

think • go climate conscious



# Annual Report 2018

In focus:  
Rural electrification



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# Editorial

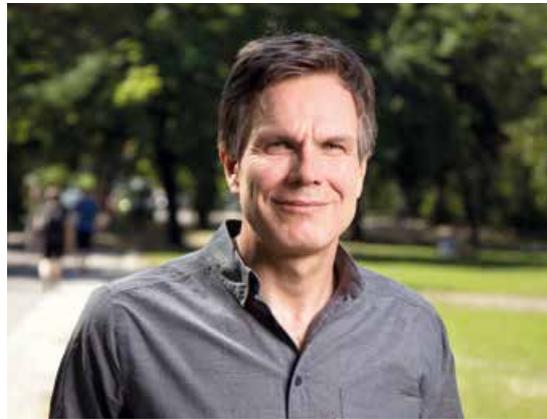
Dear readers,

2018 was the year Greta Thunberg launched her climate strike. When she sat down in front of the Swedish parliament to demonstrate against climate change, she probably did not foresee the stir her actions would cause all over the world. The “Fridays for Future” movement, which was inspired by Thunberg, took to the streets of Germany, expanding far beyond the initial schoolyard beginnings. Following the example of school kids, Scientists for Future, Parents for Future, Entrepreneurs for Future and other initiatives have gained increasing numbers of supporters who demand the adoption of policies for global decarbonisation.

What makes Greta special is not only her persuasive tone when pointing out problems, but her will and commitment to go the extra mile. To participate at the UN climate summit in New York, she insisted on respecting her self-imposed flight ban and crossed the Atlantic aboard a sailing boat. Far from being the most comfortable or accessible mode of transport, it sent a strong message: we do not have to accept the status quo. If we apply ourselves and think creativity, as individuals or in groups, we can confront the challenges linked to climate change, and create a future where both the planet and humans can thrive.

2018 was also a year of innovation for atmosfair. Bringing electricity to rural areas in the Global South is a necessary stepping-stone for the worldwide energy transition we wish to achieve. Renewable energies are well suited for offering cities an independent and local energy source. If we succeed in playing out the benefits of renewable energy sources in these off-grid areas before they are connected to conventional coal-powered energy, we will be able to combine both development and employment with climate change mitigation. A first project of this kind was implemented in 2018 in Iraq (see page 8), and many more are currently in the pipeline, in particular for the African continent.

However, 2018 was also fraught with difficulties. The expansion of our project in India led to disagreements between our project partners, a first for atmosfair, which led to a temporary halt in cookstove production.



Consequently, we delivered fewer stoves to the project regions than planned. In addition, funds could not be paid out as planned and the reduction in carbon emissions could not be verified by the UN. For the first time, we had to call for an arbitration process in India and are hoping that an amicable consensus can be reached (see more on page 18). This has proven to us once again that only through our direct involvement in India, including the design of stoves and workplaces, we can gain the knowledge to assess the situation and determine appropriate solutions, all whilst managing the carbon offsetting revenue responsibly.

Lastly, this year our revenue has increased to just under 10 million Euros, which marks a new record! We would like to thank you for your contribution and your trust.

Dr. Dietrich Brockhagen  
CEO atmosfair gGmbH



## Efficient cookstoves

atmosfair subsidizes energy efficient stoves in Africa and Asia. The small stoves are very popular as users immediately notice how much wood and money they save.



## Solar, wind, and water

Solar, wind, and water are the three pillars of regenerative energy sources. atmosfair supports partners and technologies which further the development of local economies and the environment.



## Biogas and biomass

atmosfair partners build small biogas plants which transform cow and pig manure into gas used for cooking and valuable fertilizer. atmosfair also supports electricity production from crop residues and the composting of organic waste.



## Environmental education

Climate protection starts at your doorstep. This is why atmosfair promotes educational projects in German schools as an investment for the future. We do not claim any resulting carbon reductions.

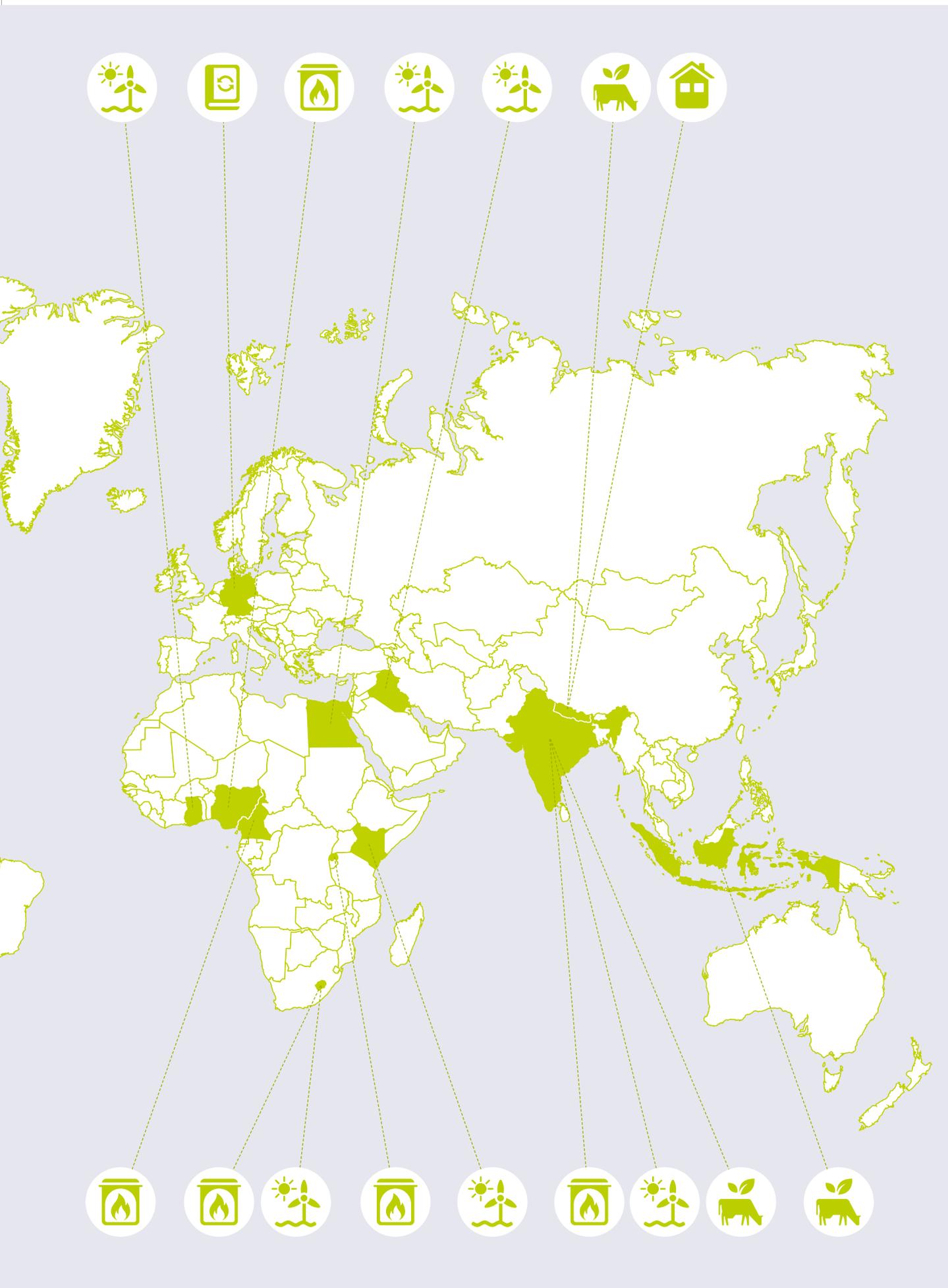


## Energy mix

After the violent earthquake in Nepal in 2015, atmosfair supported the construction of energy self-sufficient lodges. This helps shift tourism, an important economic sector in the country, towards an environmentally friendly foundation.

# atmosfair projects worldwide







atmosfair's solar energy project for the Mam Rashan refugee camp in Iraq

# Rural electrification

## Clean energy for all

Of the 840 million people in the world lacking access to electricity, 600 million live in sub-Saharan Africa alone. atmosfair supports initiatives to provide access to energy to people living in remote rural areas. By promoting the expansion of renewable energies, we further sustainable development and avoid the continued reliance on fossil fuels.

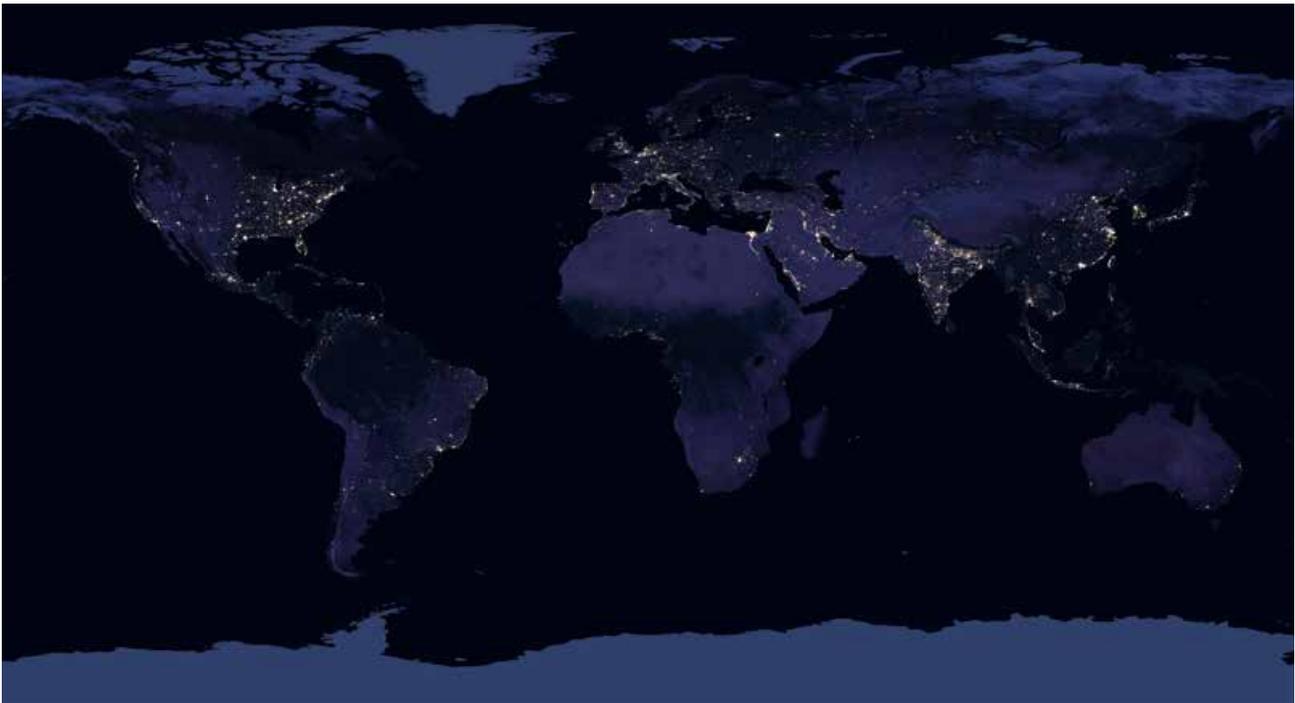
When looking at the NASA satellite image, “Earth by night,” (see page 8) the contrast between dark and light is striking: while Europe, the USA, India and other parts of Asia are brightly illuminated, Africa and South America are immersed in darkness after sundown. According to the Global Sustainable Development Report, the share of people with access to electricity has increased in the world. In 2017, already 89% of the world population had access to electricity compared to 83% in 2010. But electrification is slow and strong regional disparities persist.

According to Forbes magazine, the most significant progress since 2010 was achieved by India, Bangladesh, Kenya and Myanmar. In Sub-Saharan Africa, around 650 million people will still lack access to electricity by 2030 without additional measures taken for electrification. At present, rural areas in countries like Madagascar, Rwanda, Lesotho, Niger and Mali are particularly at a disadvantage, as shown by data published by the World Bank’s Sustainable Energy for All initiative.

The countries mentioned above are currently powered only by a few large power plants and almost no grid in rural areas. Because the costs of building energy grids are very high, some regions are hard to access, and villages are often far apart, the national grid is not expanded beyond larger cities. People living in these remote areas thereby resort to using diesel-powered generators and kerosene lamps. These are expensive, lead to respiratory diseases, and are bad for the climate due to the resulting carbon emissions.

## Renewable energies – a key to the future

There are many ways in which people living in remote rural areas can benefit from renewable energies. Sub-Saharan Africa has plenty of sunlight – Madagascar for example receives around 3,000 hours of sunlight per year, making it one of the sunniest countries in the world. However, only 15% of the 25 million people living on the island have access to electricity.



