

think • go climate conscious

atmosfair



ANNUAL REPORT



2017



Installation einer Solarthermieanlage in Kuyasa, Südafrika.

Energy for refugees

Solar power plant

21st century technology

Is it enough?

Climate Trek Nepal

Trekking after the earthquake

How does carbon offsetting work?

Carbon emissions remain in the atmosphere for many years and spread around the world as greenhouse gases. atmosfair offsets activities that produce carbon emissions and for which there are not yet any climate-friendly alternatives.

Carb

2°target

Limit global warming to 2°C

+ 1 t CO₂
for participants from Europe per conference

+ 4 t CO₂
Round-trip flight to Nepal per passenger

+ CO₂
for the production of goods



Conference attendance

Conferences can only be replaced by video conferences to a limited extent which is why travel is often unavoidable



A flight from Düsseldorf to Nepal

Far-away destinations can usually only be reached by plane. The only climate-friendly solution would be to avoid flying altogether. It will still take decades for technology to make air-travel carbon-free.



Production and location of a company

Energy efficiency and renewable energy can reduce carbon emissions during production. But there are often residual greenhouse gases that cannot yet be prevented by technical solutions.





atmosfair's projects reduce carbon emissions in developing countries and lay the groundwork for establishing renewable energy sources. Carbon emissions are reduced by the same amount in a different location. It doesn't matter where savings of carbon emissions occur, the climate always benefits.



- 68 t CO₂
Savings per day

- 3 t CO₂
Savings per stove and year

- 4 t CO₂
Savings per system and year

- 300 kg CO₂
Savings per Solar Home System per year

CO₂

Small hydro power plant in Honduras

The small hydro power plant financed by atmosfair works using a natural incline and supplies electricity to a remote region that had suffered from frequent power outages.

Efficient cookstoves instead of fireplaces

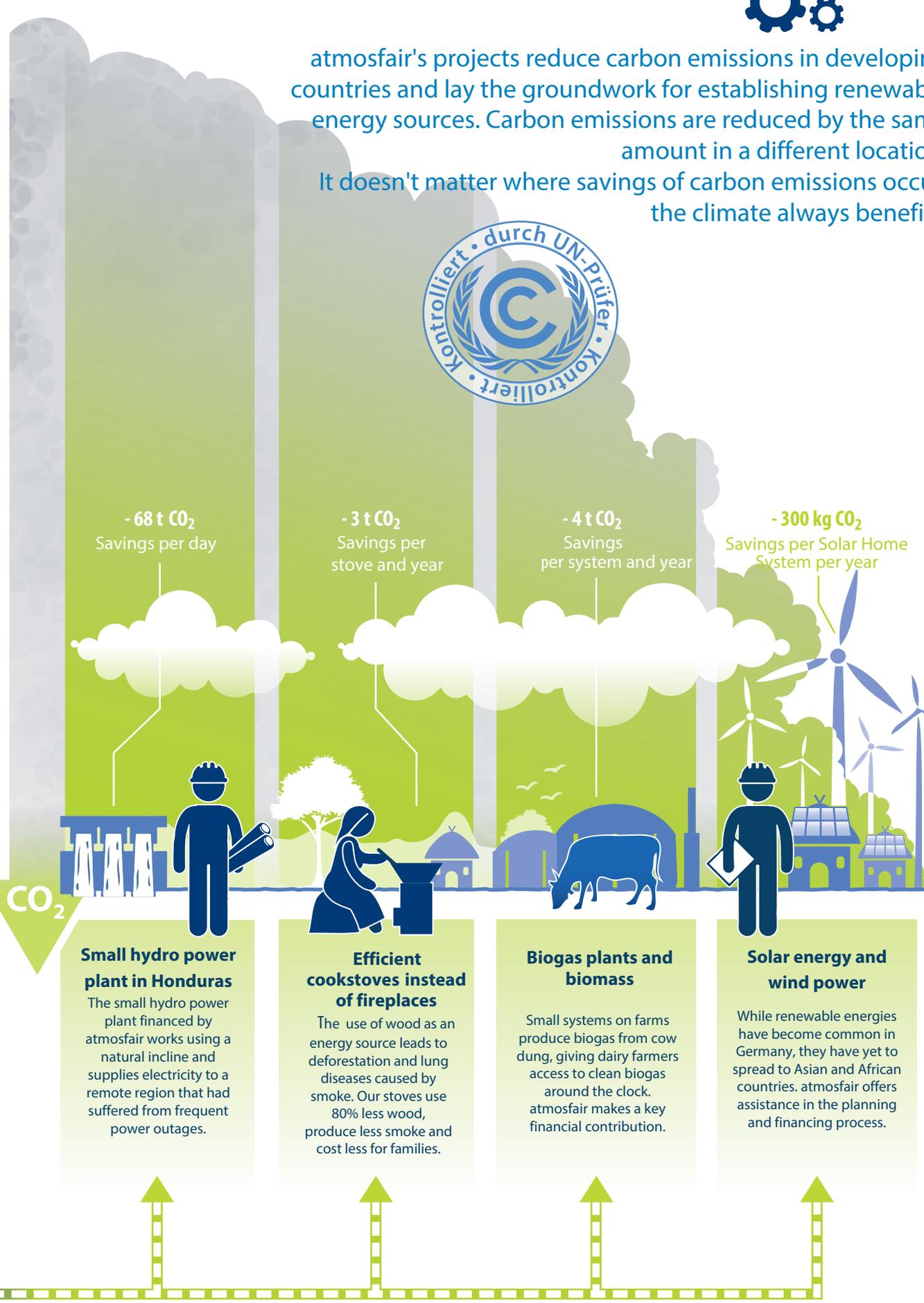
The use of wood as an energy source leads to deforestation and lung diseases caused by smoke. Our stoves use 80% less wood, produce less smoke and cost less for families.

