cost-conscious.

Superior performance requires not only speed and competitiveness, but also constant efforts to optimize our structures and processes. arvato is a »people's business,« and employees are our true capital. We have a committed and qualified workforce, and an outstanding leadership team. The quality of their work is synonymous with the satisfaction of our customers. In this context, it is also important for us to monitor employee satisfaction on a regular basis. Our actions are rooted in the Bertelsmann Essentials: partnership, entrepreneurship, creativity and citizenship. For us, a sustainable approach to business means combining economic success with a focus on environmental protection and social responsibility.

arvato AG

arvato is a globally active outsourcing service provider. Its more than 67,000 employees are engaged in designing and implementing solutions for a wide variety of business processes involving integrated service chains, tailored specifically to the needs of their business customers all over the world. arvato is a wholly-owned subsidiary of Bertelsmann AG.



GREEN INITIATIVES

Environmental protection starts with each individual's actions – in the workplace, too. All over the world, our subsidiaries are involved in a wide variety of initiatives aimed at reducing our environmental impacts and those of our customers.

We provide some examples of these activities below.

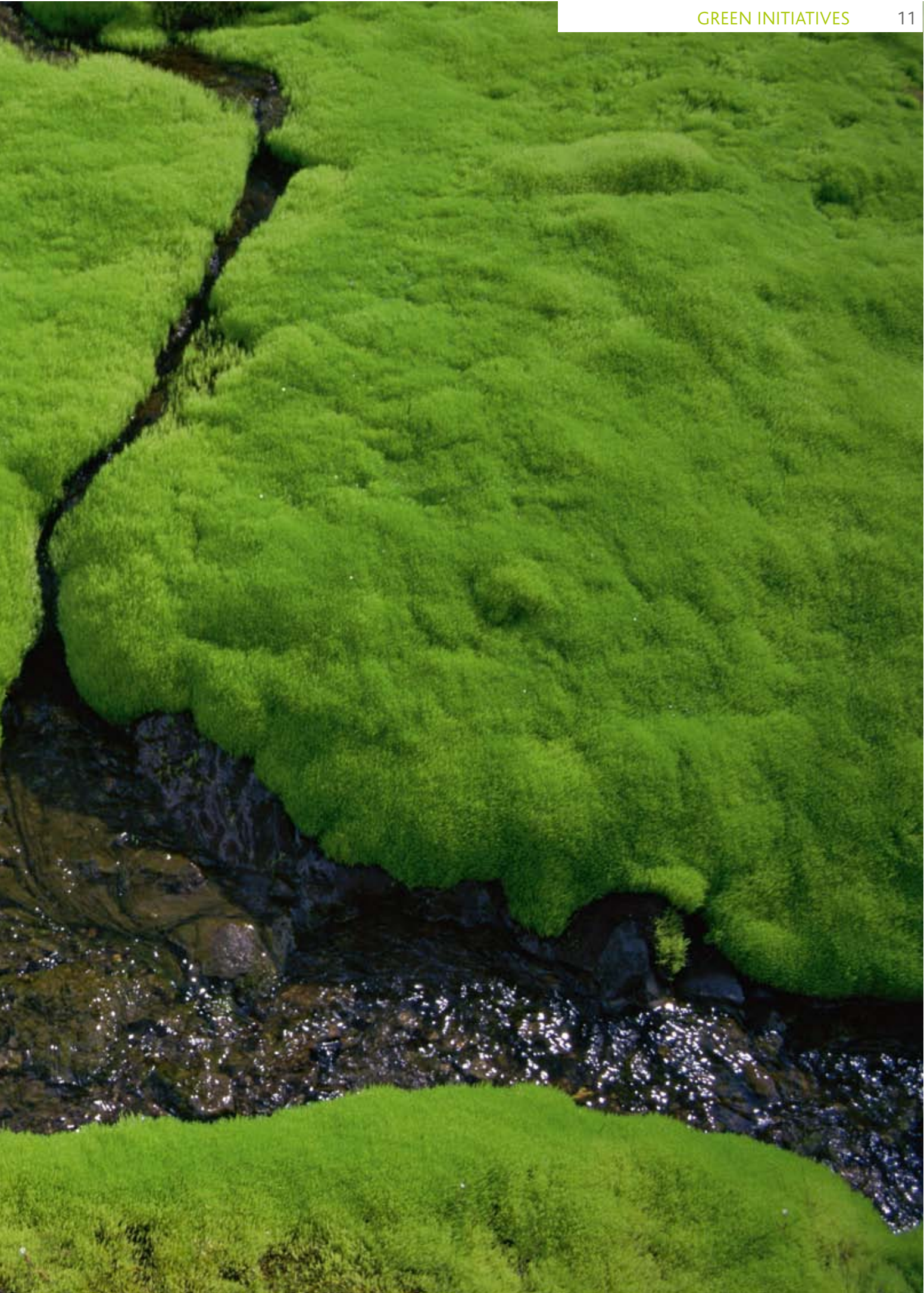
An aerial photograph of a stream flowing through a dense, vibrant green forest. The water is dark and reflects the surrounding foliage. The trees are lush and cover the entire landscape, creating a rich, textured green environment.

Green initiatives on the Green Isle

arvato employees in Dublin have come up with their own way to promote environmental awareness. In 2009, a voluntary environmental initiative called »Glas« – Irish for »green« – was launched, with the aim of reducing the company's environmental impact. Last year, for example, the team showed a yellow card to employees who wasted energy by failing to switch off their PCs and monitors. A sticker with a cartoon of a soccer referee reminded people to turn off their equipment before leaving the office at the end of each day.

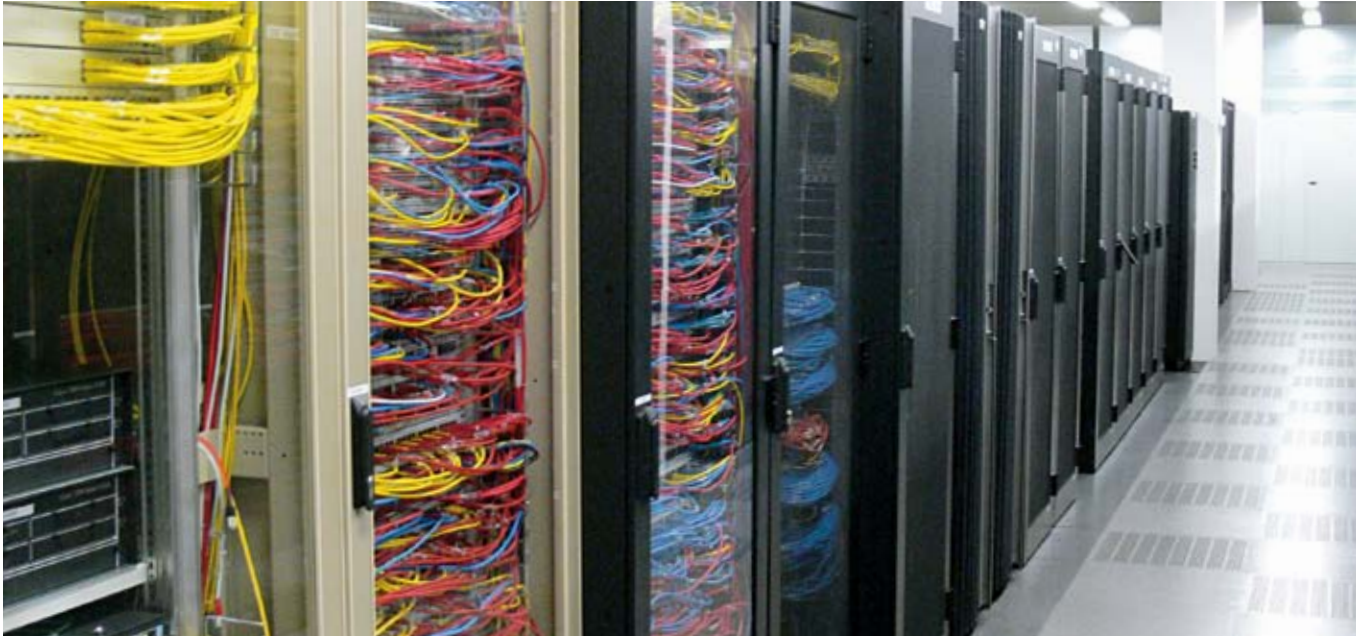
This year, the »Glas« team organized a »WEEE Wednesday« in conjunction with the nonprofit organization Rehab, which provides a variety of integrated opportunities for workers with disabilities. This was a day when employees could bring in their old electronic devices, which were then recycled by Rehab personnel in accordance with the EU's Waste Electrical and Electronic Equipment Directive (WEEE).

There are also plans to reduce office paper consumption. The idea is to introduce software that will show employees how much they are printing and encourage them to reduce that amount.



A favorable climate in computing centers

In computing centers, cooling systems for server cabinets use particularly large amounts of energy. In order to reduce resource consumption and allow for the company's further expansion, arvato Systems has completely modernized the air conditioning system at the Gütersloh site.



Innovative technology at the chiller plant, an uninterruptible power supply (UPS) and battery systems now provide for ideal climatic conditions at the computing center, while simultaneously playing a major role in protecting the environment: This saves approximately 1.2 million kWh of electricity every year.