Earth by Night, NASA/Noaa August 2017 | Source: eoimages.gsfc.nasa.gov

Photovoltaics are an affordable and climate friendly alternative to fossil energies and can improve living conditions in rural areas. Even small solar panel systems can cover the modest energy needs of poorer households. In Madagascar, many people have to walk several kilometers by foot in order to charge their mobile phones. A decentralized solar energy supply would be a cost-effective solution which would also save time. Better access to electricity would also translate into increased production, and better access to food and healthcare. Mini-grids equipped with photovoltaic systems and batteries can provide a non-stop energy source to entire villages and communities. “For atmosfair, sustainable development is just as important as climate change mitigation, which is why we are working towards the Sustainable Development Goal 7 by supporting rural electrification. An uninterrupted electric supply is an essential factor in allowing businesses, such as small factories using welding machines, or medical stations to function,” says Nele Erdmann, project manager at atmosfair.

Independent energy systems, such as solar home systems and mini-grids, are gaining in popularity as they are able to provide solar energy to even the most remote households. According to the latest joint report by the International Energy Agency, the International Renewable Energy Agency, and the World Health Organization, around 34 million people worldwide have gained basic energy access through off-grid energy technologies. A long term goal is to expand regional grids, powered through renewable energies. Which solution is the most efficient and sustainable between solar home systems, mini-grids or grid expansion depends on the type and geographical location of the settlement.

Diesel-powered generators in front of a shop in Mam Rashaan





A solar plant providing clean energy to an Indonesian village

## Public funds are insufficient

Providing a reliable energy source to every household worldwide by 2030 will require substantial funding. The Sustainable Energy for All initiative estimates that 390 billion Euros would be necessary to finance autonomous energy solutions, requiring an additional 32 billion Euros per year (as of 2019), a cost that cannot be covered by public funds alone. However, the lack of stability in some countries is holding back private investors.

Fluctuations in electricity demand make profits uncertain and implementation is obstructed by political instability. Certain projects also have difficulties in finding funding, as banks only commit to investment volumes of 10 million Euros or more.

## Creating incentives for private investors

Over the past two years, atmosfair has been working on designing alternative funding concepts. Our goal is to increase the financial viability of a selection of projects, in a bid to gain the interest of the private sector. For this, we have developed different models. Firstly, a form of credit with low interests, allowing project developers to involve larger equity providers and other external lenders. Secondly, a model of subsidies, in which the main costs are covered by atmosfair, thus giving a chance to small and innovative initiatives. Additionally, institutional funding and donations can now be bundled.

Beyond the design, planning, and installation of photovoltaic plants, we are in some cases also invested with the local operating companies. Once projects reach a certain size, we have them verified by the UN and/or by the Gold Standard, so that the carbon savings relating to those projects can be verified in the future under these same standards.

## Madagascar in focus

In search of suitable projects for rural electrification, atmosfair launched an international call for ideas. One result was a focus on Madagascar. In addition, we chose innovative initiatives, such as a project setting up solar kiosks in Ghana and a solar-powered water treatment plant in Indonesia.

The construction team with atmosfair project manager Nele Erdmann and Jürgen Klammer, the system installation coordinator.



## 17 Goals for a Sustainable Future

In 2015, member states of the United Nations have committed to promoting sustainable ecological, social and economic development. The 17 Sustainable Development Goals (SDGs), to be achieved by the end of 2030, include measures spanning from alleviating poverty and hunger to implementing climate change mitigation. Goal no. 7 aims to ensure access to affordable, reliable, sustainable and modern energy for all.



Hazim Khdeda Mishko works as a technician at the Mam Rashan camp

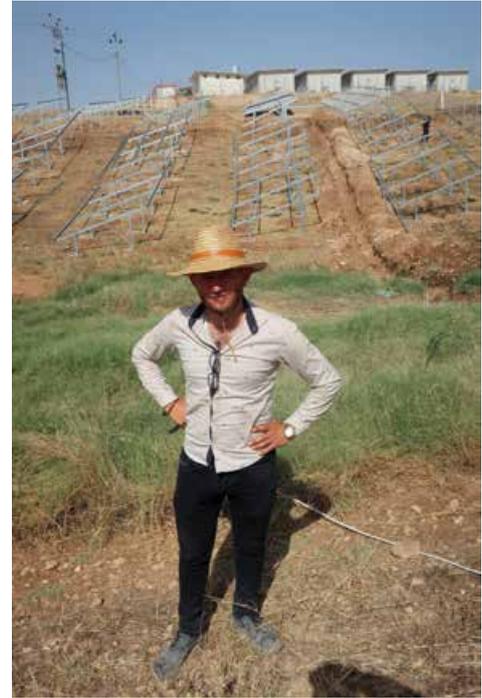
## Solar energy for Mam Rashan – when public and private actors work hand in hand

Electricity access for refugees has received very little attention so far, even though lasting conflicts and climate change are expected to increase migration. Today, there are over 65 million refugees, with 90 percent living in camps having no access to electricity. In cooperation with partners from the private and public sectors, atmosfair has provided solar energy to a refugee camp in Northern Iraq.

The German Federal Office for Building and Regional Planning defines a settlement of over 10,000 inhabitants as a large town. This is the number of people who live in the Iraqi refugee camp Mam Rashan, about 52 kilometres from the city of Mosul. Here, spread into 1900 living



Hoshyar Rassam is atmosfair's local project manager



Nawar Eena is the camp's electrician and construction manager

containers, people have found refuge from the war with the terrorist group "Islamic State". Most refugees, in particular women, children and the elderly, stay in camps even after the end of the conflict, their hometowns having been destroyed. Mam Rashan thus develops into a town: it now has two schools, a nursery, a hospital, a football field, greenhouses, small shops and a medical center. Until recently, the camp only had electricity at night and for one hour during daytime, meaning that cooling and heating systems, cookers, and electronic devices could not be used during the day.

In October 2018, the camp gained access to electricity during the day. For the first time, atmosfair has supplied a settlement with a PV system equipped with battery storage. Today, about 20 percent of the camp's energy needs are covered by the 380kWp solar plant, a number that should reach 50 percent with the project's future expansion plans.

Providing Mam Rashan with solar energy is also the result of a fruitful cooperation between actors from the private and public sectors. The bulk of the project funds came from the German state Baden-Württemberg, while the rest was donated by renewable energy companies. This project has shown the private sector's interest

in supporting climate change mitigation. BayWa r.e. renewable energy GmbH is a prime example, as their in-kind donations have permitted the construction of Mam Rashan's solar installation. In addition, the company has also decided to offset carbon emissions from business trips.

## Employment and knowledge transfer

Beyond supplying the camp with clean energy, atmosfair specifically focused on creating jobs and transferring knowledge and skills. The inhabitants of Mam Rashan took an active part in the construction of the solar energy system and are taking over future maintenance. About 30 people received schooling, training and employment for the plant's installation process, while about 10 employees of the Duhok Governorate Board of Relief and Humanitarian Affairs, currently managing the camp, and the local electricity supplier, Duhok's General Directorate of Electricity, were trained in system maintenance. These employees received qualification that has long-term benefits.

“Electrification will happen. Whether it will be powered by fossil fuels or renewable energies is decisive for the climate.”



Harald Neitzel, senior official at the German Federal Ministry for the Environment

The German Federal Ministry for the Environment (BMU) has commissioned a study with the aim of developing strategies for climate change mitigation through renewable energy in the Global South. It also aims to incorporate off-grid solutions in national climate protection efforts. We asked Harald Neitzel from the BMU a few questions about this study.

**Mr. Neitzel, why is this subject relevant to the BMU's objectives?**

What we would like to put forward is that reaching SDG 7, “ensuring access to affordable, reliable, sustainable, and modern energy for all”, with a particular focus on “access to electricity”, should be as high up on the climate policy agenda as on the development policy agenda. By 2030, we want universal access to electricity. The fuel used in order to attain this goal – coal, diesel, gas or renewable energies – will have a significant impact on carbon emissions. It is a relevant issue which has to be incorporated into national climate action strategies.

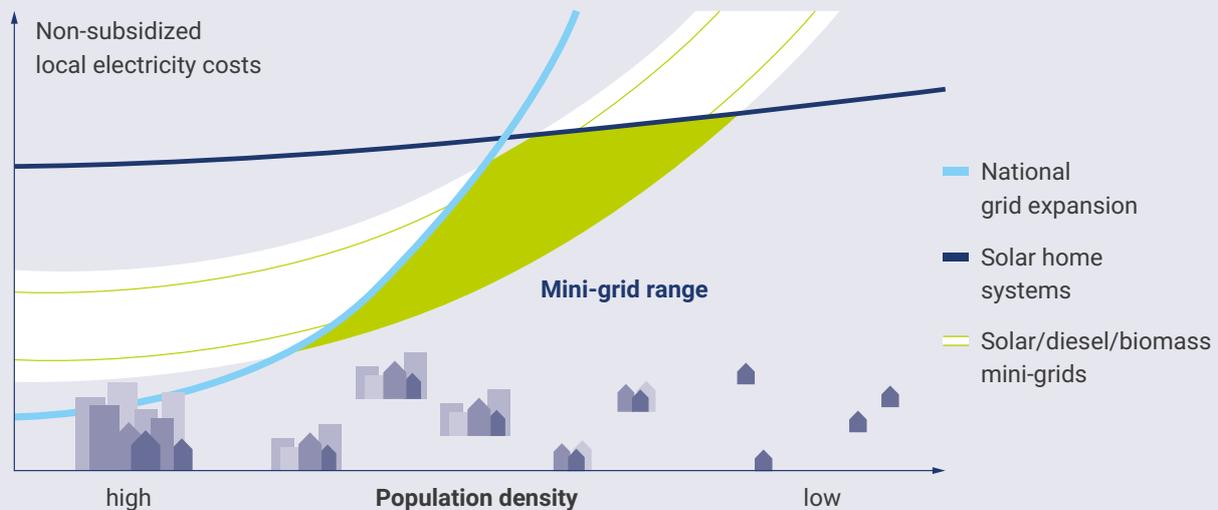
**For the BMU, what is the link between rural electrification through renewable energies and the global energy transition?**

One thing is certain: Electrification will be achieved. It is the choice of the energy source that will be defining for the climate. You have to assume that in some regions, electrification will be achieved primarily through diesel or coal. Our study has shown that the use of kerosene is also responsible for significant greenhouse gas emissions. With regards to lighting, kerosene-related emissions surpass coal. In the context of African countries with very low emissions overall, these can take up a relatively large share.

**What can you tell us about the idea of decentralized energy supplies, and what role does solar play in it?**

Three technical solutions stand out. Firstly, centralized grid-connected energy production, for which most countries still rely on coal, but also on large scale renewable energy. However, due to the high costs, grid expansion will be mostly limited to large cities. This is why there has been a growing interest in off-grid solutions such as mini-grids or solar home systems, which are expressly supported by the energy community.

## Electricity supply, from SHS to grid expansion



Costs for mini-grids and solar home systems in relation to population density  
(Source: Franz, Peterschmidt, Rohrer, & Kondev, 2014)

### What are the benefits of decentralized solutions in rural areas?

When taking into account the difficulties linked to national grid expansion, decentralized solutions become viable alternatives. Solar energy is cut out for a decentralized supply system anyway. It is also important that people identify with “their” local energy.

### What are the most significant challenges linked to rural electrification in the eyes of the BMU

The most significant hurdle to mini-grids lies in its financing, as they are still fully dependent on public funds. But things are slowly improving. International funds for renewable energies in developing countries have climbed from 10 billion US Dollars in 2010 to 18.6 billion US Dollars in 2016. Further, the ‘Green Climate Fund’ has approved five projects for the expansion of PV-based mini grids in Africa in the last months. Other shortfalls are due to lacking regulations, insufficient technical know-how, and the absence of an investor, who would act as the central figure in a mini-grid project.

### What role does the private sector play?

The private sector should play a central role in producing and operating mini grids, as well as in distributing solar home systems. The often state-run centralized power providers are not aligned with decentralized supply systems, and are often too far removed from local realities. Businesses, even start-ups, are still relying on subsidies and funds, and must master business development.

### Through the voluntary climate donations, atmosfair offers financial support to the private sector to implement rural electrification projects. What is your overall opinion of this form of support?

I believe these projects to be very worthwhile. And they serve climate change mitigation. However, it should be carefully assessed which type of electrification is appropriate in each case. I visited a project run by another operator, in which only a third of the inhabitants gained access to electricity during the first step of the project. This led to severe tensions among inhabitants and jeopardized local peace. Thankfully, funds for the second stage of electrification and expansion of the project were found shortly after.



atmosfair employee Bernhard Ellman testing out the Dadin Kowa stove

# Efficient cookstoves

## Small stoves – big results

Cookstoves that require less wood help protect forests and the climate. They have a positive impact on the health and the financial situation of many users – good reasons for us to support the stove production in Rwanda and Nigeria. We have made big steps towards our goal: creating a local value chain for efficient stoves.