Biogas plants and biomass

Small systems on farms produce biogas from cow dung, giving dairy farmers access to clean biogas around the clock. atmosfair makes a key financial contribution.

Solar energy and wind power

While renewable energies have become common in Germany, they have yet to spread to Asian and African countries. atmosfair offers assistance in the planning and financing process.



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The Berlin team thanking our partners in Rwanda, after they congratulated us for winning the comparative study carried out by Stiftung Warentest

Dear readers,

For every ton of emitted carbon we lose three square meters of ice, a discovery published by Science Magazine that quickly made the headlines in 2017. Three square meters (around 322 ft.) of arctic sea ice, which is the equivalent of a large dining table, is an easy indication to visualize.

For their study, Dirk Notz from the Max-Planck Institute for Meteorology in Hamburg and Julienne Stroeve from the US-National Snow and Ice Data Center investigated the relation between arctic sea ice and carbon emissions. They discovered a direct link between the ice

coverage in September and man-made carbon emissions. They calculated that for every emitted ton of CO₂, the arctic summer ice shrinks by three square meters. According to the German Federal Ministry for the Environment, the average German carbon footprint equals approximately 12 tons of carbon-equivalents per capita per year; this represents a loss of 36 square meters of ice per person per year, roughly the size of a one-person flat. We produced our own video on the subject, with the friendly support of Dirk Notz – have a look! It is on our facebook page and is our most shared post.

A new focus on education

Climate change and carbon emissions be damned; you can't see it, you can't smell it, there is simply no trace of it in our daily lives, and anyone trying to raise awareness is immediately accused of being a moralizer and a spoilsport. And who wants to be a killjoy! But to try and raise awareness nonetheless, atmosfair has launched a climate education program at German schools in 2017. Together with teachers and pupils we have developed different teaching units based around the children's daily lives. They are fun, encourage critical thinking, foster a wider understanding of the world and raise the question of individual action.

Two climate education organizations support us in this project by helping us reach out to thousands of students every year. And, by the way, carbon-offsetting is not even a part of the teaching units. Instead, we put an important emphasis on our leading principle which is to avoid, reduce and only offset the unavoidable and unreducible. After all, it is about conveying the fundamentals. Find out more about this subject on page 26.

New territory in Iraq

Other projects also made significant advancements. Overall in 2017, we distributed thousands of new efficient stoves and biogas plants and even equipped a refugee camp in northern Iraq with its own large solar power system, a first in the country. This project was also a first for us: for the very first time atmosfair carried full responsibility in planning, developing and constructing a photovoltaic system equipped with a battery storage and a distribution system that is able to supply energy to around 10,000 people. We carried out the complete construction works, for which we provided the necessary training to the camp inhabitants. The project even sparked the interest of the German Federal Foreign Office, as the relationship between refugees and climate change, employment and knowledge transfer gain political significance every day.