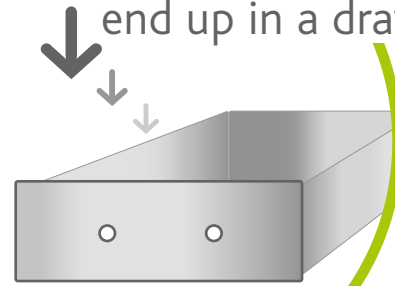
Further savings are achieved with the help of cold aisle containment, which allows for controlled air-flow to cool the server racks. The cold aisles between the server rows (cooling air aisles) are separately contained. Cold air flows directly through the servers without mixing with the hot aisles or ambient air.

In addition, existing fluorescent lamps are to be replaced with new ones in 2012. This will increase efficiency by 30 percent, reducing annual energy consumption by an additional 30,000 kWh. This amounts to approximately 18 metric tons of CO₂, or the equivalent of the annual energy consumption of six four-person households.



1.2 billion cell phones
are sold every year worldwide.

In Germany alone, about
72 million of them
end up in a drawer.



Used cell phones
can be recycled!



Drawers contain valuable materials

Worldwide, some 1.2 billion cell phones are sold every year. Eventually they usually end up discarded in drawers, office cupboards or glove compartments – roughly 72 million of them every year in Germany alone. These discarded phones, however, are far from worthless.

If they are still in working order they can be reused, and defective phones contain a treasure trove of such precious metals as copper, palladium and even gold. Around 80 percent of the raw materials in old cell phones can be put to further use, but currently only five percent of such devices are reprocessed or recycled.

In an initiative throughout Germany, arvato collected used cell phones – for a worthy cause, and for the good of the environment: Employees at all of the company's sites were encouraged to deposit

their old cell phones, along with their accessories, in collection boxes. This yielded a total of 2,698 used phones and 184 kilograms of accessories. The devices were inspected at the arvato site in Korbusen, Germany, then properly recycled or reprocessed for sale.

All proceeds were donated to the non-profit organization fragFINN e.V., which is dedicated to providing a secure place for children to surf the Internet. For example, this organization has developed a special search engine for children that screens out inappropriate content.

The initiative benefited the environment as well, since the cell phones – and the heavy metals and toxic substances they contain – were reused or recycled rather than ending up in household waste.



Taking a shuttle bus rather than a car

Every one of us can help to reduce greenhouse gases – for example, by choosing alternatives to traveling by car. This is why arvato Singapore is encouraging its employees to use public transportation: Located in the Southeast Asian megalopolis, the company provides shuttle buses to take employees to public transportation terminals.





Let's do it: Reducing waste materials

It began with a YouTube video: A clip about the Estonian grass-roots campaign »Let's do it« was posted on YouTube in 2009, showing thousands of volunteers collecting tons of illegally dumped garbage – on a single day. This idea spread around the world, and in September 2011 more than 40 of arvato's then 110 employees in Romania rolled up their sleeves and went to work. Together they cleared away garbage strewn along the shores of Tarlung Lake. They worked arduously and proudly collected a total of 220 sacks filled with refuse of all kinds.



A consistent focus on recycling

The arvato distribution center in Milton Keynes, UK, has an excellent environmental record. 99.75 percent of waste is recycled, including light bulbs, batteries, toner cartridges, scrap paper, cardboard and plastic. Waste materials that cannot be recycled are sent to a power plant to be safely incinerated to produce energy rather than landfill.

Modern technology reduces consumption and emissions



Thanks to ongoing investments in modern technologies, arvato's subsidiaries are achieving high quality and top performance – while simultaneously reducing energy consumption and emissions. Examples include offset printing service providers Mohn Media and GGP as well as Topac, the packaging specialist.



The demand for energy is a key figure for printing companies, in terms of both economics and ecology. Energy costs are steadily increasing, and energy production has a negative impact on the environment. Printing machines with several separate water-cooled engines in their printing units, rather than a single main drive, offer the potential for considerable improvement: Individual engines can be designed for optimal performance, and they lose far less power than a system with a single main engine and drive mechanism. Moments of inertia are smaller, while power density and acceleration levels are higher.

This is clear from a comparison of two rotating machines at Mohn Media, a new 80-page machine and an older 32-page machine: For every 16 printed pages, the older machine uses 0.005 and 0.006 kWh of electricity and gas, respectively, while the newer one uses only roughly half as much: 0.003 kWh of each.

Intelligent ways of drying paper

Intelligent technologies for drying paper offer additional savings. In web offset printing, hot-air floatation web dryers dry the ink by evaporating the solvent it contains. To that end, a combustion chamber powered by natural gas produces a current of hot air at a temperature of between 180 and 220°C.

External afterburners typically destroy the solvent fumes released in this process at a temperature of about 800°C. The heated paper web is then cooled to a temperature of 25°C. Mohn Media and

GGP use intelligent dryer technology that features regenerative post-combustion: The solvent fumes in the exit air are conveyed directly to the combustion chamber and burned off. This purifies the exit air, while simultaneously taking advantage of the energy contained in the solvent fumes to heat the air in the dryer: Up to 50 percent of the energy needed for this is derived from the fumes. The purified exit air then passes through heat exchanging devices to produce hot water or steam.

New cooling system

Topac launched a new cooling system at the beginning of December 2011. Prior to this installation, the printing machines' water-cooled supplementary components – dryer, air supply and radiator cooling apparatus – were cooled down using cold water from a power plant. More than 200 kW of heat was wasted per hour. In the future, the lost heat will be discharged via a separate external cooling method that includes a glycol recooling system – much like an air-conditioning system in a car. This new solution will reduce annual carbon emissions by some 193 metric tons. During the heating period, heat can be fed into a house's temperature control system through an intermediary heat exchanging device, which will lead to a further substantial reduction in heating costs.

These three examples demonstrate how investments in modern machine technology can lower costs and reduce environmental impacts, while simultaneously ensuring high quality and production safety.



60 tons CO₂ less.

Efficiency for the environment

arvato companies in the UK and France have implemented a variety of initiatives to optimize processes and make them more efficient. This benefits both customers and the environment, as costs and emissions are reduced.

By systematically optimizing shipments from arvato's UK sites at Hams Hall (near Birmingham) and Milton Keynes, arvato reduced the number of haulage miles last year by around 40 percent. After just nine months, the two sites had reduced the distance traveled by a total of 56,000 miles, or 90,000 kilometers, saving an equivalent of approximately 54 metric tons of CO₂ emissions.

To begin with, a team analyzed shipments from the two distribution centers. This showed that many trucks were not fully loaded when they left the centers to deliver goods. And in many cases they

passed close by the other site as they made their deliveries. A centralized freight management system now manages all deliveries from both sites and makes sure that trucks are filled to capacity.

The arvato team at the Atton site in France achieved similar successes: Thanks to optimization efforts, transport routes have been shortened by 11,625 kilometers, reducing carbon emissions by six metric tons. In addition, garbage compressors make it possible to haul away nearly 20 times as much garbage in a single load as in the past.



Less material consumption

Further efficiencies were gained at the Milton Keynes distribution center by implementing parcel consolidation logic. Previously, customer orders were processed and shipped separately, even if the packages were not completely full. The consolidation process means that multiple orders are combined and sent out in a single shipment. This ensures greater efficiency and lower shipping costs, and requires considerably less packaging and filling material. This optimization produced material savings of approximately 25 percent in the peak month of November.

In 2011, arvato UK expanded its services to include international deliveries directly to consumers. arvato worked with its distribution partners to develop a system for combining these deliveries with larger orders from other companies to provide the new service without adding new delivery routes in the UK.

»be green Day« October 18, 2011



 begreen.arvato.com

Further information about arvato's company-wide »be green Day« can be found on the Internet.

Global initiatives to achieve a common goal

People achieve more by working together – this was demonstrated by more than 67,000 arvato employees who took part in various projects and initiatives during the second »be green Day.« Many small initiatives combined to form an impressive whole.

arvato's employees participated enthusiastically in »be green Day.« Among other things, they logged on to a microsite, set up specifically for that purpose, to tell us what they, personally, were doing to protect the environment. This gathered many good ideas for how each individual can help to protect the climate and the environment.

As a special thank you for the impressive commitment shown by its employees, arvato AG is planting trees – and the more entries that are submitted to the website, the more trees will be planted. This shows that every contribution to protecting the environment plays an important role, particularly when more than 67,000 people around the world are involved in this effort. More information about the arvato forest can be found on page 29 of this report.

Green initiatives all over the world

Various activities to promote environmental and climate protection were held at arvato's sites around the globe on »be green Day.« Here are a few examples:

In Monterrey, Mexico, containers were set up for recycling electronic devices. Employees could bring in their old television sets, computers or kitchen appliances, as well as used batteries and power cords and put them in these containers. Posters described ideas for an environmentally conscious lifestyle, and signs were installed reminding people to switch off unneeded lights.

The team at the service center in Weaverville, North Carolina, took the words »be green« literally, adding new plants to make the site greener and more attractive. In addition, the company donated organic and locally produced food to local food banks.

A new electronic workflow system is reducing paper consumption at arvato's service center in Ontario, Canada. Older monitors and network printers were replaced with more efficient models, and an internal office was set up to facilitate carpooling.

In the Polish city of Poznan, »be green Day« focused on encouraging proper waste separation, among other things. Employees received detailed information about which materials were to be deposited where, and new containers were provided to make waste disposal even easier.

Switch it off

At several sites in the UK, the »Big Switch-Off« initiative continued or was launched for the first time. Regular checks are carried out to make sure that computers, printers and monitors are completely switched off at the end of the working day, and that – if possible – printers are put in power-save mode. In Austria, timers were installed after »be green Day« to prevent EDP equipment from wasting energy by using standby mode.