“Save80” and “Dadin Kowa” – those are the names of two cookstoves. The first one stands for “80% less fuel”, while the second one comes from the Hausa language and means “good for everyone”. Both stoves allow families in Rwanda and Nigeria to reduce their firewood needs. Traditionally, families cook with an open fire that burns between 3 and 5 hours per day and consumes large amounts of firewood – and the consequences are dire. Buying wood take up a significant part of household budgets. Smoke leads to serious respiratory problems. Populations growth puts a lot of strain on the local forests and shrublands, whilst also emitting greenhouse gases.

For us, climate change mitigation is closely linked to people’s economic and social conditions. A climate-friendly world presupposes fairness at all levels and stages. This is why we have been supporting countries such as Rwanda and Nigeria in their efforts for climate change mitigation and local value creation for many years. Our goal is to manufacture the stoves locally as much as possible through close collaboration with our partners, from small scale assembly lines to entire factories which are able to produce in large quantities. This allows us to create skilled employment opportunities, keep value creation in the country, and supply whole regions with our stoves.



Staff from our partner Safer Rwanda assembling stoves

## Protecting forests with efficient stoves



\* Deforestation rates: Nigeria has lost more than 55% of its forest cover between 2000 and 2005, while Lesotho has lost around 2/3 of its shrubland over the past 25 years.

## Save80 – perfect for Rwanda

In order to choose the right stove technology and for implementation, we rely on our previous experiences in other projects. A multitude of factors have to be taken into account: What cooking methods do people employ? What resources do they have access to? What is a household's income? Is the country subject to political conflicts?

In Rwanda, we were quickly able to determine, together with our partner SaferRwanda, that the Save80 would be the perfect match for the country. Rwanda is still struggling with a general energy deficit. An already high population density alongside a fast-growing population only adds to the problem. A highly efficient cookstove was therefore urgently needed in order to support the government's efforts to restore the balance between energy needs and supply.

Another reason is that more and more Rwandans move to the cities, where most households rely on charcoal as fuel. But the production process for charcoal is highly inefficient – nine kilograms of wood are used to produce only one kilogram of charcoal. This in turn leads to massive deforestation. Replacing charcoal stoves with Save80s saves the wood used to make charcoal, thereby taking the strain off local forests.



Rwandan women with stove and Wonderbox for insulation



The Dadin Kowa was developed specifically for Nigeria and is produced locally

Our goal is to include the local population as much as possible, and to base our projects on locally available resources. For example, prefabricated parts are assembled in Rwanda and only imported from Germany if they cannot be produced locally, if for instance raw materials such as steel are unavailable. We also put a strong emphasis on knowledge transfer through workshops and trainings. So far, we have created 200 stable jobs in Rwanda. Employees manufacture parts, assemble the stoves, and sales teams sell them nationwide.

### Dadin Kowa – developed for Nigeria

In Nigeria, the situation is quite different, even though on paper the two countries seem to face the same issues. Nigeria is also suffering from vast amounts of forest cover loss. This leads to not only exacerbating ecological issues, but also social and economic tensions. Nigeria has recently seen violent resource and land related conflicts. Growing desertification, rising numbers of internally displaced persons, and the low incomes of many households only worsen the conflict. In order to supply even the poorest populations in Nigeria with a healthier, efficient and affordable stove, atmosfair has worked hand in hand with the International Centre for Energy, Environment & Development (ICEED) to build a stove production facility in the Katsina region in Northern Nigeria.

Local craftsmen build the stove from clay and other locally available, partly recycled materials. This allows us to save costs and use already available materials from the material cycle. As is expressed by its name, “Dadin Kowa – good for all”, the stove is also affordable for households with the lowest income.

### Our next step: setting up a stove production plant in Nigeria

We are also working on the construction of a local stove production factory. We want more families to be able to benefit from the efficient cooking stoves. This is crucial in the most populated country in Africa, where trees are cut down faster than in Brazil. In order to make an impact, we need to reach a yearly production rate of over 100,000 stoves. In addition to production, we have to tackle logistics and sales, which are both a real challenge in a country measuring 1,000 km from north to south, and from east to west. It will not be easy to find and train qualified staff and to build up production and distribution with potholed streets, roadblocks, and high gas prices. But it is nonetheless necessary for the climate, as well as for the country's peace.

# Light and shadows

Even though 2018 was a successful year for atmosfair in terms of rural electrification, we also encountered issues in the expansion of our projects, which posed novel problems for us.

## India, efficient cookstoves

A dispute between two of our local implementation partners brought the stove production to nearly a full year halt. atmosfair's capacities in mediating the issue were limited, and we soon saw ourselves drawn into the conflict. The dispute unfolded between two stove producers of the Chennai region in India. In the past, only one company was responsible for selling the stoves in West Bengal and for building up the charcoal chain, in which the charcoal produced by the cookstoves are bought from users and sold to businesses. When this stove producer ceased production in order to concentrate on other activities, our sales partner took over the production and thus built its own workshops. Shortly after, the first producer accused the second of stealing patents

and demanded from atmosfair to resume payments to them and to take back control of the production chain. A refusal from atmosfair's side then led to a dispute with the old producer, which has still not been solved today. Furthermore, the belligerent party was in charge of certain formal tasks in relation to the project's verification process, for which it is officially registered with the local authorities. This has hindered the verification and certification of the carbon emissions through the stoves already sold. Additionally, atmosfair also had to withhold the funds that were promised for an expansion of the project.

After several rounds of failed negotiations, and much legal advice, atmosfair has decided to commission a neutral agency in India and launch a mediation procedure. The IGCC (the Indo-German Chamber of Commerce) is in charge of the proceedings. We are hoping for a quick and mutually beneficial solution, as the region's need for stoves is high.



Workers assembling efficient cookstoves for Indian households

## Nigeria, building a stove production plant

For several years, atmosfair has been planning to build a stove production plant in Nigeria along with a fully local value chain. However, this necessitates the purchase of machines, securing staff and commercial buildings as well as finding reliable logistics partners able to distribute to the entirety of Nigeria. Here, too, we faced new unknown challenges in putting theory into practice. The machines which produce different stove types are partly made in Germany and partly in China. They have to be robust enough in order to run on a long-term basis in a Nigerian setting. Machines have to be assembled and workers trained. However, we soon came to realize that neither the Germans nor the Chinese had the capacity to provide both these services, and ended up taking up these challenges into our own hands. In 2019, members of the team visited China to see the production process of these machines and to discuss possible configurations for a Nigerian site.



Assembling Save80 cookstoves, Nigeria

# Opening the Climate Trek in Nepal

Earthquake-resistant, eco and comfortable lodges line the first climate-friendly trekking path, putting the tourism industry on sustainable foundations.

The Climate Trek, winding through the Helambu region north of Kathmandu, offers its courageous visitors not only the breath-taking sight of the opposing Jugal Himal mountain range, but also tenders unique insights into Nepal's nature and culture. In fall 2018, along with our partner, the sustainable tourism association forum anders reisen, we inaugurated the first sustainable and climate-friendly trekking path in Nepal. It counts 11 lodges distributed over seven villages, as well as two schools and two medical wards. After an earthquake had devastated the region in 2015, we decided to build a new trek with our partner in order to help the country rebuild itself through sustainable forms of tourism. We put a particular focus on making the lodges sustainable in various ways: they are built from natural insulating materials, equipped with solar power systems providing clean electricity and heat, as well as with efficient cookstoves and biogas plants which reduce firewood consumption and keep the air clean. Their resistance to

earthquakes, ecological conception and their comfort guarantee a long-term and reliable income to owners and managers – all of whom are locals from the area. The whole project was financed through voluntary climate donations made by members of the forum anders reisen.



Last Stop on the trek between Tarke Ghyang and Sermathang



View on the Chipling mountains, first stop of the trek

The Climate Trek is a 7 day trek stretching over 46 kilometers going over the highest point of the Thare Pati, at 3650 meters



“We talked to a widow in Tarke Ghyang. It really got under my skin, as she lost both her family and her hotel in the earthquake. On the other hand, I felt how in the course of the evening she started gaining confidence again. Today, she is an integral part of the Climate Trek in Nepal!”



Manfred Häupl, Partner at Hauser Exkursionen GmbH and chairman of the forum anders reisen.

The eco-friendly Yangrima Eco Lodge is built with hemp concrete

# From market waste to fertilizer

## Tanzania

Together with the city of Hamburg, atmosfair is supporting the construction of a composting plant in Dar es Salaam. Several milestones were reached in 2018 and the project is already a model for the region's waste management industry.

On the construction site in Mabwepande, close to the capital city Dar es Salaam, heavy machinery is buzzing. In May 2018, around 25 Tanzanian workers have started building the region's first composting plant, under the direction of a Chinese construction company. They are preparing the building site for the foundation – but because the ground is too soft, it has to be replaced. Workers were able to mine gravel and new soil from a close-by gravel pit. On top of the foundations, first concrete constructions are flourishing. An operations building with social rooms for the workers and engineers is being constructed, while the concrete floor slab is being prepared for the installation of air vents. Unusually strong rainfalls as well as legal hurdles have repeatedly slowed down the construction process. But at the current pace, the plant will be able to compost its first market waste by the end of 2019.

On the 35 markets of Dar es Salaam, the corn, cassava, and mangoes sold and bought generate up to 300 tons of organic waste every day. Part of this waste stays on the streets and inevitably starts to smell bad. The residue that does eventually get collected ends up rotting on landfills among all the other waste, taking up precious capacity of the already overloaded waste disposal infrastructure which could be used for non-organic materials. In addition, the waste produces the greenhouse gas methane as it rots without the presence of oxygen. In the new composting plant, the organic waste receives a constant air flow, allowing a long-term and controlled decay process.



Project manager Dr. Florian Kölsch in Mabwepande



Organic waste at a Dar es Salaam market

This creates almost no methane emissions, allowing this technology to save around 8,000 tons of CO<sub>2</sub> equivalents a year. The composting plant can process about 50 tons of organic market waste daily, a sixth of the city's overall market waste, transforming it into nourishing fertilizer for the surrounding fields. An expansion of the plant over 40,000 additional square meters is planned for 2020, increasing the amount of processable waste to 200 tons a day, as well as creating additional employment opportunities for locals.

The composting plant does not only help mitigate climate change, but also serves as a showcase model for the region's waste management sector. Other cities such as Ilala and Temeke as well as the metropolitan administration DCC have started looking for land plots for similar follow-up projects. Our project partners are the Kinondoni municipality and the Dr. Kölsch Geo- and Umwelttechnik GmbH.



The construction site, soon to employ 25 Tanzanian workers

“The international donors are amazed: the city of Hamburg is implementing the so far largest single donor project for the waste industry in Dar es Salaam.”

# Project partners – selection



Edward Osew

**Position:** CEO  
**Organization:** Sunhut Ltd.  
**Country:** Ghana  
**Project:** Solar kiosk



David Karanja

**Position:** Executive Director  
**Organization:** Sustainable Energy Strategies  
**Country:** Kenya  
**Project:** Biogas



Michael Hönes

**Position:** Managing Director  
**Organization:** Solar Lights (Pty) Ltd.  
**Country:** Lesotho  
**Project:** Efficient cookstoves and solar home systems



Allan Mubiru

**Position:** Country Manager Rwanda  
**Organization:** atmosfair  
**Country:** Rwanda  
**Project:** Efficient cookstoves



Dr. Florian Kölsch

**Position:** Executive director  
**Organization:** Dr. Kölsch Geo- and Umwelttechnik  
**Country:** Tanzania  
**Project:** Composting



Hazim Khdeda Mishko

**Position:** Technician  
**Organization:** BRHA  
**Country:** Iraq  
**Project:** Solar energy for Mam Rshan



Hitesh Goyal

**Position:** Coordinator  
**Organization:** KPTL  
**Country:** India  
**Project:** Electricity from harvest residues



Moulindu Banerjee

**Position:** Project Coordinator  
**Country:** India  
**Project:** Efficient cooking stoves



Bimal B.K.

**Position:** Project Manager Climate Trek Nepal  
**Organization:** atmosfair  
**Country:** Nepal  
**Project:** Climate Trek



Xavier Ducret

**Position:** Regional Manager  
**Organization:** Indian Ocean Akuo Energy  
**Country:** Madagascar  
**Project:** PV power plant



Toyin Oshaniwa

**Position:** Country Manager Nigeria  
**Organization:** atmosfair  
**Country:** Nigeria  
**Project:** Efficient cookstoves



Christine Muhongerwa

**Position:** Chief Executive Officer  
**Organization:** Safer Rwanda  
**Country:** Rwanda  
**Project:** Efficient cookstoves



Hoshyar Rassam

**Position:** Local project manager  
**Organization:** atmosfair  
**Country:** Iraq  
**Project:** Solar energy for Mam Rashan



Nawar Eena

**Position:** Construction site manager  
**Organization:** atmosfair  
**Country:** Iraq  
**Project:** Solar energy for Mam Rashan



Shero Smo

**Position:** Camp manager  
**Organization:** BRHA  
**Country:** Iraq  
**Project:** Solar energy for Mam Rashan



Prem Pokhrel

**Position:** Programme Manager  
**Organization:** Alternative Energy Promotion Center (AEPC)  
**Country:** Nepal  
**Project:** Biogas



Waleska Monterroso

**Position:** Environmental Regent  
**Organization:** Consorcio de Inversiones S.A. CISA  
**Country:** Honduras  
**Project:** Small Hydropower plant



Marina Brückner-Supriyono

**Position:** Programme Coordinator  
**Organization:** BORDA  
**Country:** Indonesia  
**Project:** Composting and recycling

# Project news

India

## Electricity from harvest residues



In the Indian state Rajasthan, two biomass power plants turn harvest residue into electricity. This not only allows for the production of climate-friendly energy, but also provides additional income for small scale farmers.