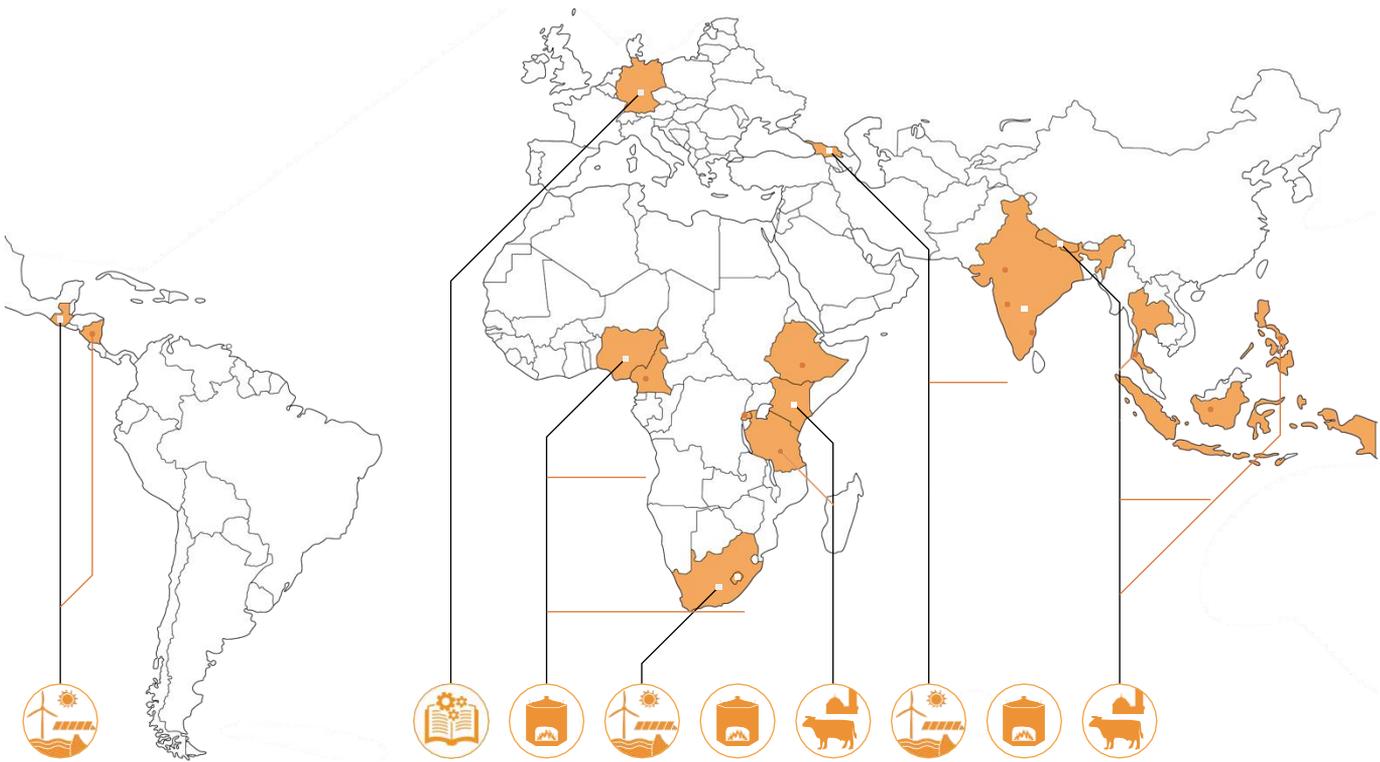
And last but not least: 2017 marks the most successful year for atmosfair, as our revenue exceeded 7 million Euros. Thank you for your trust!