»be green Day«

October 18, 2011

»Together we can achieve more!«

A good idea is often enough to make a big difference. Here are a few examples that highlight the many good ideas and the personal commitment of arvato employees all over the world. You will find all of them at begreen.arvato.com.

»Sensors control the lighting in our offices. And personally, I am careful to separate waste materials – both at work and at home.«

Marion Nass | arvato Benelux | ABCOUE



»We have replaced all of our old lightbulbs with energy-efficient bulbs; we always turn our electrical equipment completely off; and we use kitchen scraps as garden fertilizer. And rather than buying new plastic toys for our children, we go online to find used toys.«

Joanna Rada | arvato Poland | PLEWISKA K. POZNANIA



»I look for environmentally friendly products. For example, I only use biodegradable laundry detergent.«

Valeria Mendonca | arvato Brazil | SÃO PAULO

»Being conscious of waste when using paper can make a big difference. I've stopped printing out emails, for example.«

Zhang Chen | arvato China | SHANGHAI



»We launched a ›green‹ initiative aimed at providing carbon-neutral services. I travel by bicycle rather than by car as often as I can.«

Ralf Bierfischer | arvato AG | GÜTERSLOH

»When I'm in the city, I walk, ride my bike or take public transportation.«

Giorgio Marizzoli | arvato Italy | BERGAMO



»I am careful to switch off the light when I leave a room, and I avoid letting water run unnecessarily.«

Ada Andrea Margineanu | arvato Spain | BARCELONA

»Business trips are a regular part of my work. Whenever I can, I take public transportation.«

Reinhold Jöster-Hellberg | arvato AG | GÜTERSLOH





Planting instead of talking

Since 2010, arvato has served in Germany as a sponsor for Bielefeld's Friedrich von Bodelschwingh schools, and it helps students organize Bielefeld Climate Week.

In 2011, to kick off the third Climate Week, a student academy devoted to the »Plant-for-the-Planet« initiative was held with support from arvato. Some 50 fifth and sixth graders participated in this event. The program included talks given by young »Climate Ambassadors« explaining complex aspects of the climate crisis. Information was also provided about the distribution of the world's population, the topic of wealth, and the issue of carbon emissions in various parts of the world. The high point of the event: Under the direction of a forest ranger, participating children planted 60 beech trees in a nearby forest.

»Plant-for-the-Planet« is a global children's initiative. Under the motto »Stop talking, start planting,« they plant trees and help to promote climate protection. Their goal is ambitious: They want to plant a million trees in every country.

THE FOREST ECOSYSTEM

The year 2011 was declared the »International Year of Forests« by the United Nations, in an effort to underscore humankind's responsibility for forests and raise awareness of their importance for life on earth.



According to figures from the WWF, the world's forests cover four billion hectares – but that area is dwindling. Every year, 13 million hectares of forest land are disappearing as a result of deforestation, environmental pollution and forest fires. This is equivalent to a loss of roughly 35 football fields per minute.

The effects of deforestation, pollution and forest fires on the environment are enormous: The Food and Agriculture Organization of the United Nations estimates that changes in land use are responsible for 18 percent of the global greenhouse gas emissions caused by human activity. That is currently more than the emissions produced by the entire transportation sector. Forests are complex ecosystems, and they play a crucial role in the world's water and material cycles, the climate and the conservation of biodiversity. Trees purify the air and, through photosynthesis, convert carbon dioxide into oxygen, which they release into the atmosphere, and carbon for their own growth. A 100-year-old oak tree, for example, removes some 50 kilograms of greenhouse gases from the air each year. German forests alone, with a total area of 11.1 million hectares, bind about 100 million metric tons of carbon dioxide annually.

Living space and the resources needed for life

With their dense networks of roots, forest trees stabilize the soil and protect against erosion. They purify and store large quantities of fresh water; roughly one-

third of the world's largest cities derive their drinking water from forest reserves. Moreover, forests act as climate control systems: It is cooler in the summer and warmer in the winter in forests than in open areas. This temperature difference affects surrounding areas as well.

Forests provide a living space and natural resources for approximately 1.6 billion people – including many indigenous population groups – as well as for countless forms of animal and plant life. About two-thirds of the world's known flora and fauna are found in forests, and rainforests are believed to harbor far more species that are yet to be identified.

Even dead trees are important for the earth's ecosystem. Several hundred kinds of mushrooms and more than 1,000 types of beetles play a part in a tree's decomposition. It may take several decades before a dead tree is completely decomposed – a period during which the tree offers protection and nourishment for a multitude of species.



Iniciativa Verde

The Iniciativa Verde's »Carbon Free Program« encourages companies to measure the greenhouse gases they produce and provide compensation for them. It is working to reforest domestic riparian forests in the Atlantic rainforest, a highly endangered ecosystem. The initiative was launched in 2006, and so far it has planted nearly 500,000 trees to reforest 300 hectares of land.





arvato's forest: 1,000 trees for Brazil's rainforest

Cláudio Alves (arvato Brazil, at left) helped to plant the arvato forest.

arvato, too, observed the »Year of Forests« in 2011. To show its appreciation to employees who participated in the »Together we can achieve more« initiative (see p. 24), arvato AG donated 1,000 trees in Brazil, which were planted with the help of Iniciativa Verde, a Brazilian nongovernmental organization that works to protect the global climate. arvato's forest is located in the Mata Atlântica biome, the most endangered forested area in Brazil. Once measuring 1.3 million km², only about seven percent of it remains.

The trees are pau-brasil, or brazilwood – the national tree, once very common, that gave Brazil its name. Large forests were destroyed by exploitation during the first few centuries of the colonial period, and today the pau-brasil is a protected species. The trees are being planted to afforest an area on the Feijão River. This forest provides water for the São Carlos region, which plays an important role in the biodiversity of the state of São Paulo and the Mata Atlântica biome.



»We are delighted to be collaborating with arvato AG on a reforestation project. arvato's planting initiative serves as an exemplary model, and clearly demonstrates the company's social and ecological commitment.«

MAGNO CASTELO BRANCO, Iniciativa Verde

Young tree sponsors

At the Gütersloh site, children of arvato employees learn through play how to treat nature responsibly: On the second »be green Day« (see p. 22), they planted a donated service tree, the tree of the year 2011, at their daycare center. They are now taking care of the tree and watching it grow every day. After it was planted, the children went out into the forest with a forest ranger, who told them all about the animals and plants that are native to their region and explained the importance of the forest ecosystem.



Protecting the forests

All over the world, various groups are working to protect the forests that play such a crucial role in the earth's ecosystem, three of which we have outlined below. arvato supports several such groups that have established standards for sustainable forest management, taking into account the needs of the natural world as well as the needs of human beings. Three examples are the Forest Stewardship Council, the Plant-for-the-Planet initiative for schoolchildren and the WWF Wood Group, which is part of the Global Forest Trade Network.



GREEN BUSINESS MODELS

Dealing responsibly with natural resources is both a challenge and an opportunity for companies. With arvato's integrated solutions, customers can meet this challenge and make use of the advantages offered by green business models.

CARBON BALANCING TOOL

Recording, analyzing and reducing emissions

An innovative tool from arvato Systems enables companies to precisely calculate and analyze their emissions. This makes it possible to identify emission drivers and optimize their use – which reduces both emissions and operating costs.

One of the first steps toward becoming a »sustainable« company is to measure the CO₂ emissions produced throughout the entire value chain. This is becoming increasingly important, particularly in the transport and logistics industry. With the comprehensive carbon balancing software produced by arvato Systems, companies can precisely balance all of the emissions generated in the course of their operations – related to transportation (by truck, ship, rail or air) and business sites as well as individual processes. Analyses are carried out at a variety of levels, ranging from corporate carbon footprint to product carbon footprint. This helps identify emission drivers and makes it possible to take the appropriate optimization measures.

Direct emissions, caused for example by production facilities or vehicle fleets, as well as indirect emissions, for example from electricity or gas consumption, business travel or employee commutes,

are taken into account when calculating the corporate carbon footprint. A detailed calculation of emissions is produced for every consumption driver; these can be summarized by division, site, process or product.

Analysis in accordance with international standards

Analyses and calculations are based on the Greenhouse Gas Protocol and DIN EN 16258. They take into account all relevant emission factors under applicable standards, in accordance with the Kyoto Protocol and the categories under Scopes 1–3. Depending on the available data, it is possible to show overall figures as well as individual datasets as far down as the building, hall or machine level. Rounding out the portfolio is a link to energy management systems to enable these figures to be monitored on an ongoing basis. Designed specifically for transport management, analysis tools can, for example, compare various means of transportation and show the development of emissions over time, as well as make it possible to



produce forecasts, benchmarks and simulations. By comparing target and actual CO₂ values and monitoring individual key figures, the arvato Systems carbon balancing tool offers companies complete transparency along with a full range of monitoring options.

Basis for optimization

Truck drivers and the vehicle fleet are still the crucial factors in transport logistics. Accordingly, arvato Systems has developed a monitoring system that constantly assesses each driver's fuel consumption. By comparing fuel consumption before and after training, it is possible to determine the optimal tim-

ing of driver training programs. In a second step, an intelligent analysis of the consumption of each truck is carried out to determine the ideal composition of the vehicle fleet.

The integrated carbon balancing and monitoring system makes it possible to achieve a substantial reduction of carbon emissions and to reduce costs by a two-digit percentage – an efficiency-enhancing measure that has dual benefits.

GREEN PACKAGING SOLUTIONS

Environmentally friendly packaging

An environmentally friendly approach begins with product development. The best example of this is the *topgreenline* packaging produced by arvato subsidiary topac. From the design phase to the selection of materials, from production to post-processing, the entire process is based on an environmentally friendly approach and the economical use of raw materials.