### Our achievements in 2018

This year we celebrated our tenth anniversary of cooperation with our Indian partner KPTL. During this period, the plants saw major improvements in terms of efficiency and the transport/storage of biomass. The plant feeds around 48,000 MWh of renewable energy into the national grid, providing electricity to around 40,000 Indian households.

Savings: up to 50,000 tons of CO<sub>2</sub> per year

Our partner: KPTL, an Indian energy company

**Savings:** Up to 50,000 tons of CO<sub>2</sub> per year

**Our partner:** KPTL, an Indian energy company

Indonesia

## Composting organic household waste



Indonesian communities are facing literally mountains of trash. atmosfair supports the residents of poor neighbourhoods in running independent recycling centres. Local employees sort the waste and sell valuable materials. The organic waste is composted with a passive air supply and subsequently sold as fertilizer.

### Our achievements in 2018

So far, we count 16 recycling centres. The third project verification is ongoing.

**Savings:** Up to 1,300 tons of carbon equivalents per year

**Our partners:** BORDA Germany / BORDA South East Asia

Lesotho

## Solar Home Systems



atmosfair distributes solar lamps and solar home systems to households, thus reducing carbon emissions and the risks of respiratory diseases. It also helps create jobs. Most households in rural areas are not connected to the power grid and people have to resort to using candles and paraffin lamps in order to light up their homes.

### Our achievements in 2018

The distribution and installation of the solar systems have successfully started, and the number of installed systems is predicted to go from a few hundred to several thousand over the next few years. Our project partner Solar Lights is travelling around the country and can reach even the remotest villages of the Lesotho highlands.

**Savings:** Up to 2,000 tons of CO<sub>2</sub> per year

**Our partner:** Solar Lights (Pty) Ltd.

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Lesotho

## Efficient cookstoves “Save80”



atmosfair and DHL support and subsidize Save80 cookstoves for low-income households. They require up to 80 percent less firewood and replace the traditional wood-intensive three-stone fires. Inefficient cooking leads to deforestation rates that surpass regrowth rates.

### Our achievements in 2018

The project received one of the world’s most renowned environmental prizes, the National Energy Globe Award. For a simple reason: the initiative helps the climate and brings sustainable improvements to the living conditions of the people of Lesotho.

**Savings:** In total around 20,000 tons of CO<sub>2</sub> every year, on a ten-year basis

**Our partners:** Deutsche Post DHL,  
Solar Lights (Pty) Ltd.

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India

## Solar thermal power plant – India One



The solar thermal power plant “India One” turns solar energy into electricity and heat for the campus of a yoga and meditation centre. As India’s energy needs are skyrocketing, creating opportunities for climate-friendly

energy sources is essential. Solar power offers a climate-friendly and reliable energy source and could play an important role for the country’s future.

### Our achievements in 2018

The plant is running successfully and provides electricity from solar energy to the close-by Brahma Kumaris yoga and meditation school.

**Savings:** approx. 5,000 tons of CO<sub>2</sub> per year, not counted for offsetting

**Our partner:** World Renewal Spiritual Trust

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India

## Efficient wood gas stoves



West Bengal is home to some of the largest mangrove forests in the world. They serve as a natural barrier to rising sea levels and play a key role for biodiversity and human life. However, high population growth alongside an increasing need for timber inevitably leads to deforestation. Wood gas stoves help to significantly reduce the need for firewood for cooking.

### Our achievements in 2018

atmosfair supports the production and distribution of wood gas stoves. The first stoves sponsored by the Lions Club were manufactured in a local workshop and sold to households at the beginning of the year. Not only do they offer a clean and smoke-free way of cooking, they also produce charcoal, which users can sell. However, we were also faced with a few challenges along the way (see more on page 18).

**Savings:** 5,000 tons of CO<sub>2</sub> per year, average over ten years

**Our partners:** Sapient (small business based in Calcutta) and Servals (Indian producer)

# The climate, chocolate and I

atmosfair acts to strengthen young people's climate awareness. For this, we work in close cooperation with professionals in environmental education. In 2018, our educational programs have reached more than 4,500 students.

The younger generation's discontent can no longer be ignored: "Act now – so we can have a future!" The Fridays for Future demonstrations drawing students all over Europe express the wish for better climate policies, the implementation of the Paris agreement, and changes in our daily habits. We fully support these demands and believe that the sooner children learn about the connection between our lifestyles and climate change, the better they will be able to shape their behavior, and thus their futures. This is why we intend to further expand our involvement in education.

## Reaching our objective: cooperation with Deutsche Umwelt-Aktion e.V.

In 2017, we developed the two teaching modules "My carbon footprint" and "Food and climate" together with the German organization Deutsche Umwelt-Aktion e.V. (DUA). Professional educators from DUA teach fourth graders about the realities of climate change in an interactive manner. The first module deals with the causes and consequences of climate change, while the second one discusses the relationship between food and climate. One of the experiments helps the students visualize the greenhouse gas effect with the aid of a globe, a thermometer, and an acrylic glass case. They can discover the carbon footprint of a chocolate bar through the use of a 'climate scale', which also reveals the carbon footprints linked to the production of certain food items. These exercises allow students to question their consumption habits in a playful way. In addition to experiments, stories, pictures, and games, each module also comes with a small workbook designed by the DUA and atmosfair. We have reached our goal of teaching 10,000 students by 2020 in cooperation with Aldi Süd, and the retailer has provided financial support to offer

climate education to another 12,000 students in the southern part of Germany. Another cooperation with Aldi Nord with the same scope is planned for the North of Germany.

None of the Aldi partners participates in the design of the content, nor are they involved in the conception of teaching materials. No logos of Aldi Süd or Nord will be depicted. The educational programme is thereby authentic, an important factor for all parties.

Teachers have expressed their satisfaction with the educational material and are delighted to have an interactive course on the subject of climate change. "The well-prepared materials and the presentation methods are perfect to raise awareness among children on the subject of climate change without triggering fear," reported a teacher in Hamburg. No less than 83 primary schools are making use of atmosfair's free offer, which was initially rolled out in Berlin and Hamburg and was extended to additional schools in Hannover and Magdeburg in 2018. As a part of our cooperation with FlixBus, we have even crossed borders with additional participant schools in Munich and Linz, while further teaching modules are planned for Strasburg and Munich for 2019.

## On board for success: the "Germanwatch Climate Expedition"

Our well-established format, "Germanwatch Climate Expedition" for students starting from the fifth grade, also saw some improvements in 2018. In total, 68 teaching units were conducted, an educational offering that will be continued in 2019. With the support of Aldi Süd, we were able to schedule 200 "Germanwatch Climate Expeditions" until the end of 2020, a number that will be doubled through our planned cooperation with Aldi Nord.

The Germanwatch Climate Expedition gives students a new point of view: space. Based on live satellite imagery which is then compared to past satellite recordings, we explore the subject of climate change and resource use. The consequences of climate change can be observed visually through melting ice caps and rising sea levels. Through the satellite images, the students can then take virtual trips to famous travel destinations. These allow them to visualize the traces left by non-sustainable travelling like condensation trails created by aircrafts or the exhaust plumes of ships, and develop their own

ideas for socially responsible and climate-friendly travel. We have repeatedly received positive feedback from teachers that the relevance of personal carbon footprints, political engagement, and the connection between the rainforest and the climate really becomes clear during these courses.



Talking climate in the classroom / Photo: Bernhard Ellmann

DUA teacher Manuela Graf: "The project perfectly helps students understand the greenhouse effect and shows them real tangible actions they can take to protect the climate. I notice time and again how important it is for them to realize that their actions can have an impact".

## "Energy saving champion" – rewarding the best climate change mitigation project in schools

What can schools do in regard to climate change? This is the question that the German federal ministry for the environment and the NGO co2online ask every year. They look to German schools to find the most efficient, creative, and sustainable climate change mitigation projects. In every state of Germany, the best school project is named. atmosfair supports the contest. Each of the 16 state champions receives a prize of 2,500 Euros, as well as a sponsorship with a company which will support them during the online voting for the title of national champion.



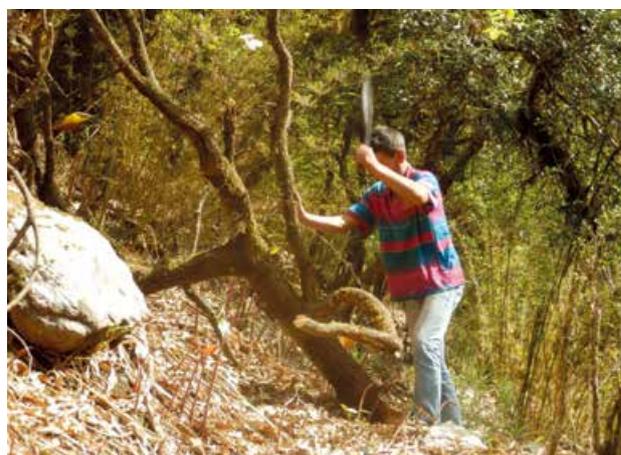
The delighted winners of the Warndt secondary school upon receiving their prize in Berlin

# Nepal: Biogas over firewood

Biogas plants offer small scale farmers a climate-friendly and healthier cooking alternative. The Nepalese government has pledged to increase accessibility to biogas-based clean cooking by 2030. atmosfair has been supporting this project for years and has equipped 174,000 households with small biogas plants.

In Nepal, many families in rural areas still rely on open fireplaces for cooking. Wood is used as fuel, and often the fire burns all day, creating heavy smoke, which is damaging to the airways, the eyes, and can lead to serious lung diseases overtime. Additionally, the substantial need for firewood – the most important energy source for households – puts a strain on local forests.

Biogas produced by small household plants can replace firewood. It only takes two or three cows, buffalos, or other livestock to supply enough energy to cook for the whole family. How does it work? The animal dung is mixed 50/50 with water and collected in a septic tank. There, anaerobic fermentation produces methane which is then channelled through pipes towards the kitchen's gas cooker. This installation offers both families and the environment significant benefits as the gas emits almost no hazardous smoke when burning. Lastly, the families gain valuable time as they no longer need to go out and collect firewood.



High demand for firewood threatens the Nepalese forests



Two women filling the biogas tank with cow dung

The leftovers of the fermentation process can be used as fertilizer, which increase the farmers' agricultural yields. Less firewood also means less deforestation and thus less climate change.

atmosfair has been supporting the "Nepal Biogas Support Programme" (BSP-N) since 2014. Since then, we have funded around 174,000 biogas plants, which are all certified under the UN Clean Development Mechanism and the Gold Standard. In 2018, carbon savings amounted to 234,900 tons. Independent auditors came to check the project and measure the carbon savings, to see if the plants were being used, and if exclusively biogas was used to cook. In August 2018, we successfully transitioned the project into the new "Gold Standard for the Global Goals".

Since the heavy earthquake of 2015, our repair orders have been supporting the Biogas Repair Programme. In 2017, climate researcher and atmosfair patron Mojib Latif made a donation that enabled us to order the repair of 310 biogas plants in cooperation with BSP-N. In 2018, we repaired 177 additional plants damaged in the earthquake, with the support of the DAV Summit Club and 24 Gute Taten e.V.

Efforts to expand the use of biogas are a priority in Nepal. This enthusiasm has given life to a vibrant biogas industry, counting around 100 firms today. These companies assume the construction and maintenance of these systems, as well as the training of their users.



Biogas runs through a pipe into a gas stove for cleaner cooking

# Carbon offsetting after 2020

## What will change with the Paris climate agreement?

The Paris agreement was a turning point for international climate politics, but it has not yet been finalized as it still lacks clear regulations concerning the support of carbon mitigation projects. “Further regulations regarding the attribution of emission reductions are needed in order to avoid double counting,” explains atmosfair’s own Florian Eickhold. By fostering the dialogue with project countries and representatives of international climate policy, atmosfair is working towards solutions.

**Mr. Eickhold, the Paris agreement will go into effect in 2020. How does this affect carbon offsetting?**

The Paris agreement, just like the Kyoto protocol did before it, will regulate global efforts for climate change mitigation. Its overall policy agenda is also significant for voluntary climate initiatives. There are however a few radical changes.

For the first time, developing and emerging countries will set national climate targets, now giving everyone an obligation to engage in climate change mitigation. Initiatives funded by the Global North, which previously enjoyed a lot of freedom in developing and emerging countries, will now have to take into account the national climate policies. Another point is the necessary overhaul or replacement of existing Kyoto procedures, such as the Clean Development Mechanism (CDM). Voluntary and compulsory carbon offsetting will both have to comply with these new structures.

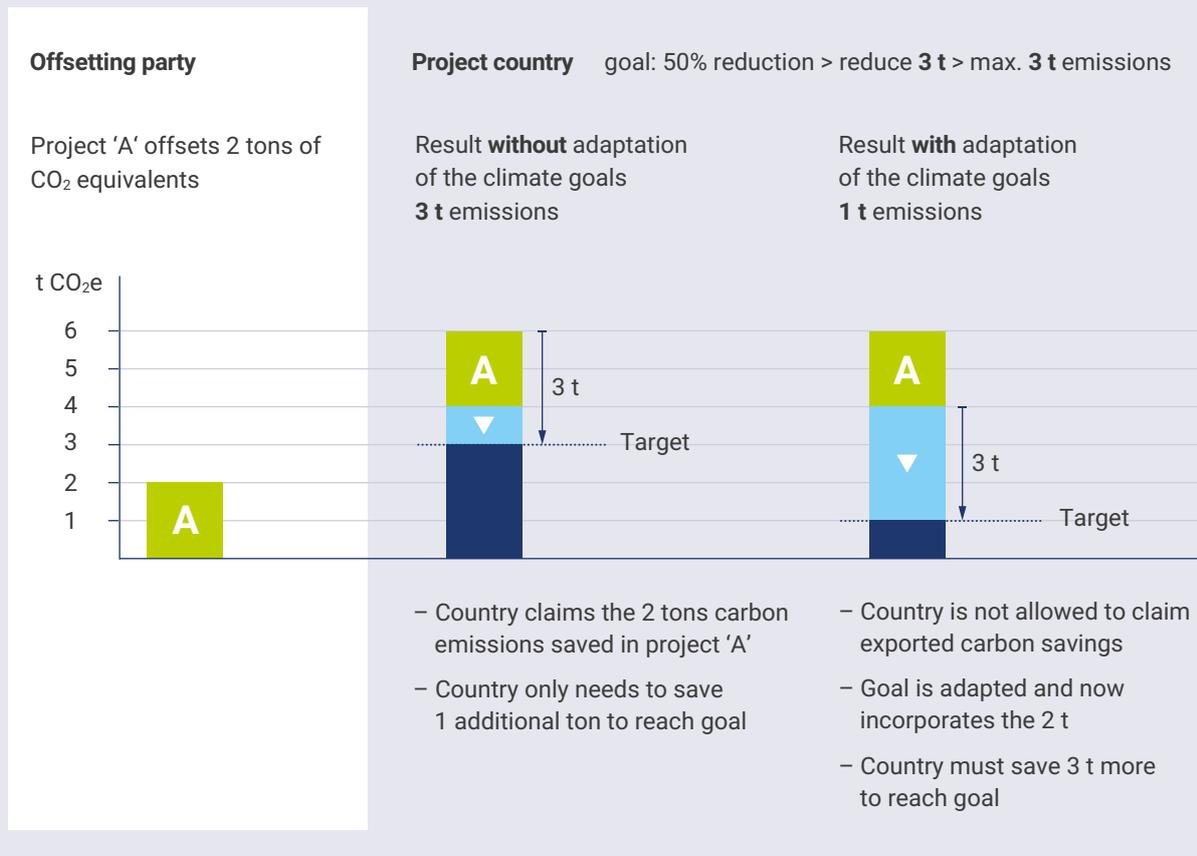
**In your opinion, which aspects are particularly relevant?**

Many uncertainties remain. For us, the two major challenges of the Paris agreement are tackling double-counting on the one hand, and ensuring additionality on the other. These will remain issues until a global consensus on rules is reached.

**Could you put the concept of double-counting in a few words?**

Let’s start with an example. A German company launches and funds a climate initiative in India. Double-counting means that both parties claim the carbon saved by this project. On the one side India, in order to reach its climate goals as pledged under the Paris agreement, and on the other side, the German company, in order to offset its own emissions. On paper, one ton of saved carbon suddenly becomes two.

# Adaptation of climate targets



Another possible issue is that India lowers its climate change mitigation efforts because the German project takes over responsibility. But in theory, India should expand its goals by the amount which was saved by the German company. In reality, it is nearly impossible to keep track of such mechanics. In the end, when including the voluntary project, the emissions savings would fall short of what would have been possible otherwise. Double-counting can also be the result of so-called financial support claims, in which companies can indicate that they've supported a project country's climate targets.

**Double-counting and the future of carbon offsetting stand in close relation to each other. Will the Paris agreement provide solutions?**

The regulations framing double-counting are currently being negotiated. There can be no confusion over who gets to claim the saved emissions, and this requires a balancing mechanism to make double-counting impossible. The characteristics of these regulations, and the wiggle room left for countries to strike bilateral agreements, will determine whether carbon offsetting will still be possible. Should the negotiations fail, formal offsetting will no longer be possible.

**Until now, climate change mitigation projects had to prove additionality. What does the Paris agreement say?**

A project is additional only if its existence is dependent upon additional funding generated through carbon offsetting and would not have been implemented otherwise. The investor can only claim the saved carbon emissions because only through his funding were those emissions avoided. Up to now, proving additionality was a prerequisite under the CDM and other offsetting standards. However, article 6 of the Paris agreement has not yet outlined a clear clause concerning additionality. Additionality and double-counting are fundamental factors which need to be taken into account to ensure integrity in offsetting.

**Why will the CDM still be relevant in your opinion?**

In order to receive the CDM label, climate change mitigation projects have to comply with a list of criteria. In terms of climate impact and sustainability, the CDM and the Gold Standard still represent the most reliable standards today, even though there are still many improvements to be made in practice. Almost all our projects are certified under CDM and Gold Standard. The evaluation and quantification methods, as developed for many years under the CDM, are a valuable contribution that lives on.

We are seeking solutions to continue our biogas project in cooperation with the Nepalese government



“The best solution for a well-functioning voluntary offsetting market after 2020 is for the global community to agree upon cross-border regulations for article 6 of the Paris Agreement.”

**Where does atmosfair stand in relation to the Post-2020 debate, or what is its involvement?**

We are currently discussing these issues with our project partners as well as local governments. We call for clear regulations concerning double-counting and a follow-up mechanism similar to the CDM. To make this possible, we exchange technical expertise with the German federal ministry for the environment, the German Federal Environment Agency, as well as members of the CDM supervisory board. Additionally, atmosfair has taken a stand towards Gold Standard and has forwarded its propositions for the integrity of a successor to the CDM.

**What solutions does atmosfair suggest?**

We think the best solution for a voluntary offsetting market after 2020 would be for the international community to find a consensus for cross border regulations in article 6 of the Paris Agreement. A second option would be the creation of bilateral agreements between donor countries and recipients. This requires a formal arrangement that would structure the implementation of voluntary climate projects by private actors.



Florian Eickhold – atmosfair climate and carbon markets expert

**Are you currently negotiating with countries in which you have ongoing projects?**

Yes. Exchanging with the host countries is the only way of achieving positive results, and we find ourselves in a good position to lead negotiations. Without the funds provided by atmosfair, the projects would not be implemented, and thus there would be no climate impact. Our projects also directly benefit the population, as we create new income flows or employment opportunities. atmosfair's projects are explicitly welcomed by host countries, which is confirmed to us every time we lead authorisation negotiations with local authorities.

**Can you provide us with some specifics regarding the cooperation?**

Nepal has been our partner for many years and we have already agreed upon a memorandum of intent to collaborate and seek solutions which comply with certain regulations of the Paris agreement. We wish to continue our cooperation in our largest project – funding and promoting small biogas plants for farmers – because Nepal needs the financial support and that the climate needs the carbon reductions.

**What is the Clean Development Mechanism (CDM)?**

The CDM is a global process developed within the Kyoto Protocol. It allows to quantify and trade carbon reduction efforts made by industrialized countries in developing and emerging countries. For example, a solar project in India which feeds green electricity into the national grid and thereby reduces carbon emissions will see – after registration and undergoing yearly audits – these saved emissions subsequently certified and turned into carbon credits by the UN Climate Secretariat. These credits then go to the investor, e.g. atmosfair. Initially, the CDM was intended to allow states to reach their climate goals with more flexibility and cost-efficiency. Today, the main users of the CDM are companies in their efforts to reach their voluntary or mandatory carbon reduction targets.

# Our standards

## Approach



### Principles

- Offsetting is only ever the second-best solution, avoiding emissions is much more effective
- Climate change mitigation is the priority – not the maximization of revenues
- A key element is building climate awareness – it fosters long-term avoidance of the initial carbon emission
- Optimizing travel with the help of business travel specialists, incl. video conferencing



### Action

- No cooperation with actors that do not comply with atmosfair's standards – e.g. in carbon reporting – despite the possibility of financial gains for atmosfair.
- No offsetting of activities for which better and less carbon-intensive solutions are available – e.g. emissions due to car travel or electricity consumption
- Representation of the real climate impact (see carbon calculation), regardless of the industry

## Carbon mitigation projects



### Principles

- Permanent reduction of carbon emissions
- Additionality
- Contribute to north-to-south technology transfer
- Direct support to local population
- Contribute to protecting the local environmental
- Consideration for local circumstances when choosing technologies
- Coherence with national development efforts



### Action

- All projects must be compliant with two standards: CDM (UN) and Gold Standard (environmental NGOs); up to 10% savings under Gold Standard Microscale
- CDM + Gold Standard + X: X stands for atmosfair's own additional criteria, such as the carbon quota as proof of additionality or the exclusion of unsuitable or high-risk project types (e.g. afforestation projects)
- Calculation and monitoring of carbon emission reductions according to UN standards
- Qualified and UN-certified auditors (e.g. TÜV) who also bear liability
- Documentation of all audit reports on the website of the UN Climate Secretariat
- Projects are planned and developed by atmosfair and implemented alongside experienced partners in developing countries



**United Nations**  
Framework Convention on  
Climate Change

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## Carbon emissions calculation



### Principles

- Comprehensive
- Scientifically sound
- Well documented
- Verified



### Action

- Incorporation of all climate effects of air travel (e.g. condensation trails, ozone formation, etc.) based on current scientific findings (IPCC), meaning that the calculated climate impact is significantly higher than CO<sub>2</sub> alone
- Self-developed emissions calculator, verified by the German Federal Environment Agency
- Documentation of all data sources and methods used on the atmosfair website



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## Organization & finances



### Principles

- Non-profit
- Independent
- Efficient
- Transparent
- Responsible



### Action

- Low administrative costs: over 90% of donations flow directly into the climate change mitigation projects in the global south, for planning, implementation and operations
- In Germany, donations are tax deductible, under the supervision of German tax authorities
- Legal form gGmbH (non-profit): liability and publication in the commercial register
- Advisory board composed of high-profile patrons and environmental experts, including representatives of the environmental ministry, NGOs and the scientific community

atmosfair was created in 2004 as the outcome of a research project led by the German Ministry for the Environment. The project goal was to develop high standards for voluntary offsetting.



The atmosfair standards have since then become a benchmark of the growing voluntary offset market. atmosfair has also reached first place in numerous international comparative studies.

# Driving trans- formation

We are aiming for complete decarbonization to stay within the 1.5 degree limit set in Paris. This is why, together with our partners, we also initiate pilot technologies and projects.

## The story hidden in Greenland's ice

Good news! In 2018, we expanded our partnerships into the scientific community, with our new cooperation with the Alfred Wegener Institute (Helmholtz centre for polar and marine research - AWI). It is the first scientific institute that has decided to offset carbon emissions from their business flights through atmosfair.

Guest contributor: Darlien Schürmann, Alfred Wegener Institute

Temperatures vary between 0 and -40°C. The icy desert abruptly transitions into an intense blue sky. At first glance, there doesn't seem to be much to it; the landscape seems abhorrently empty. And still, scientists are foraging deep into the ice, down thousands of meters. For them, this massive ice sheet in Greenland has a lot to offer. Drilling allows to examine crystallisation, the flow of gigantic masses of ice, and every new finding can bring clarity to improve predictions of the rise of global sea levels.

An important part of the research is done by the Alfred Wegener Institute, Helmholtz centre for polar and marine research (AWI). For three years, and in cooperation with numerous other international research groups, AWI scientists have been working on the "East Greenland Ice-Core Project" (EastGRIP), which aims to improve climate forecasts through the analysis of past events. Every meter, the ice layers tell a new story of remote eras. The deeper the drill, the further back they can go.

At most, the scientists aim to reach as far back as 100.000 years – which lies at a colossal 3.000 meters deep. This time marks the beginning of the most



Equipped with a chainsaw and a shovel, the scientists are taking on the Greenland ice and building the EastGRIP tunnel system.  
Photo: Alfred Wegener Institute | Sepp Kipfstuhl

recent ice age, when the first snow started falling, with mammoths and cave lions still roaming across Europe. Mass amounts of snow fell and piled up over several millennia. This applied pressure on individual ice crystals, forcing them to collapse. But beyond changing their shape, these crystals did something else that could provide key insights about the climate at the time. In fact, bubbles of air were trapped between the crystals, from which we can gather atmospheric records and trace all kinds of substances present back in that era; for example ash particles from volcanic eruptions.