The company's packaging is made entirely of recycled or recyclable materials, is manufactured with due regard for the environment, and the dyes and lacquers used are free of petroleum and solvents. Multimedia disc cases are made of corrugated cardboard; the external packaging, too, is manufactured from renewable raw materials or recycled materials. topac offers simi-

larly environmentally friendly solutions for the manufacturers of natural cosmetics as well. Less material, less weight, less space, less energy: A new CD/DVD case developed by arvato Hightech Ireland for one of its customers demonstrates that less can indeed be much more. This case saves 12.5 metric tons of cardboard packaging, or more than 35 percent, relative to the previous year. Its reduced weight and smaller size have also made it possible to lower transport costs and emissions. In 2011, the arvato Hightech team received Repak's »Best Packaging Prevention Initiative Award« for its environmentally friendly design. Repak is a voluntary initiative of Ireland's industrial sector that promotes the recycling of packaging materials. The award is sponsored by Ireland's Environmental Protection Agency.



MANAGED PRINT SERVICES

Lowering printing costs and environmental impact



arvato's integrated services ensure that the company's customer processes are not only more efficient, but also more environmentally friendly. In the UK, arvato has worked with Sefton Metropolitan Borough Council since 2008 to deliver a wide range of services for the area's administration and citizens. This also includes Managed Print Services. At the beginning of the partnership, the council had a total of 1,500 desktop printers, copiers, scanners and fax machines – approximately 250 models from different manufacturers – for 3,000 members of staff.

After a thorough analysis of the client's daily needs, all existing equipment was replaced by 200 multifunctional units and a handful of desktop printers for the smaller locations, saving energy, resources and emissions. Managed Print Services ensure that devices are used appropriately, measuring utilization and managing the fleet to work at an optimum level. »The program has significantly reduced the size of the Council's printer estate, reduced energy consumption and our carbon footprint, provided enhanced printing facilities to all users through the multi-functional devices and importantly will lead to significant financial savings through reduction in print volumes, consumables usage, and usage based charging,« explains Margaret Rawding, Head of Corporate Finance and ICT, Sefton Metropolitan Borough Council.

VALUE-ADDED SYSTEMS

Lower consumption, faster processes

Thanks to a reusable transport box made of cardboard, arvato Hightech Ireland saves more than six metric tons of packaging materials every year. Working together with a major customer, the team developed a new cardboard box that is sturdy enough to use for at least six deliveries. And since it does not need to be reassembled, it also saves time and helps optimize processes.

arvato's Irish subsidiary achieved additional savings by dispensing with the use of shrink wrap around the transport boxes, and thus also with the use of a heat tunnel. This made it possible to reduce energy consumption and waste, since there was no longer the danger of discs suffering heat damage, and filling material was no longer needed.

Reusable transport boxes are also being used at the Bussy St. George site in France. With an average weight of 80 grams per box, this adds up to savings of 3.87 tons of cardboard over the course of six months, or the equivalent of 60 full-grown trees.



GREEN SERVICES

Sustainable all-in-one solutions

Environmental considerations are playing an increasingly important role in corporate strategy. According to the »Sustainovation« study by the German management consulting firm Brands & Values, which interviewed 1,200 CEOs of listed companies in 14 European countries, 90 percent of respondents believe that environmental and social challenges offer a great deal of potential for growth in the long term. An interview with *Bernhard Lembeck* and *Dr. Detlev Braun* of arvato's Competence Center explains how arvato's green service solutions can help.



? International studies predict strong demand for green business models. What are you experiencing in this area?

Lembeck: Sustainability and climate change are issues that concern every aspect of society. It is evident that the demand for green business models, services and products is not only holding steady, but constantly increasing. In the field of logistics, for example, our customers are specifically asking for green or even carbon-neutral services.

? What factors encourage companies to »go green«?

Lembeck: First, they are mindful of their responsibility vis-à-vis coming generations. Second, there is a great deal of economic potential in this area: More efficient processes reduce resource consumption and lower costs. Even minor changes lead to success – but it is only by implementing integrated full-service solutions, including the entire value chain, that the existing potential can be fully realized.

Also important is the fact that a sustainable approach allows companies to distinguish themselves from the competition. This makes those companies and their products more attractive to customers.

? What green services does arvato provide?

Braun: Our portfolio includes, for example, carbon-neutral print production and environmentally friendly packaging for data carriers, as well as carbon-neutral logistics, green warehousing and green web hosting, which make green e-commerce possible. As a general rule, green services are possible in every industry, whether in the field of finance, marketing or customer service.

? How do you go about developing green services?

Braun: The process consists of four steps. The first is to identify every aspect of consumption and analyze processes. This provides an overview of energy- and resource-saving measures and facilitates their implementation.

Second, we draw up a customer-specific energy and carbon balance, which shows different types of consumption and the carbon emissions they produce. Third, we convert our energy supply to green power, derived from wind turbines, for example, and certified under the Renewable Energy Certificate System (RECS). arvato is simultaneously investing in new plants for generating renewable energy. Finally, the fourth step is to neutralize carbon emissions – which are still unavoidable – through





Bernhard Lembeck (left) and Dr. Detlev Braun are in charge of integrated green solutions at arvato.

the use of compensation certificates under the Certified Emissions Reduction and Verified Emission Reductions standards, the only ones that meet the demanding criteria of the WWF, the UN and the Kyoto Protocol. These measures help to support environmental projects in developing countries. Among other things, such projects help the local population and promote the economies of the respective countries.

An external auditing company verifies our green services, awarding a label distinguishing them as environmentally friendly – which can be displayed on shipments, invoices, mailings or websites, for example. After one year, we issue a carbon offset certificate to the customer, which can also be used in external communications.

? How did you come up with that idea?

Lembeck: As a service provider, we are constantly monitoring market developments and trends so that we can offer our customers the right solutions as quickly as possible. And as we

already pointed out, sustainability is an important social issue that naturally affects companies – our customers – too. Initially, it was individual arvato divisions that developed green solutions targeted to customers or specific markets. Now we are in the process of combining these solutions to create a completely green value chain.

? What makes arvato's green business models different?

Braun: The fact that in the area of green services, too, we take a holistic approach to processes, rather than thinking in terms of individual products. In this way, we can offer our customers a complete package of solutions, while other providers deal only with individual services. This allows us to take a green approach to the entire process chain, from creating comprehensive advertising materials to receiving online orders from end customers, and from product packaging and delivery to customer service.

Efficient partnerships

As a service provider and partner, arvato UK & Ireland's public sector team enables the areas East Riding of Yorkshire Council, Sefton Metropolitan Borough Council and Chesterfield Borough Council to achieve their environmental goals.



An environmental team began work in East Riding, where arvato's first public-private partnership was established. As a result, the Print & Design part of the relationship was certified under international environmental management standard ISO 14001 in 2008, and a comprehensive environmental management system has since been implemented across all of arvato's public-private partnership sites in the UK. The environmental team conducts regular audits and reviews to ensure that the requirements of ISO 14001 are met. It also serves as an ambassador and advisor on all aspects of environmental protection for employees and clients.

Managing mail

In East Riding, arvato's services include customer services, revenues and benefits and payroll. These services involve a high volume of mail, to send out invoices and approval notices.

The arvato team devised a solution for coordinating the production of the respective documents and sending them out in batches. This benefits citizens and the environment. Citizens receive clearly organized bundles of information and documents, and money is saved by lowering postage costs, reducing the number of envelopes by 40,000 each year and



eliminating many deliveries. This also helps to benefit the environment by reducing paper consumption and transport requirements.

Energy-efficient technology

Attention is also being paid to increasing efficiency and the conservation of natural resources. In East Riding's county hall, for example, annual power consumption has been reduced by 348 kWh per employee through the optimization of office equipment. The IT team also expanded existing server systems by using virtual servers rather than adding hardware. These virtual servers can be used just like

independent hardware servers, reducing emissions by approximately 200 tons of CO₂ every year.



Since its inception, JACK WOLFSKIN has embodied a unique philosophy: It seeks to motivate people to engage in activities in the natural world, to enjoy the beauty of nature, and at the same time to accept responsibility for preserving natural diversity. Those are JACK WOLFSKIN's goals. To that end, the company offers consumers a wide variety of user-oriented, functional clothing, shoes and equipment. The goal is for consumers to feel »at home outdoors« with the help of JACK WOLFSKIN and its products.

JACK WOLFSKIN specializes in products that provide optimal protection in any weather conditions, products that have been made possible by the company's untiring efforts to innovate. In those products, JACK WOLFSKIN uses a variety of patented innovations developed within the company. It is always working to improve its products, so that customers can enjoy the feeling of being »at home outdoors« to the fullest.





CUSTOMER STATEMENT

»At home outdoors« – a sustainable approach

»At home outdoors« – this is JACK WOLFSKIN's motto. Anyone who – like us – enjoys spending time outdoors, whatever the weather, comes to know and appreciate the natural world in a very special way. This is something we have in common with many of our customers.

As Europe's leading brand of outdoor products, we offer our customers the highest quality and functionality for every season and any kind of weather – without losing sight of environmental and social concerns. Our goal is to demonstrate that fairness, environmental awareness and social responsibility are not incompatible with good-quality products and corporate success. That is part of our sustainability strategy.

Our business activities will inevitably have certain negative effects on nature and the environment. However, our firm goal is to limit our environmental footprint as much as possible, and specifically to reduce our carbon emissions by 2011 by 40 percent, relative to the average for the years 2006/2007.