These findings lie a long way into the icy desert. During the first year of research, in 2016, scientists only reached 400 meters deep. Today, they have reached ice that is 12,000 years old and lies at 1,300 meters deep. This ice belongs to the holocene era, the beginning of the current warm era. From there, they will still have another 1,600 meters of drilling to do.

A drill built from different interlaced steel pipes and a drill head connected with a cable stretching over several kilometers allows the scientists to drill about 20 meters every day. Once the icy core is extracted, it is taken up through a tunnel system which was built during the summer of 2016, the first summer the camp was set up. Back then the ice was still being removed with chainsaws, milling machines, and snow groomers. Today,

the hollow spaces and passageways serve as drilling pits and laboratories, allowing the safe retrieval, processing and transport of the extracted samples. In fact, while temperatures on the surface are highly variable, the temperatures in these icy tunnels stay at a steady  $-15^{\circ}\text{C}$  to  $-20^{\circ}\text{C}$ , a safer and more reliable environment to handle the extracted ice cores.



The Greenland sun shines on discarded ice samples.  
Photo: [www.eastgrip.org](http://www.eastgrip.org)



Giant tubes, more commonly used to blow up bouncy castles, keep the tunnels free of ice. Once the system was set up, the EastGRIP team (with help from winter) covered the construction in snow, thereby allowing the passageways to form over the following years.

Photo: Alfred Wegener Institute | Sepp Kipfstuhl

The extracted ice bits are up to four meters long and ten centimetres in diameter. Once the cylinder is sent to the tunnel, it is cut up, measured for electrical properties and undergoes an age assessment. Then, first microscopic examinations are carried out on-site, by cutting the ice into wafer-thin slices and exposing them to polarized light, thus revealing the individual crystals and their alignment.

After first inspections, the ice core segments are sent to Bremerhaven in Northern Germany. There, further examinations generate larger data sets, revealing key insights into the nature of Greenland's ice shield. Scientists then rely on model calculations to establish projections on the development of the ice masses, and can thereby determine their impact on global sea levels. The final result is generated at the Alfred Wegener Institute in Bremerhaven. This type of laboratory is quite unique and only exists in two other locations: Japan and the USA.

In order to reach the faraway polar regions and research bases, the team of Alfred Wegener Institute has to fly over long distances. As carbon-free flying is not yet possible, the institute has decided to offset their emissions instead. The non-profit organization atmosfair measures the institute's yearly emissions of pollutants and offsets them through their biogas project in Nepal.

The emissions created by the research team's flights are thereby saved at another location – and maybe in the future, the ice will be able to keep telling a positive story about the climate.



Image: Heavy engines allow the scientists turned technicians to drill passages into the ice.

Photo: Alfred Wegener Institute | Sepp Kipfstuhl



The aquamarine e-FlixBus at the Mannheim charging station, built by atmosfair.

## Driving onwards – Germany’s first electric long-distance coach

In 2018, atmosfair, FlixBus, and Greenpeace Energy debuted a 100% electric long-distance coach, which started test operations in October. The coach is fuelled exclusively with clean electricity and is much climate-friendlier than its diesel-powered cousins.

A climate-friendly bus journey? Since October 2018, you can do that between the German cities Frankfurt and Mannheim. With four routes per day, the first e-coach stops at the Frankfurt airport and the university town of Heidelberg. The electricity is from 100% renewable sources and provided by the green energy company Greenpeace Energy. FlixBus and atmosfair have installed charging stations at each end of the route, where the coach is charged once or twice a day and overnight.

Beyond playing matchmaker with energy provider Greenpeace Energy and FlixBus, atmosfair also planned and commissioned the construction of the charging station in Mannheim.

In a study, we were able to prove that the electric FlixBus saves 100% of the greenhouse gas emissions that would have been generated on the same distance by a common diesel engine. In the first year, savings amounts to 82 tons of carbon.

For us, the climate goals can only be reached by fully transitioning to renewable energies. “The e-coach is therefore an important step in the transition towards a decarbonized society,” expressed atmosfair patron Mojib Latif.



atmosfair’s Dietrich Brockhagen and Denis Machnik at the coach’s maiden voyage

# From donation to results

## Promises kept

More carbon mitigation technologies, more jobs

Since 2005, atmosfair has been funding and managing climate change mitigation projects in the whole world, with the help of voluntary climate donations. First, we establish a funding agreement with the project developer. This explicitly stipulates the amount of carbon emissions that are to be saved through the project on a yearly basis, as well as the conditionalities of atmosfair's financing. One and a half years then approximately separate the initial donation from the actual carbon saving – the timeframe we need to develop and run the project. UN-accredited auditors then certify the reduced emissions. The timeline goes as follows:

Following your money – from donation to project

**Day 1:** Reception of your voluntary climate payment

**Months 3 to 6:** atmosfair, or a partner, purchase the necessary hardware like construction materials or solar panels locally, prioritising local value chains. This is not always possible, as many African countries for example don't produce steel and import it instead. Nevertheless, we produce as many components locally as possible –

for instance pots for the efficient cookstoves, although the quality is sometimes lower than when using stainless steel. One of our 'most local' technologies are the small biogas plants for farmers in Nepal or Kenya, which are made almost 100% from materials that are readily available in the region, in this case, baked clay tiles and screed.

**Months 7 to 9:** Delivery of the materials to the project partner. When importing materials, we often face issues with custom controls. Sometimes, deliveries can get stuck in harbours for numerous months or we get charged considerable custom charges. We try to send members of our local teams and involve experts to lead negotiations with the authorities, but they are always delicate situations, especially regarding our zero tolerance for corruption policy. Building up logistics in project countries is also rarely an easy task, safety issues in particular can create delays.

**Months 10 to 16:** Production and distribution of the climate change mitigation products (efficient cookstove, biogas plant) or building of plants (e.g. PV system for a village). Different technologies require different amounts of time and effort. Efficient stoves in Rwanda only require the quick and easy mounting of different parts. In Nepal, the biogas plants are built on small construction sites within a few days, whereas photovoltaic systems are more complex during their installation and require a

## Project expenses 2018

Project category	Project name	Gross expenses in 2018 in €1,000
Efficient stoves	Nigeria	167
	Lesotho	53
	India	227
	Cameroon	74
	Rwanda	835
Biogas and biomass	India: Electricity from crop residues	461
	Kenya: Small biogas plants for dairy farmers	6
	Indonesia: Composting household waste	9
	Nepal: Biogas	2.368
Wind, water, sun	India: Solar thermal power plant	36
	Lesotho: Solar Home Systems	112
	Ghana: Solar kiosk	3
	Egypt: Solar water purification	2
	Honduras: Small hydropower plant	103
	Iraq: Energy for refugee camp Mam Rashaan	246
Energy mix	New energy for Nepal	219
Educational and transformative projects	Educational and transformative projects	83
	<b>Total</b>	<b>5.005</b>

detailed planning process. For household projects on the other hand, we must take into account the distribution, as the voluntary climate payments allow us to sell these technologies at a highly subsidized price. For the distribution of the efficient stoves in particular, the sales teams often have to drive their delivery trucks hundreds of kilometres to organize sales events and deliver the goods to remote villages. This step requires the most local employees, and in some large projects their numbers can go up into the hundreds.

**Months 17-30:** Initial operational period of project, carbon emissions are physically avoided. Launching operation of the technology immediately saves carbon because, for example, a diesel generator is now replaced and can be turned off – users are pleased.

**Months 31 to 34:** Verification of the carbon reductions by UN-accredited external auditors, drawing up of the test report. This step is then repeated yearly. The auditors test installations and measuring instruments (e.g. the electricity meter linked to a PV system), conduct interviews with operators, and control all collected data required by the corresponding UN method.

On this basis, they calculate the actual carbon savings accumulated over an indicated period. The auditors themselves have to renew their accreditation by the UN every three years, and bear liability if a mistake were to occur. Their reports are published by the UN on publicly available websites, in order for any affected or interested party to be able to access and possibly raise objections. This allows for an exceptional degree of transparency and accountability for project support through NGOs.

**Months 35 to 39:** Specific UN bodies carry out cross-examinations of the test reports and additional auditing is performed by the Gold Standard. This step is almost exclusively administrative in nature and, in practice, consists of a back and forth between the auditor and the UN committees, until all the committee's questions are answered.

**Goal, Month 40:** The UN climate secretariat issues the carbon reduction certificates to atmosfair's register at the German Emissions Trading Authority, which is part of the Federal Environment Agency (UBA). This final step does not affect the project itself anymore, but is nonetheless important for atmosfair's documentation (see below).

## Offset obligations and carbon reductions achieved in 2018

Greenhouse gas reductions, achieved and verified by UN auditor (1)		2005 – 2012	2013	2014	2015
Efficient stoves	Nigeria	1,8	17,0	2,3	18,2
	India	0,0	0,0	5,6	0,0
	Cameroon	0,0	3,2	9,0	9,9
	Lesotho	0,0	3,3	17,8	21,8
	Rwanda	0,0	0,0	0,0	6,5
Biogas & biomass	India : Electricity from crop residues	18,8	117,4	0,0	119,9
	India : Household biogas plants	24,1	21,1	19,5	0,0
	Kenya: Small biogas plants for dairy farmers		0,0	0,0	0,0
	Thailand: Biogas from wastewater	0,0	0,0	50,5	0,0
	Nepal: Biogas			0,0	0,0
	Indonesia: Composting of household waste		0,0	0,0	0,0
Wind, Hydro, Solar	Honduras: Small hydroplant	64,0	59,2	22,7	0,0
	Nicaragua: Wind power	118,6	0,0	45,0	102,7
	Vietnam: Wind power	0,0	0,0	0,0	0,0
	South Africa: Solar water heating systems for households			0,0	0,0
	Iraq: Solar energy for Mam Rashan refugee camp			0,0	0,0
	<b>Total, GHG reductions, achieved and verified by UN auditor</b>	<b>227,3</b>	<b>221,2</b>	<b>172,5</b>	<b>279,0</b>
Reduction obligations based on received voluntary climate payments		520,1	96,8	106,9	132,9
Reduction obligations from carbon mitigation projects commissioned by clients		122,6	66,4	80,3	60,3
<b>Accumulated GHG reduction obligations</b>		<b>1.153,1</b>	<b>805,9</b>	<b>993,1</b>	<b>1.186,3</b>
<b>Actual GHG reductions, as verified by UN auditor, accumulated</b>		<b>227,4</b>	<b>448,5</b>	<b>621,0</b>	<b>900,0</b>

Registering atmosfair's emission reductions with the UBA is a guarantee for donors, as the data is processed and saved by an official governmental body that acts as an independent third party.

In total, it takes about

- half a year for your donation to be used in an existing project
- a year and a half for your donation to physically offset carbon emissions
- three years for the first savings to be officially verified by an independent auditor
- three and a half years for atmosfair to receive the UN's official documentation for the carbon emission reduction

The table above shows the carbon emission reductions atmosfair has achieved all the way – in other words, emissions that have been saved, verified, reviewed, and confirmed by the UN. Documents relating to these reductions are also available as part of the test reports published on the website of the United Nations Framework Convention on Climate Change (UNFCCC), independently from atmosfair. Links to these UNFCCC pages are available on our atmosfair website.

The last part of the table compares the actual reductions in carbon emission to atmosfair's initial donor-based commitment. The quantity of generated reductions is based on the figures of the fourth stage, while the commitment figures represent figures from stage 1 (reception of a donation by atmosfair). Even though, in theory, it takes atmosfair 3 1/2 years to turn the donation into a formally UN-verified emission reduction, it can easily be seen on the table that we were able to significantly reduce that time span.

2016	2017	2018	2019 (2)	Planned reductions until 2020
0,0	71,5	85,5	37,9	271,4
0,0	39,1	20,0	141,5	317,6
0,0	9,3	19,6	0,0	51,0
24,8	27,6	28,9	26,0	175,2
29,6	68,5	107,8	124,3	512,7
69,3	0,0	56,1	68,6	525,1
0,0	0,0	0,0	0,0	64,7
2,8	0,0	5,4	6,6	14,7
0,0	0,0	0,0	0,0	50,5
60,0	298,9	234,9	441,6	1.245,3
2,3	0,0	2,5	0,0	4,9
41,0	0,0	0,0	65,0	251,9
0,0	0,0	0,0	0,0	266,3
10,0	32,0	0,0	0,0	42,0
0,0	9,3	0,0	0,0	9,3
0,0	0,0	0,0	0,0	1,7
<b>239,7</b>	<b>556,1</b>	<b>560,7</b>	<b>911,6</b>	<b>3.104,4</b>
148,6	220,3	310,0		
149,9	251,5	207,9		
<b>1.484,8</b>	<b>1.956,5</b>	<b>2.474,3</b>		
<b>1.139,7</b>	<b>1.695,8</b>	<b>2.256,5</b>	<b>3.168,1</b>	

1. GHG reductions in the table are indicated according to the year in which they are verified by an auditor and certified by a standard. Therefore, emissions reductions achieved in 2017 might not be included in that year, as they are still in the process of being certified.

2. The indicated GHG reductions after 2019 are a forecast and therefore subject to possible changes in future annual reports.

By the end of 2018, atmosfair committed to carbon emissions reductions of 2.47 million tons to customers and donors. In the same time period, we have achieved 2.25 million tons of officially certified carbon emission reductions, meaning that only an additional 220,000 tons were still “due” to our donors by 31.12.2018. In our planning for 2019, atmosfair is expecting more than 900,000 tons of certified reductions – four times the amount of reductions “due” by the end of 2018. That means that we will be able to fulfil outstanding obligations in about 3 months into 2019. This shows that if you donated in mid-2018, for instance, it takes less than a year for your donation to result in formally UN-certified carbon emission reductions.

In some of the ongoing projects, the table indicates zero carbon reductions. This only means that while the project is running successfully and carbon emissions are being physically saved, the UNFCCC has not published a report on the project during this calendar year. Since the verification periods of projects can begin and end independent of calendar years and do not always run exactly 12 months, emissions reductions listed here can fluctuate year by year, even for projects running constantly.

# Financial report

By reaching almost 10 million Euros, 2018 marked a steep increase compared to the previous year, making it our most financially successful year yet.

No public funds and no big spenders with donations exceeding 10 percent of our total annual income – in 2018 again, the non-profit organization atmosfair has kept its financial independence. Next to raising funds through voluntary climate donations, atmosfair has been generating revenue through economic business activity for over ten years, which in turn helps in covering some of the costs incurred by our non-profit activities. Looking through all the finances since the foundation of atmosfair, we can rightfully claim that for every 100 Euros donated, more than 90 Euros were invested in the direct purchase of climate change mitigation technologies – e.g. efficient stoves or household solar systems – or paid to the planners and developers of projects for green electricity generation. From this same 100 Euros, less than 10 Euros were spent on atmosfair's own needs, for customer care staff as well as other costs such as IT, accounting, public relations, rent for office spaces and banking fees. In 2018, this part only amounted to 5 out of 100 Euros.

## Organization / non-profit

The Foundation for Sustainability (Stiftung Zukunftsfähigkeit), based in Bonn, remains atmosfair's only shareholder. The four person advisory board – consisting of two members of the German Federal Ministry for the Environment (BMU) and two representatives of environmental NGOs – ratified the new grant agreements for climate change mitigation projects; a process in which none of the board members received any form of payment or refunds for incurred expenses. Tax exemption was re-approved by the German tax authorities for the year 2018. Donations receipts were duly issued for all voluntary climate donations received in the course of 2018.

## Financial independence – no public funding

In 2018, atmofair's activities were fully financed through voluntary donations for carbon offsetting as well as revenue generated by economic business activities, the latter of which is permitted to non-profit organizations to a limited extent. In 2018, atmofair received no public funds and thereby maintained its financial independence. Furthermore, no payments were emitted between the only shareholder, the Foundation for Sustainability, and atmofair.

## Expenses, developing climate change mitigation projects

The largest share of expenses was incurred by the development and management of climate change mitigation projects. These include the purchase of technologies and material (e.g. efficient stoves), setting up and running projects, including the verification by UN-accredited auditors, and the salaries of the local project teams. This year, this share amounted to about 5 million Euros. Additional 2.5 million Euros of contractually agreed funds were paid out in early 2019, but were included in the balance sheet for the year 2018.

Other expenses include personnel costs for project planning and implementation, which amounted to about 450,000 Euros in 2018. In total, atmofair has funded climate projects worth 25 million Euros since its creation, and an additional 20 million Euros has already been granted for future projects.

To calculate an upcoming year's financial grants for climate change mitigation projects, we usually calculate with the average revenue of the two previous years. This not only allows using funds in a timely manner. It also provides us sufficient security to grant long-term financial support to our partners in the Global South, and design and implement new projects, even in the case of decreasing incomes. Furthermore, the preparation span of one to two years between a project idea and the corresponding investment of funds in hardware, such as efficient stoves or solar power systems, leaves little room for any other way of financial planning.

## Assessing grant capacity with increasing income

In 2017 and 2018, atmofair's revenue witnessed a steep increase (+280% from 2016 to 2018). In accordance with the abovementioned principle (assessing volume of grants on the basis of the incomes of the two previous years), this means that atmofair has growing capacity to fund climate change mitigation projects, but also that liquidities continue increasing in times of growth.

Consequently, atmofair established new provisions for climate projects (increase in provisions of 3.3 million Euros from 2017 to 2018). At the same time, bank balance grew from 7 million Euros (2017) to 12.7 million Euros. This increase is partly due to an increase of liabilities towards our Nepalese partner of about 2.2 million Euros, a liability which was settled in February 2019.

## Planning grants for 2019 exceeding the assessment

The increase of liquidity is a direct consequence of the previously mentioned principle for assessing grant capacity and will continue if revenues continue to grow strongly. With the current significant upward trend, atmofair has planned a grant capacity of 10 million Euros for 2019, thereby diverging from the previously measured capacity.

## Balance sheet 2018

Assets	EUR
<b>A A Fixed assets</b>	<b>518.316,00</b>
I Intangible assets	3,00
II Tangible assets	18.313,00
III Financial assets	500.000,00
<b>B Current assets</b>	<b>14.027.225,84</b>
I Inventory	2,00
II Receivables	
Trade accounts receivable	669.158,81
Other assets	661.978,22
III Cash on hand, bank balances, etc.	12.696.086,81
<b>C Prepaid expenses and deferred charges</b>	<b>1.706,20</b>
<b>Balance sheet total</b>	<b>14.547.248,04</b>

## Salaries under the German public-service salary scheme (TVöD) for employees and management

After project-related expenditures, personnel costs are atmosfair's second most important cost factor. The salaries of atmosfair employees are derived from the German public-service salary scheme (TVöD), whereby the positions from project manager to CEO earn pay grades 11 to 15.

General administrative costs for telephone, postage, insurance and office supplies amount to around 25,000 Euros, while 66,000 Euros were spent on rent. atmosfair also has yearly expenses for credit card fees and payment services. These are necessary to process online payments and transfer them to atmosfair's accounts; in 2018, these costs amounted to 29,000 Euros.

## Administrative costs under 5%

One of atmosfair's standards is the efficient use of donations, which is why only a small percentage of donated funds can be used to cover the organization's own costs. These include all costs that are not directly linked to project costs but are needed for administration and fundraising. In 2018, these internal costs accounted for about 490,000 Euros, which were allocated to personnel and material costs in public relations, IT, accounting, credit card fees, travel expenses etc. (see table on pages 52-53, Expenses block b) and c)). The overall share of administrative costs represents less than 5% of total revenue.

Liabilities		EUR
<b>A</b>	<b>A Equities</b>	<b>6.588.661,98</b>
I	Subscribed capital	25.000,00
II	Reserves provided for by the articles of association for projects	
	Short-term reserves for climate change mitigation projects	2.491.216,59
	Available reserves (also for climate projects)	4.072.445,39
<b>B</b>	<b>Accruals</b>	<b>5.334.434,76</b>
	Tax accruals	109.599,00
	Accruals for climate change mitigation projects	5.205.376,00
	Other	19.459,76
<b>C</b>	<b>Liabilities</b>	<b>2.624.151,30</b>
	Trade accounts payable	2.530.641,30
	Other	93.510,00
<b>D</b>	<b>Deferred income</b>	<b>0,00</b>
<b>Balance sheet total</b>		<b>14.547.248,04</b>

## Building up reserves with business services

In 2018, atmosfair generated a surplus of 390,000 Euros after tax by providing services to businesses. These include operating carbon mitigation projects commissioned by clients, emissions reporting software, and consulting services. This surplus serves as reserves to further grow the organization and is also channelled into climate mitigation projects. One reason for the low administrative costs is the fact that in 2018 again, atmosfair has abstained from any form of paid advertisement such as promotion teams, and has focused on content-driven campaigns. For example, the atmosfair Airline Index has helped us gain visibility in the media without paying for ads. We are also thankful for the volunteer support of celebrities in spreading the word about atmosfair.

## Reaching our goals

Our contracted climate projects have reached our carbon emission reduction targets for the end of 2018 faster than initially planned (see emissions table on pages 46 and 47).

## The CEO's review and discharge

The CEO of the gGmbH has drawn up the financial statement on December 31st, 2018. A financial auditor was commissioned for the review of the annual statement, with results expected in Q3 of 2019. Statutory presentation of the 2017 financial statements to a financial auditor in 2018 resulted in a confirmation from the financial auditor without raising any objections.

# Income statement 2018

## Income

Voluntary climate mitigation contributions for climate change mitigation projects
Climate change mitigation projects on behalf of customers and funds towards the purchase of technologies, before taxes (CBO)
<b>Sub-total climate change mitigation projects</b>
CO <sub>2</sub> accounting software, consulting etc., before taxes (CBO)
Additional income (interests, etc.)
<b>Total</b>

## Expenses

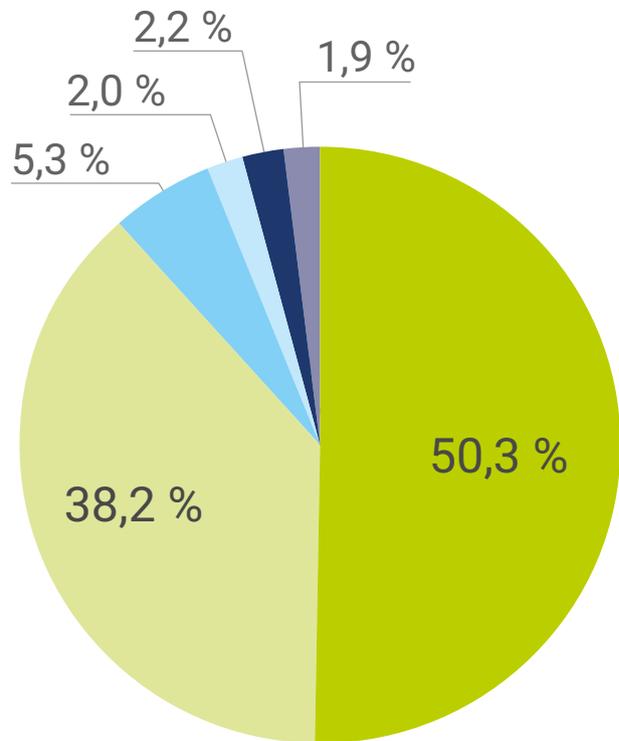
<b>A Climate change mitigation projects for carbon offsetting, private and business customers</b>
Direct expenses (Planning, setup, operation, technology purchase, verification, staff in developing countries)
Creation of net provisions, reserves, non-deductible input tax
Claim – 553,194; allocation of provisions 3,634,572
Creation of reserves, non-deductible input tax
Expenditure – 732,859; allocation to reserves 1,466,367
<b>Balance climate change mitigation projects carbon offsetting with use of earlier provisions</b>
Personnel: Project planning and support by atmosfair staff in Germany and in project countries
<b>B Administrative costs: support for donors and partners, fundraising, public relations work</b>
Personnel costs
Editorial work for PR
<b>Total</b>
<b>C Other administrative costs</b>
Office management (telecommunication, postage, office supplies, insurance, membership fees, depreciations)
Rent and maintenance
Credit card fees, payment services, account fees, exchange rate differences
IT (fees, maintenance costs, server rental fees)
Accounting, tax advisory services, annual financial statement, financial auditor
Printing costs for publications
Service contracts
Travel expenses
<b>Total</b>
<b>D Commercial business operations: climate services for companies</b>
CO <sub>2</sub> accounting software
Personnel: climate service for companies
Taxes on income from climate services and climate change mitigation projects for corporate customers
<b>Total</b>
<b>E For informational purposes: use of surpluses</b>
Surpluses generated through commercial business activities in 2018, after tax

## Total

**Results after creation of reserves climate change mitigation projects and use of surpluses**

## Expenses of atmosfair gGmbH 2018 (€1000)

2018 EUR	2018 %	2017 EUR
8.342.362	83,9	6.553.821
1.410.798	14,2	240.619
<b>9.753.160</b>	<b>98,1</b>	<b>6.794.441</b>
156.479	1,6	299.265
30.469	0,3	22.454
<b>9.940.109</b>	<b>100,0</b>	<b>7.116.159</b>
-5.004.553	-50,3	-4.881.106
-3.081.378	-31,0	-1.231.657
-718.153	-7,2	
<b>-8.804.084</b>	<b>-88,6</b>	<b>-6.112.763</b>
-526.053	-5,3	-356.703
-203.902	-2,1	-259.420
-16.166	-0,2	-16.206
<b>-220.068</b>	<b>-2,2</b>	<b>-275.626</b>
-24.981	-0,3	-60.760
-66.961	-0,7	-68.938
-28.926	-0,3	-14.050
-25.450	-0,3	-31.144
-24.517	-0,2	-68.416
-9.679	-0,1	-7.525
-6.189	-0,1	-98.987
-4.436	0,0	-14.649
<b>-191.138</b>	<b>-1,9</b>	<b>-364.470</b>
-12.725	-0,1	-15.572
-35.488	-0,4	-32.428
-150.553	-1,5	-6.860
<b>-198.765</b>	<b>-2,0</b>	<b>-54.860</b>
351.196	3,5	18.263
<b>-9.940.109</b>	<b>-100,0</b>	<b>-7.116.159</b>
<b>-0</b>		<b>0</b>