Since prevention will always take precedence over compensation for JACK WOLFSKIN, we have taken a number of steps to limit carbon emissions resulting from our business activities. They include the use of solar heat and photovoltaics, server virtualization and video conferencing systems; in the course of completely restructuring our supply chain, we have also reduced air freight as a percentage of total freight volume.

In addition, for years we have been consistently using »Blue Angel« recycled paper (of the paper we use, 90 percent is recycled, 9.9 percent is FSC paper, and less than 0.1 percent is virgin fiber paper).

Last, we have changed to Greenpeace Energy and 100-percent green electricity for our power needs. Since some emissions are unavoidable, despite all of our efforts, we have offset them since 2010 by collaborating with the nonprofit organization Prima Klima-weltweit e.V. on large-scale afforestation efforts – which have resulted in an additional 2.1 million square meters of forest.



»Recycled paper and climate-neutral printing are important components of our environmental strategy.«

Ingmar Anderson, Manager for Sustainability at JACK WOLFSKIN

Since the beginning of this year, the printing and distribution of JACK WOLFSKIN's catalogues have been climate-neutral. The use of high-quality recycled paper and an environmentally friendly printing press offers a reduction of carbon emissions that should not be underestimated; this is evident from the carbon footprint of our current spring/summer catalogue. Thanks to the use of recycled paper from Steinbeis (Charisma Silk) and the fact that our printing partner, arvato AG, operates a combined cycle power plant that emits only 268 grams of CO₂ per kWh, the carbon emissions produced in producing our catalogue are 55 percent lower than if we were to use standard recycled paper and Germany's usual energy mix. Compared with the use of virgin fiber paper, the benefits for the environment are even greater.

We compensate for all of the carbon emissions released during production by purchasing carbon emission certificates, thereby setting the gold standard for climate protection projects in accordance with the principles of the Kyoto Protocol for the JACK WOLFSKIN brand. In this context it is also helpful that our printing partner has the necessary expertise and is collaborating with ClimatePartner.

Finally, we distribute our catalogues through GoGreen, the climate-neutral delivery service of Deutsche Post, the German postal service, and pro clima, an initiative of Switzerland's Schweizer Post. To offset the carbon emissions that are produced during the process of distributing its catalogues, JACK WOLFSKIN pays a surcharge for each copy, which goes to support Kyoto climate protection projects.



Climate-neutral printing

Despite every effort to reduce emissions, the production process releases greenhouse gases into the environment. Thus arvato companies such as topac, Vogel Druck, GGP and Mohn Media offer their customers the opportunity to offset carbon emissions by purchasing emission certificates. The agency ClimatePartner calculates the amount of carbon dioxide released during the production process, and compensation can be achieved by participating in climate protection projects. Examples include a hydroelectric power plant in Guatemala and a wind farm in New Caledonia.



ENVIRONMENTAL BALANCE SHEET

Once again, arvato AG's fourth environmental balance sheet provides detailed information about the environmental impacts of arvato's global network of companies.



arvato's global environmental balance sheet

Since issuing the 2008/2009 environmental balance sheet, arvato has worked consistently to improve its environmental impacts as well as the data collection for creating the sustainability report. And this effort has proved successful! In many respects, there has been a lasting reduction in environmental impacts. In order to improve the quality and precision of our key figures, data collection was upgraded in accordance with the guidelines of the Global Reporting Initiative (GRI). The 2010 environmental balance sheet also reflects an organizational change: the consolidation of data at the group level.

Carbon footprint
reduced by 22 percent

Energy
consumption
reduced by
12.5 percent

Use of packaging materials reduced by 26,863 metric tons

97% recycling rate

Number of kilometers traveled reduced by 3,000,000

VOC emissions reduced by 18 percent

Nothing is as constant as change: New trends, technologies and market developments bring about constant change in our businesses. In the interest of greater proximity to its customers, arvato has undergone restructuring. As of the beginning of 2011, arvato is no longer made up of the Digital Services, Print, and Systems and Services divisions. Instead, it is now organized in strategic business units that focus specifically on certain industries, markets or regions.

This new structure is also reflected in this environmental balance sheet, the fourth to be issued by arvato. Because of arvato's integrated approach to solutions, it is neither useful nor possible to distinguish between service and production companies within the arvato group. Accordingly, the distinction between employee-based measures and those reflecting production figures has been eliminated.

This means that not only are data shown for arvato as a whole, as an absolute comparison – as in previous years – but key figures for the entire arvato group are calculated on a per-employee basis. To facilitate a comparison with the 2008 environmental balance sheet, the relevant figures for 2008 were recalculated.

The balance sheet was updated in strict accordance with the internationally applicable reporting standards set down in the Global Reporting Initiative (GRI). In the case of energy use, we draw a clear distinction between our various primary energy sources, and show separately the secondary energy that was purchased, such as electricity and district heating, for example. Emissions from greenhouse gases are also shown separately by source. We have further refined our method of identifying water requirements by distinguishing between »our own production« and »obtained from the public system.«



arvato AG

arvato is a globally active outsourcing service provider. Its more than 67,000 employees are engaged in designing and implementing solutions featuring integrated service chains, tailored specifically to the needs of their business customers all over the world. These solutions include all services related to the preparation and distribution of printed materials and digital storage media, as well as data management, customer care, CRM services, supply chain management, digital distribution, financial services and professional and individualized IT services. As of December 31, 2010, the arvato group had a workforce of 63,985 employees, over two percent more than in 2008.

Raw production materials, auxiliary materials and operating materials Relative to the comparison year of 2008, the total amount of raw production materials used remained virtually unchanged at 1.44 million metric tons. Printing paper, cardboard and office paper accounted for 1.36 million metric tons, nearly 94.5 percent of the total. The second largest item was plastics used to manufacture storage media, mainly polycarbonate, polystyrene and polyethylene. Those materials showed a decline by more than 15 percent, to 40,321 metric tons. In contrast, the amount of dyes and lacquers used grew by nearly three percent, to 29,262 metric tons.

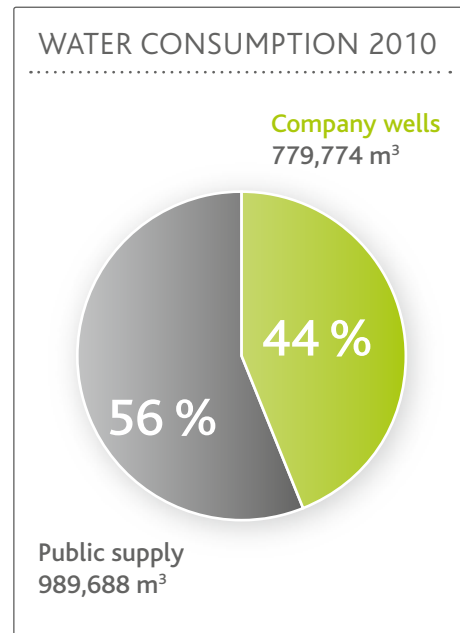
A total of almost 12.1 million products were manufactured in 2010, 38 percent more than two years before. The main area to record substantial increases was mailings (+142 percent), but print products (+24 percent) and storage media (+20 percent) showed growth as well.

Auxiliary materials decreased by more than 20 percent, mainly because of a significant decline in packaging materials (-26,863 metric tons). Overall, 91,853 metric tons of auxiliary materials were used; packaging materials accounted for 71,591 metric tons of that total, and the rest was made up of materials like glues, plastic films and binding materials.

Operating materials decreased significantly as well, to only 8,739 metric tons (-43 percent). Solvents, which are needed for printing and manufacturing storage media, accounted for the largest share with 73 percent of these materials; 6,393 metric tons of solvents were used. We were able to greatly reduce the use of chemicals and cleaning agents.

Water consumption

In accordance with the guidelines of the Global Reporting Initiative – a voluntary initiative for sustainability reporting that currently includes more than 30,000 companies, governments and nongovernmental organizations worldwide – we now distinguish between water from our own sources and water from the public water supply in the presentation of our water consumption. Since the data we gathered allowed for this distinction in 2008, we are able to compare the figures for 2010 with the previous balance sheet. arvato's water requirements worldwide increased by 3.4 percent, from 1.71 to 1.77 million cubic meters. The public drinking water system accounted for only slightly less than one percent of the increase in consumption. During the reporting year, 56 percent of the water we used came from the public supply. For the most part, sites affected were those involved in services and administrative tasks. Companies engaged in print and storage media production, on the other hand, obtained most of their water from their own wells – a total of 44 percent of the water used.



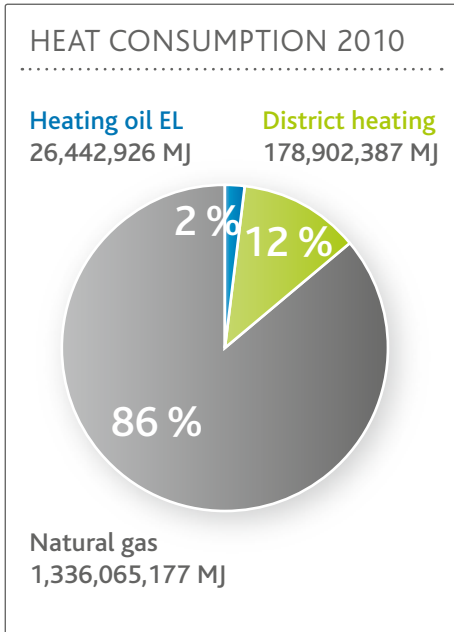
Energy sources and fuels

Since the reporting year 2008, changes have occurred in the use of energy sources. While the use of electrical energy increased by 25 percent, to 823,725 MWh, consumption of thermal and process heat dropped by 43 percent to 345,472 MWh. In 2010, 86 percent of the heat consumed was produced directly from natural gas sources, with another 12 percent provided via district heating. Only two percent was derived from burning heating oil. The fuel consumption of the company's vehicles increased by 17 percent to 2.33 million liters. Diesel vehicles (trucks, cars and forklifts) accounted for the largest share with 85 percent; gasoline-powered vehicles made up the remaining 15 percent. There was a slight decline in the kilometers driven on business trips. Such trips added up to a total of nearly 56 million kilometers in 2010, three million fewer than two years earlier.

Emissions and waste materials

The arvato group offers a wide variety of products in the IT, service and logistics sectors, as well as material goods such as print products and storage media. Unlike material products, balance sheet numbers for services cannot be captured. The number of print products and storage media increased by more than 20 percent relative to 2008. Mailings more than doubled, numbering almost 12.1 million in 2010.

Emissions and waste materials showed a decrease. Carbon dioxide emissions dropped by 22.2 percent to 585,072 metric tons, because less heat was consumed. Emissions of the green-



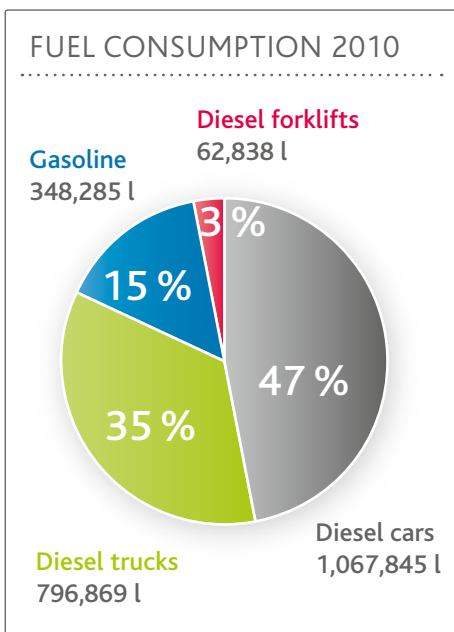
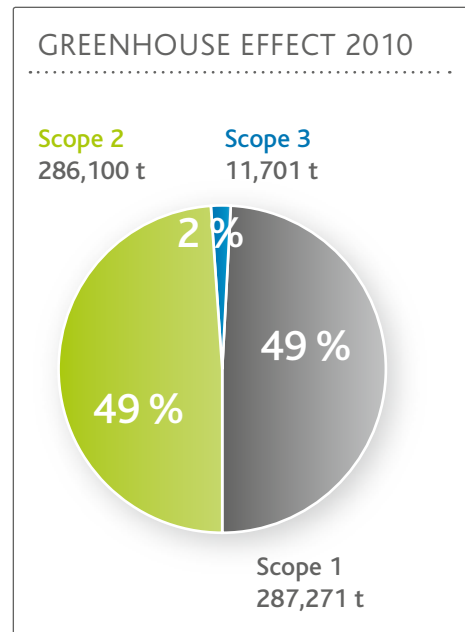
systems and vehicles (Scope 1), or by such secondary sources as energy drawn from electrical and district heating networks (Scope 2). Only slightly less than two percent came from other sources – business travel, in arvato’s case (Scope 3).

Levels of other air emissions, such as carbon monoxide, nitrogen oxides, sulfur dioxide and hydrocarbons, were also lower than in 2008. The only increases were recorded for dust and particles, owing to higher fuel consumption.

Trends in waste products are favorable as well. Overall, 292,833 metric tons of waste were produced, 0.5 percent less than in 2008. Nearly 97 percent of that total (283,003 metric tons), primarily paper, cardboard, plastic and packaging materials, was recycled. Dangerous waste materials decreased by an additional 19.5 percent. With a quantity of 2,135 metric tons worldwide, they accounted for only 0.7 percent of arvato’s total waste. Wastewater increased by 9.2 percent to 1.1 million cubic meters.

house gas methane declined by nearly 18 percent to 1,247 metric tons; total greenhouse gases, at 616,247 metric tons of CO₂ equivalent, were 22 percent lower than in 2008.

A classification of air emissions by the categories listed in the Kyoto Protocol shows that almost half of all greenhouse gases are generated directly by the company’s power plants, heating



Input and output at a glance

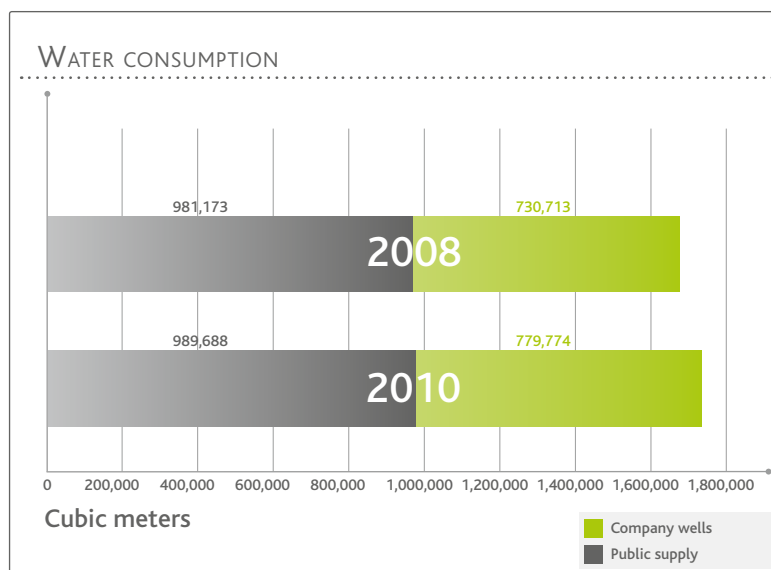
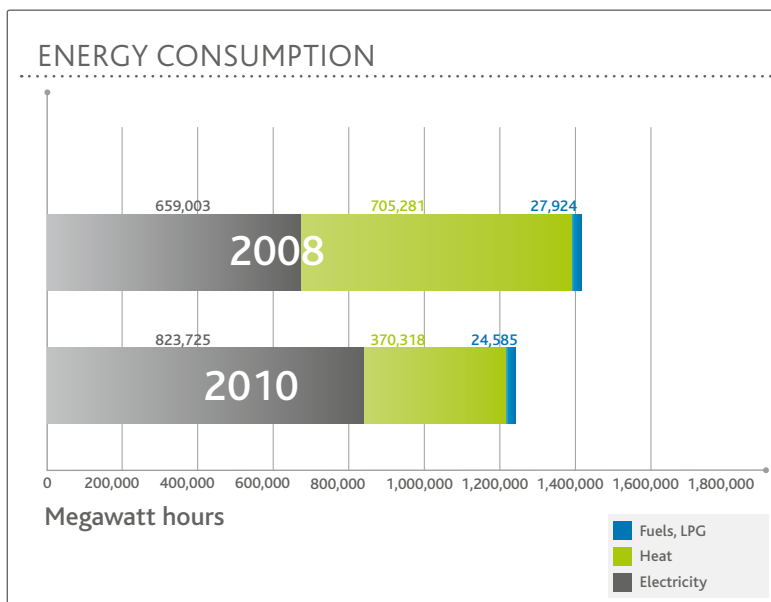
INPUT	2008	2010	CHANGE (%)
Raw materials (metric tons)	1,453,474	1,443,953	-0.7
Paper/Cardboard	1,370,627.5	1,364,526.8	-0.4
Dyes/Lacquers	28,509.6	29,262.1	2.6
Plastics (PC, PS, PE, etc.)	47,604.0	40,321.2	-15.3
Other raw materials	6,733.0	9,843.2	46.2
Auxiliary materials (metric tons)	115,483	91,853	-20.5
Glues	6,635.7	6,327.2	-4.5
Binding materials/Plastic films	10,038.8	13,575.4	35.3
Packaging	98,813.6	71,950.7	-27.2
Operating materials (metric tons)	15,315	8,739	-42.9
Chemicals	2,626.3	291.7	-88.9
Cleaning agents	559.1	317.4	-43.2
Solvents	5,727.4	6,393.2	11.6
Lubricants	109.2	177.8	-62.8
Other operating materials	6,293.3	1,559.4	-75.2
Fresh water (m³)	1,711,886	1,769,462	3.4
Company wells	730,714	779,774	6.7
Public supply	981,173	989,688	0.9
Energy sources (MWh)	1,383,821	1,216,826	-12.1
Electrical power (MWh)	659,003	823,725	25.0
Thermal/Process heat (MWh)	538,067	305,353	-43.3
Natural gas/Liquefied petroleum gas (MWh)	167,214	64,966	-61.6
Diesel and gasoline fuels (MWh)	19,538	22,783	16.6
Diesel and gasoline fuels (liters)	1,999,068	2,329,992	16.6
of that amount, diesel fuel (liters)	1,664,345	16,664,345	17.3
of that amount, gasoline (liters)	334,724	377,085	12.7
Business travel (km)	59,056,532	55,960,626	-5.2
Air (km)	30,404,705	37,696,450	24.0
Rail (km)	6,072,879	8,519,473	40.3
Rental car (km)	22,578,948	9,744,703	-56.8



OUTPUT	2008	2010	CHANGE (%)
Products (millions of items)	8,796	12,099	37.6
Print products	5,592.4	6,924.5	23.8
Mailings	1,080.4	2,619.0	142.4
Storage media	2,123.0	2,556.0	20.4
Waste (metric tons)	294,417	292,883	-0.5
Waste for recycling	261,524.2	283,002.9	8.2
Waste for disposal	32,892.9	9,879.6	-70
Share of hazardous materials	2,654.0	2,135.3	-19.5
Wastewater (m³)	1,019,049	1,112,454	9.2
Air emissions (metric tons)			
Carbon dioxide, fossil	752,116.4	585,072.4	-22.2
Carbon monoxide	750.9	536.3	-28.6
Nitrogen oxides	1,269.5	1,115.1	-12.2
Sulfur dioxide	794.5	768.9	-3.2
Dust/Particles	66.7	83.6	25.3
VOC	1,637.0	1,341.2	-18.1
Methane	1,516.8	1,247.0	-17.8

Key environmental figures

Because of the reorganization of arvato AG, the system of key figures relates only to employees and no longer to production quantities as well. However, to allow for a comparison with arvato's 2008 environmental balance sheet, the key figures for the previous reporting period have also been recalculated for the company's total workforce. In fiscal year 2010, arvato AG had 63,985 employees worldwide (as of December 31, 2010), 2.2 percent more than in 2008.