- Disbursements to climate change mitigation projects
- New reserves and accruals climate change mitigation projects
- Personnel climate projects Germany
- Climate services for companies (Commercial activities)
- Customer and partner liaison and support, public relations
- Other administrative costs

# References & Partners

## **Corporate partners**

50Hertz  
Ableton AG  
AirPlus International  
Aldi Nord, Aldi Süd  
BayernLB  
BayWa r.e. renewable energy GmbH  
borisgloger consulting GmbH  
Carlson Wagonlit Travel  
Chiesi GmbH  
Consileon Business Consultancy  
Summit Club GmbH  
DB Cargo AG  
Dentons  
Deutsche Bahn AG  
DHL  
Dolby Germany GmbH  
Dr. Babor GmbH & Co. KG  
FlixBus  
FKP Scorpio  
Greiner AG  
Hannover Re  
HRG Sports  
ING DiBa  
Janssen Cilag GmbH  
JustWatch GmbH  
net group Beteiligungen GmbH & Co. KG  
Quantum Immobilien AG  
QVARTZ  
SICK AG  
Vector Informatik GmbH  
VW Volkswagen AG

## **NGOs, political and academic institutions, trade associations**

24 Gute Taten  
Alfred Wegener Institute  
Baden-Württemberg State  
Berliner Energieagentur  
City of Düsseldorf  
Engagement Global  
ETH Zürich  
European Green Party  
The Federal Government of Germany  
Federal Office for the Environment, Switzerland  
Foundation for Development Cooperation  
German Aerospace Center  
German Solar Association  
German Doctors  
Greenpeace  
City of Hamburg  
Helmholtz Centre for Environmental Research  
Lions Clubs International  
City of Munich  
Öko-Institut

## **Events**

Besondere Orte Umweltforum Berlin  
Deutsche Hospitality  
Fachagentur Nachwachsende Rohstoffe  
GEOMAR Ocean Deoxygenation Conference Kiel 2018  
International Transport Forum  
ITB  
Toten Hosen  
Tollwood

## **Tourism**

Aldi Suisse  
Contrastravel  
DAV Summit Club GmbH  
Durchblick Leserreisen  
Frosch Sportreisen  
Hauser Exkursionen  
Hofer  
Forum Anders Reisen  
Laade Gartenreisen  
Neue Wege Reisen  
RTK Reisebürokooperation  
World Insight

# Best in class



atmosfair has been named winner in ten international comparative studies. All studies conducted since atmosfair's foundation in 2005 which evaluate different offsetting providers based on a variety of criteria are available for download on our website ([www.atmosfair.de/en](http://www.atmosfair.de/en)). We have selected two examples for our readers.



## Stiftung Warentest

('Finanztest', issue 3/2018)

"Above the clouds" – carbon offset providers compared

In its series "Finanztest" (03/2018), the consumer rights agency Stiftung Warentest tested a number of organizations that offer voluntary carbon offsetting. Evaluation criteria included 'quality of offset' and 'transparency'.

The criterion 'quality of offset' mainly evaluates the standards of the climate change mitigation projects generating the carbon emission reductions, while also taking into consideration involvement in the project's development process.

'Transparency', another important factor, examined the accessibility of the organization's financial data including the access to administrative and marketing-related expenditures, as well as the distribution of project funds to individual projects.

You can find the complete article here (only available in German, download fee 1 Euro): [https://www.test.de/CO<sub>2</sub>-Kompensation-Diese-Anbieter-tun-am-meisten-fuer-den-Klimaschutz-5282502-0/](https://www.test.de/CO2-Kompensation-Diese-Anbieter-tun-am-meisten-fuer-den-Klimaschutz-5282502-0/)

### Overall rating:

Total score: **0,6 (very good)**

Quality of offset: **Very good**

Transparency: **Very good**

Conclusion from report: **first place**



## Eberswalde University for Sustainable Development – Germany (2010)

Greenhouse gas offsetting providers in Germany

"The winner is – as in many other international comparative studies – atmosfair."

In 2010, the Federation of German Consumer Organisations (vzbv) commissioned a study from the Eberswalde University of Sustainable Development to compare more than 20 different carbon offsetting organizations.

The study analyzed the overall quality of the offsetting projects, the accuracy of the emissions calculations, and the communication with donors. atmosfair was the only provider to be awarded the rating 'very good'.

### Total score:

Realistic calculations : **very good**

Offset quality: **very good**

Customer communications: **very good**

Overall rating: **very good**

# Meet the team

## Patrons

**Prof. Dr. Klaus Töpfer** | Former executive director of the United Nations Environmental Programme (UNEP)

**Prof. Dr. Mojib Latif** | Professor at the Helmholtz GEOMAR Centre for Ocean Research in Kiel

**Prof. Dr. Hartmut Graßl** | Former director of the Max Planck Institute for Meteorology in Hamburg

## CEOs

**Dr. Dietrich Brockhagen** | Physicist and environmental economist

**Steffen Pohlmann** | Financial accountant, accounting and controlling

## Scientific advisory board for atmosfair standards

**Christoph Bals** | Political director of the north-south organization Germanwatch, has been following German climate policies with a critical eye for over 16 years

**Norbert Gorißen** | Head of subdivision KI II 7 at the German Federal Ministry for the Environment: Funding of international climate change mitigation, international climate change mitigation initiative

**Dr. Silke Karcher** | Head of unit IK II 5 at the German Ministry for the Environment: EU climate and energy policy, European climate change mitigation initiative, carbon markets

**Klaus Milke** | Chairman of the Foundation for Sustainability and Germanwatch, provides insights from and contacts with the the business world to promote climate action

## Management

**Dr. Bernd Freymann** | Head of climate projects

**Jakob Völker** | Physicist & economist, authorized signatory

**Michaela Thurau** | Dipl. BWL & MBA renewables | Head of business development

**Philipp Neff** | Dipl.-Ing. industrial engineering | CTO

## Team - CDM Project development

**Janine Adler** | M.A. Sustainability economics and management | Manager CDM Projects

**Hinrich Bornebusch** | Physicist | CDM expert

**Florian Eickhold** | Dipl. Latin American studies | CDM expert

**Bernhard Ellmann** | M.A. philosophy | Educational projects

**Nele Erdmann** | Dipl. Wi.-Ing. energy and environmental management | Manager CDM Projects

**Andrea Geldner** | Dipl.-Ing. landscape architecture | Databank controlling and quality management

**Denis Machnik** | Dipl.-Ing. environmental Science and technology | Manager CDM Projects

**Dr. Katrin Mikolajewski** | Geographer | Manager CDM Projects

**Kevin Möller** | Commercial lawyer, M.A. philosophy | Manager CDM Projects

**Allan Mubiru** | Economist | Country manager Rwanda  
**Zoltán Müller-Karpe** | M.Sc. Physics | Manager CDM Projects

**Toyin Oshaniwa** | Environment and sustainability management | Country manager Nigeria

**Claudia Schonger** | M.Sc. integrated natural resource | Manager CDM Projects

## Customer support & product development

**Cathleen Herrich** | MA tourism management | Key account manager travel and event carbon reporting

**Lina Tabea Maguhn** | B.A. business/ environmental management | Community manager

**Johanna Tunn** | M.Sc. Innovation for sustainable international development | Policy Research und Business Development

**Ruth von Heusinger** | Dipl. physics | Business development

**Oliver Sommer** | M.Sc. Physics | Carbon reporting

## Other team members

**Ludger Bals** | Solicitor and geographer | Business travel management expert

**Maik Höhne** | Industrial engineer | Carbon reporting for cruise ships

**Dr. Henning Kothe** | Specialist for internal medicine & pneumology

**Tobias Posselt** | B.Sc. Environmental Science and technology | HR

**Lars Schäfer** | Tourism and climate change mitigation

**Thorsten Schmid** | Dipl. Geoecology | IT manager

**Olaf Schreiber** | Physicist | IT coordinator & project management

**Dr. Christoph Weber** | External affairs

## Volunteers

**Christoph Gabel** | Sociologist | CDM project management

**Beate Müller-Guthof** | Public relations/ business development

**Magdalena Nehls** | M.Sc. Biology | Business development

# atmosfair in the media



December 13, 2018

## The most eco-friendly airlines, according to Atmosfair

Atmosfair says the objective of the report, compiled using data from bodies such as the International Civil Aviation Organization and the International Air Transport Association, is "to make climate efficiency a factor of competition among the airlines."

This effort is applauded by Niclas Svenningsen, Global Climate Action Manager at United Nations Framework Convention on Climate Change (UNFCCC).

"I think it's a good idea to do that report because it creates awareness among the airlines," he tells CNN Travel.



December 8, 2018

## Airlines ignoring efficient planes in blow to carbon targets – study

Dietrick Brockhagen, executive director of Atmosfair, said: "Our results show that the efficiency improvements of the vast majority of airlines worldwide is not sufficient [to keep within the] 2C or 1.5C target [of the Paris agreement]. We need new synthetic and CO<sub>2</sub>-neutral fuels and other more radical measures to curb CO<sub>2</sub> emissions in the sector."

British Airways was placed at 74th, with an efficiency rating of D, behind companies such as Aeroflot and Aeromexico. It fell behind many of Europe's other flag carriers, including Alitalia, Lufthansa, Air France, KLM and Iberia.

British Airways said: "We are committed to reducing our carbon emissions and have improved efficiency by more than 10% since 2008. We are well on course to deliver a 25% improvement in carbon emissions reduction by 2025. British Airways is the first airline in Europe to invest in building a plant to generate renewable jet fuel from household waste, and last week we kicked off a research project with some of the UK's leading universities to find a way to power a long-haul aircraft with 300 customers on board with zero emissions."



December 27, 2018

## Flying is bad for the environment, here are some tips to make it less carbon-intensive

Flying takes a lot of energy, which means releasing a lot of carbon dioxide into the atmosphere. There's just no way around it, creating the thrust necessary to push a 130,000 pound airplane 35,000 feet above Earth, keep it there for a couple of hours and then bring it down safely takes a lot of jet fuel.

"It really does matter. If there's one thing a single person can do with maximum effect, it's thinking about their flights," said Dietrich Brockhagen, executive director of Atmosfair, a German non-profit that focuses on flight emissions.

How often you fly also matters. The average per capita emission of carbon for the Americas is about 16 metric tons, said Stefan Gössling, an economics professor at Sweden's Linnaeus University and co-editor of the book, "Climate Change and Aviation: Issues, Challenges and Solutions."

## The Telegraph

December 10, 2018

## BA and Virgin among worst airlines for pollution, report claims

Airlines aren't doing nearly enough to reduce their impact on the environment, largely failing to invest in more fuel-efficient planes, according to a new study. German non-profit body Atmosfair ranks global carriers from A to G, A being the highest class for airlines that have reached the optimum level of carbon emissions. Not a single carrier achieved such a status and only two made it into category B: Tui Airways, the overall winner, and LATAM Airlines Brazil, in second. [...] Indeed, Atmosfair's Executive Director Dietrich Brockhagen highlighted fuel as being key in an industry-wide reduction in carbon emissions going forward, telling the Guardian: "You cannot beat physics, therefore long-haul flights will not be feasible with heavy batteries and electric engines. But you can produce carbon neutral kerosene synthetically, using carbon extracted from the air, water, and green electricity."

Brockhagen says that while the technology to do this is ready, it is ten times more expensive per gallon than kerosene, and that "billions" would have to be invested in order to get the price down.

"If airlines grouped together they could do it," he noted. "But this would require an international spirit of cooperation over competition, so far rarely seen in the industry."

## Handelsblatt

August 24, 2018

## Carbon offsetting: Travelling with a clean conscience?

For most companies, climate-friendly travelling on long-distances is near impossible. According to the UBA, carbon offsetting offers the possibility to limit the damage. FlixBus passengers are offered the option of an eco-payment, also offered by Lufthansa and Ryanair. These companies usually work with organizations such as atmosfair, Arktik, Climate Partner, or MyClimate, which calculate the carbon footprint emitted by certain travels and work with a multitude of projects around the world aiming to limit or reduce GHG emissions. atmosfair for example, cooperates with wind power projects in South Africa and Nicaragua, while MyClimate works on a project of biogas plants in India.

This is only a small selection of all the many voices that have resonated in the German and international press – if you want to know what others have said about us, our complete 2018 press review is available for download on our website ([www.atmosfair.de/en](http://www.atmosfair.de/en)).



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