A total of six key environmental figures can be calculated for this reference value and then compared with the figures for 2008. They include material-specific figures for **energy consumption** and **water requirements** as well as four key figures for emissions. They shed light on the **greenhouse effect** (caused by burning fossil fuels in power and heating plants, in building heating systems and in transporting goods and people), **summer smog** (low-level ozone produced by volatile hydrocarbons such as methane and isopropanol), the **acidification** of soil and bodies of water (caused by sulfur dioxide and nitrogen oxide emissions from combustion processes) and **eutrophication** resulting from nitrogen oxides and phosphates in exit air. In 2010, we have not calculated a per-employee figure for resource efficiency – which, in 2008, was calculated for the production companies under the heading of »raw material requirements.«

Total **energy use** declined in fiscal year 2010 by 12.5 percent, to 1,218.6 gigawatt hours, primarily because of less consumption of heat energy and propellant gas.

Based on total employee numbers – which increased during that period – each arvato employee consumed 19.04 megawatt hours of energy (electricity as well as heat and transport energy) in 2010, 14.4 percent less than in 2008.

Water requirements have remained virtually the same. For the year as a whole, the member companies used a total of 1.77 million cubic meters of water, an increase by 3.4 percent over the previous year's figure of 1.71 million. Following the guidelines of the Global Reporting Initiative, for the first time we have distinguished between water from the company's own wells (44 percent) and water from the public supply (56 percent). The bar graph shows that a large share



»The arvato group's fourth environmental balance sheet once again presents a transparent and readily understandable report on environmental issues. Always following the guidelines of the Global Reporting Initiative (GRI), we have developed and expanded our sustainability indicators relating to energy, water and emissions. This makes it possible to identify problem areas and highlight possible solutions.«

A. Schorb

Dr. Achim Schorb, ifeu – Institute for Energy and Environmental Research, Heidelberg, Germany

is derived from our own industrial water – particularly in our printing companies – which avoids the need to use valuable drinking water from the public supply.

Looking at absolute consumption on a per-employee basis, 2010 saw a slight increase of 1.1 percent, to 27.65 cubic meters.

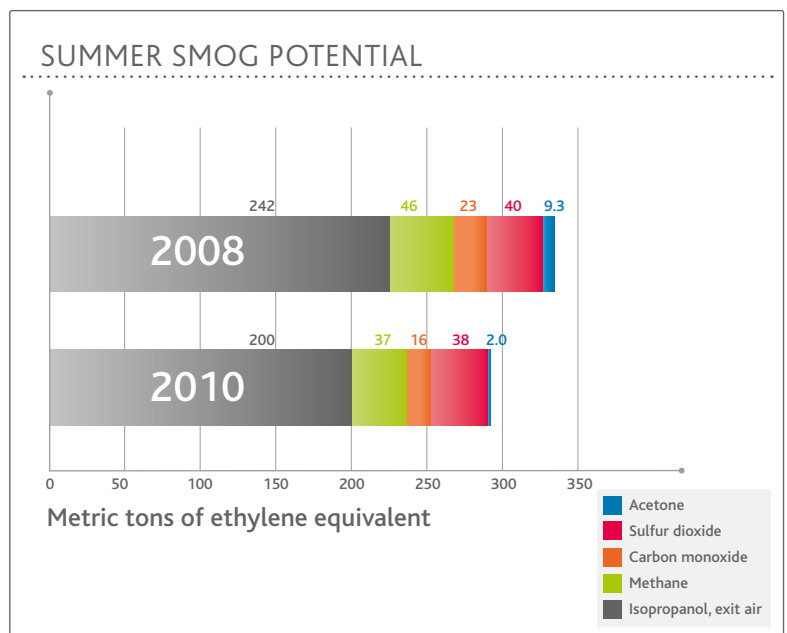
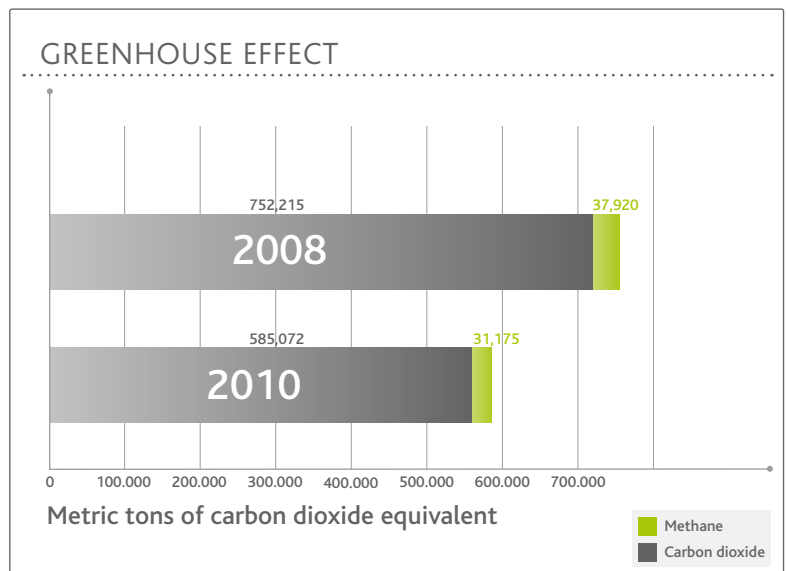
Aside from energy consumption, the **greenhouse effect** is the most important key figure. It is closely related to the use of fossil fuels and the carbon dioxide and methane emissions they produce when burned. Since consumption of thermal and transport energy declined significantly relative to the reference period, there was a substantial reduction in greenhouse gas emissions as well.

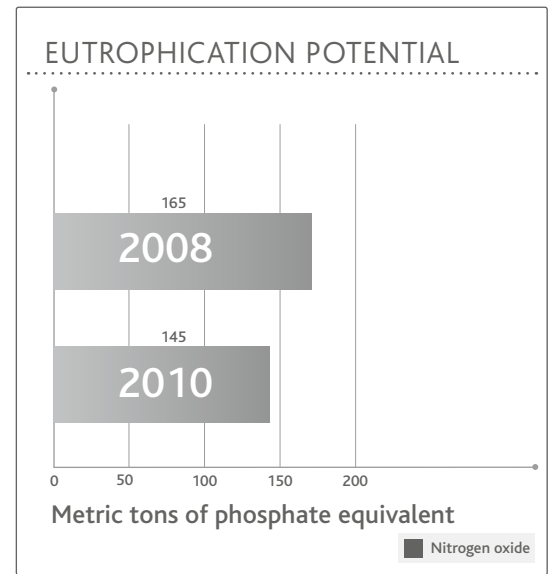
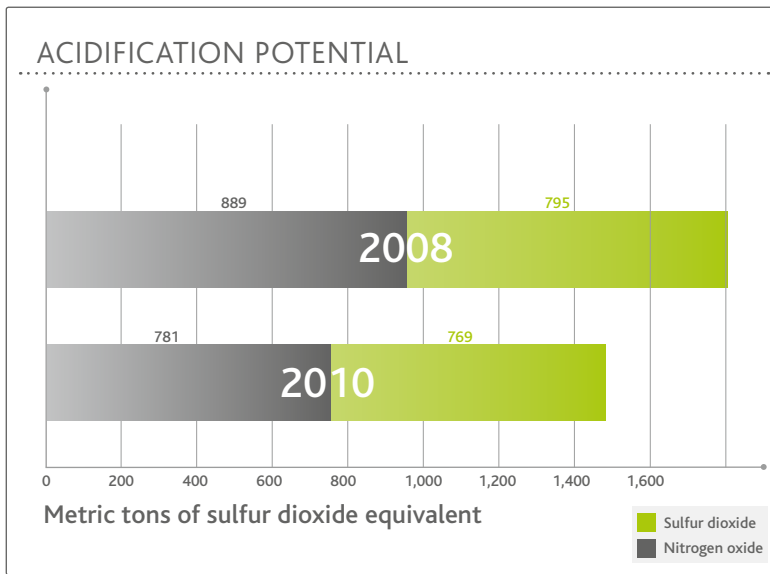
arvato's carbon footprint showed a decline of 22 percent in 2010 relative to 2008, with 616,247 metric tons of greenhouse gases produced. Calculated per employee, greenhouse gases declined by an impressive 23.7 percent, to 9.63 metric tons of carbon dioxide equivalent during the reporting year.

Summer smog emission levels dropped significantly as well. The main reason for this positive change is that fewer solvents, such as isopropanol and acetone, were used in the production of print and storage media. Overall, air emissions decreased by 18 percent to 294.3 metric tons of ethylene equivalent.

On a per-employee basis, the summer smog potential dropped by as much as 19.8 percent, to 4.60 kilograms of ethylene equivalent.

The **acidification** of soil and bodies of water – caused by nitrogen oxides and sulfur dioxide emis-





sions from combustion processes – declined as well. Group-wide, the acidification potential fell to 1,550 metric tons, a decline by 7.9 percent relative to 2008.

When also taking into account the number of employees, this amounts to 24.22 kilograms of sulfur dioxide equivalent per employee, a drop of 9.9 percent compared with the prior balance sheet. The sixth and final key figure concerns the overfertilization of soils and bodies of water, known as the **eutrophication**

potential. To calculate that figure, we look at the entries for nitrogen oxides and phosphates generated by the process of burning the energy sources used by arvato. Phosphate equivalents totaled 145 metric tons, a decrease of 12.2 percent.

When also taking into account the number of employees, eutrophication declined by 14.1 percent per employee relative to 2008, with a level of 2.27 kilograms of phosphate equivalent for each employee.

KEY ENVIRONMENTAL FIGURES per employee	2008	2010	DIMENSION	CHANGE in percent
1. Energy requirements	22,242.9	19,045.5	kWh/employee	-14.4
2. Water requirements	27.35	27.65	m ³ /employee	1.1
3. Greenhouse effect	12.62	9.63	t CO ₂ equivalent/employee	-23.7
4. Summer smog	5.73	4.60	kg ethene equivalent/employee	-19.8
5. Acidification	26.89	24.22	kg SO ₂ equivalent/employee	9.9
6. Eutrophication	2.64	2.27	kg PO ₄ equivalent	-14.1



Andreas Henrichs, Environmental Officer at arvato AG

*»Climate and environmental protection
are becoming increasingly important.«*

Suddenly everyone is talking about environmental protection. As arvato's contact person for environmental issues, I come across an increasing number of customers, employees and environmental organizations who are showing ever greater sensitivity to these issues. Tougher environmental laws are being passed, and stricter emission limits are being put in place. On a personal level, I have been thinking about installing an environmentally friendly heating system or a photovoltaic system in my home.

Is protecting the environment and the world's climate only a passing fad or media hype? Many issues come and go, declining in importance and disappearing from our consciousness; they have only a limited half-life. But I am confident that this will not be the case when it comes to protecting the climate and preserving our environment. On the contrary: This is an area that will become increasingly important. We will be facing issues such as a reduction in carbon dioxide levels, environmental damage and natural disasters in the coming decades as never before.

My colleagues and I have worked closely together for many years, all over the world, to set priorities and collaborate with our customers in developing environmentally friendly products and services. Those efforts are what counts, and what will help us to use our dwindling resources more intelligently over the long term. I am proud to note that we have already achieved a great deal. But we need to continue our efforts. Every contribution and every solution will benefit our environment and generations to come.

Sincerely yours, 

ENVIRON- MENTAL GUIDELINES

The Environmental Guidelines provide a framework for all arvato enterprises. A systematic approach to environmental reporting throughout the company ensures consistent implementation and documentation.



Environmental guidelines

1 Responsibility It is central to the philosophy of arvato AG that every employee should feel responsible for protecting the environment as well as for seeking to promote the company's economic success. To that end, we make every effort to promote and expand further training for our personnel. We commit ourselves and our employees to act in an environmental responsible way, and not simply to comply with environmental laws and guidelines. One of our responsibilities is to introduce and maintain an effective environmental management system in every relevant division of the company.

2 Future orientation arvato AG complies with social norms and values and respects the personhood of every one of our employees. We keep our employees and the interested public informed about the environmental impacts associated with our activities, including those of individual sites. We attach great importance to the sustainable development of our businesses. This includes analyzing and assessing any aspect that may be relevant to the environment before we introduce new products and processes. We are therefore able to offer our customers innovative technologies

and customized solutions in all of our areas of activity, without losing sight of our high standards for environmental protection.

3 Working together with customers and suppliers The standards for the behavior of our employees internally also apply to our relationships with customers and suppliers. We work with them to solve problems in a way that is economically successful as well as environmentally friendly. We also select contractual partners and suppliers in accordance with our company's environmental standards. Environmentally relevant aspects are taking on ever greater importance in the advice we offer our customers.

4 Prevention The goal of corporate management is to optimize the use of raw materials, energy and water in our activities, and to minimize the resulting environmental impacts in the form of air emissions, wastewater contamination and waste materials. Moreover, the management of arvato AG and all of its affiliated companies are making every effort to prevent accident-related emissions. If such an event should occur, however, our em-

ployees have been prepared to deal with it, and rules of conduct are in place to ensure that any damage results in only minimal environmental impacts.

5 Transparency and dialogue Cooperation with government agencies and relevant groups in society is a regular part of the work of arvato AG and its member companies. Today and in the future, we will make sure that our work is transparent and will discuss it openly with our partners. This willingness to engage in dialogue is an integral part of our corporate philosophy. In addition, we offer all of our member companies the opportunity for a review of their environmental activities and services under a neutral certification arrangement.

6 Binding nature and updating of these guideline These guidelines are binding for all employees of arvato AG and of its member companies. If portions of these guidelines should no longer be adequate or applicable, the parties involved are to reformulate them as necessary in the context of the regular review.

Summary

In the future, too, the activities of arvato AG and its member companies will be characterized by constant efforts to enhance climate protection within the company. Environmental protection and the sustainable use of all resources will continue to play an important role in our conversations

and negotiations with customers and suppliers. In this context, we make every effort to encourage our partners to work toward sustainable protection for our environment. Our commitment to protecting the resources on which all of our lives depend goes far beyond what is required by law.

This is not only in keeping with our vision of sustainable development, but reflects society's growing awareness that we want to leave the earth to future generations in a livable condition.

Glossary

Acidification potential Describes the degree of acidification of soil and bodies of water. Also known as »acid rain.« Calculated in SO₂ equivalents.

Carbon dioxide (CO₂) Gas produced by the complete combustion of fossil fuels (gas, oil, coal, etc.). A key cause of the greenhouse effect.

Carbon footprint The amount of carbon dioxide equivalents that a person, company or country produces during a particular period.

Carbon monoxide (CO) Colorless, toxic gas created by incomplete combustion.

Environmental guidelines An organization's overarching environmental goals and principles for action.

Environmental management system Voluntary instrument of preventive environmental protection used to systematically document and avoid environmental impacts at a company.

Eutrophication potential Excessive concentration of chemical nutrients in soil and bodies of water, caused by such things as phosphates and nitrogen oxides (NO_x). Calculated in phosphate (PO₄) equivalents.

Global Reporting Initiative (GRI) A joint initiative set up in 1997 by the U.S. non-governmental organization Coalition for Environmentally Responsible Economies and the environmental program of the United Nations. Objective is to improve the quality and precision of sustainability reporting.

Greenhouse effect Describes the excessive warming of lower levels of the atmosphere by combustion processes employed by humans. It is primarily caused by the release of carbon dioxide (CO₂) from fossil sources and substances from the group of volatile organic compounds (VOC). Calculated in CO₂ equivalents.

Greenhouse Gas Protocol A tool for calculating and managing and/or reducing greenhouse gas emissions.

kWh Kilowatt hour; 1,000 kWh equals 1 megawatt hour (MWh).

Kyoto Protocol Sets binding targets for reducing greenhouse gas emissions in the industrialized countries.

Nitrogen oxides (NO_x) Arise primarily from combustion processes through the oxidation of atmospheric nitrogen, a cause of »acidification« and »eutrophication.«

Sulfur dioxide (SO₂) Produced during the combustion of sulfuric fuels, particularly coal. Harmful to human health and vegetation, plays a role in acidification (»acid rain«).

Summer smog potential Describes the formation of ground-level ozone through the chemical reaction of nitrogen oxides (NO_x) and volatile organic compounds in the air that are exposed to heat and solar energy. Calculated in ethylene equivalents.

VOC (Volatile Organic Compounds) A cause of »summer smog«; some of these compounds contribute to the »greenhouse effect.«

Production credits

Publisher

arvato AG
Carl-Bertelsmann-Str. 161
D-33311 Gütersloh
www.arvato.com

Editor in chief

Klaus Markus

Project manager

Sonja Groß

Editing

Sonja Groß, Gernot Wolf,
arvato AG
Lars Lenhardt,
Medienfabrik Gütersloh GmbH

Art direction

Daniela Heinrich,
Medienfabrik Gütersloh GmbH

Scientific consultant

Dr. Achim Schorb,
ifeu – Institute for Energy and Environ-
mental Research, Heidelberg

Press date

January 31, 2012

Production

Medienfabrik Gütersloh GmbH

About this report

This report provides information about the environmental activities of the arvato group. Unless otherwise specified, the information relates to the group as a whole. Reproduction in whole or in part is permitted only with the express permission of arvato AG.

The reporting period is from January 31, 2010, the press date of the previous report, to January 31, 2012.

The information contained in this report is regularly updated online. The next Environmental Report will be published in the first quarter of 2014.

The Environmental Report is also available in German, French and Spanish.

This report was printed on FSC-certified, recycled paper.

Contact / Ordering the report

Phone: +49 5241 80-3408
E-Mail: begreen@arvato.de
Website: cr.arvato.com



cr.arvato.com

The Environmental Report is closely associated with the website cr.arvato.com. There you will find additional information, which is regularly updated, along with arvato's environmental guidelines.



The site cr.arvato.com can be directly accessed from a cell phone using the QR code. Fees vary with mobile phone rates.