Dr. D. Brockhagen

Dr. Dietrich Brockhagen, Founder & CEO atmosfair gGmbH

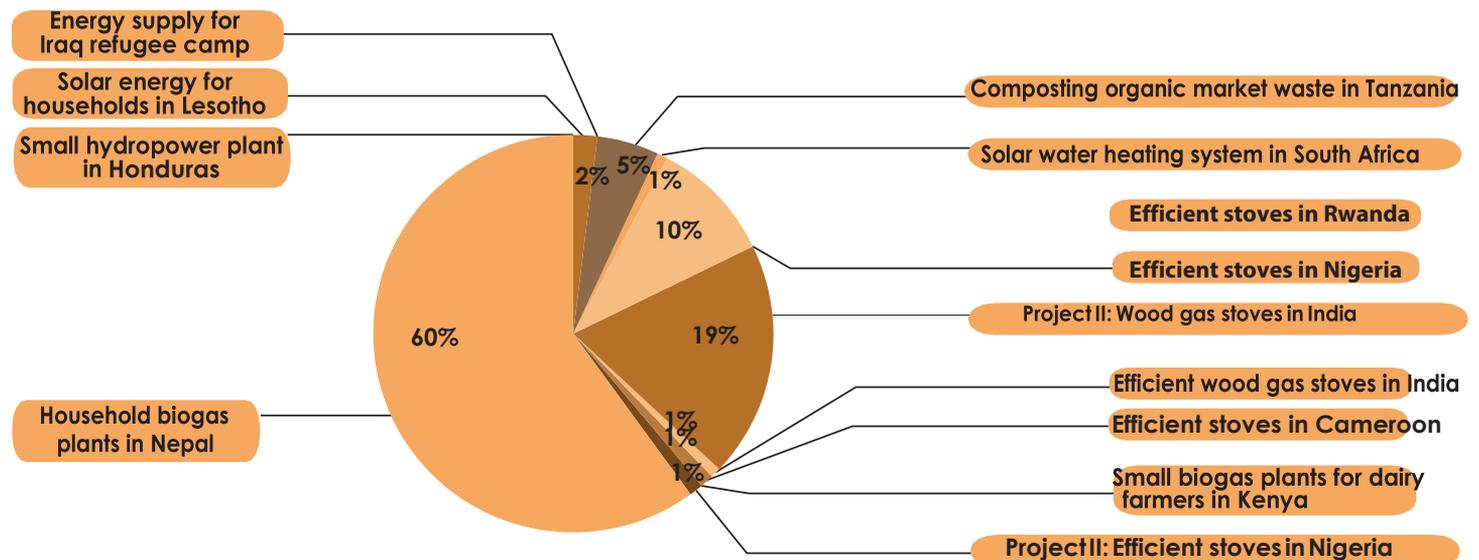
Honoring our commitments

Since 2005, voluntary contributions have allowed atmosfair to operate and finance climate change mitigation projects all around the globe. Step one is the outlining and signing of a support agreement between atmosfair and the project operator, stipulating the project's yearly targets in carbon reduction and defining the support provided by atmosfair. Up to two years can elapse before a donation actually offsets the equivalent amount of carbon emissions – time during which the project is planned and implemented. Lastly, accredited UN-auditors verify and certify the carbon savings and until today, atmosfair has never failed to honor its commitments. All donations have offset the exact amount of carbon emissions that were agreed upon.



Expenditures for climate change mitigation projects in 2017

In 2017, around EUR 6.2 million were invested in atmosfair's projects. The diagram below shows the allocation of funds towards individual projects.





Efficient stoves

atmosfair subsidizes energy efficient stoves in Africa and Asia. The small ovens are popular, as they allow immediate savings in wood for cooking and thus save their owners money.



Biogas & biomass

atmosfair's partners build small biogas plants that convert pig or cow manure into gas for cooking or into valuable fertilizer. Additionally, atmosfair supports electricity production from crop residue and the composting of organic waste.



Water, wind and sun

Wind, water and sun are the pillars of a regenerative energy supply. atmosfair supports partners and technologies that are beneficial for the environment but also for the local economy.



Environmental education

Climate change mitigation begins in everyone's own backyard - which is why atmosfair supports educational projects at German schools as an investment for the future. atmosfair does not credit the carbon savings to its own budget.

Reductions in greenhouse gases, made or contractually bound to make ^{1,2}

1.0 = 1,000 tons of CO₂

Efficient stoves	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total until 2019	Scheduled 2020-2025
Nigeria			0.3	4.6	9.2	15.7	22.7	29.0	30.0	27.7	38.7	34.3	26.6	239.6	17.2
India						0.3	3.4	17.6	19.0	29.7	103.1	175.7	208.02	557.1	614.4
Cameroon						3.1	9.3	9.8	9.2	0	0	0	0	31.6	17.2
Lesotho						3.0	18.7	22.0	25.0	27.2	28.4	23.8	23.7	172.2	23.5
Rwanda						0.3	3.7	18.0	44.3	76.9	111.9	146.3	200.0	601.7	696.4

Biogas and biomass	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total until 2019	Scheduled 2020-2025
India: Electricity produced by crop residues		11.3	43.8	28.1	36.2	72.3	60.5	43.2	48.2	39.6	42.5	50.0	50.0	526.2	150
India: Biogas systems for households 5.013		12.0	11.4	10.5	10.0	9.2	6.1	0	0	0	0	0	0	64.4	0
Kenya: Small biogas plants for dairy farmers							1.1	1.7	2.5	2.7	3.2	3.4	3.7	18.6	11.0
Thailand: Biogas from wastewater					5.5	8.2	17	18.6	0.0	0.0	0.0	0.0	0.0	50.0	0.0
Nepal: Biogas							151.2	200.9	287.5	259.3	120	69.6		1088.8	0
Indonesia: Composting of household waste							2.0	2.0	1.5	1.5	1.5	1.5	1.5	11.5	0

Wind, water and sun	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total until 2019	Scheduled 2020-2025
Honduras: Small hydroplant	12.7	20.7	9.6	34.3	31.6	23.2	21.5	20.2	15.9	13.2	26.7	36.2	36.2	308.7	0
Nicaragua: Wind power			63.3	56.9	20	20	91.3	51.3	0	0	0	0	0	302.9	0
Ethiopia: Solar Home Systems									0.0	0.4	1.1	1.9	2.3	5.6	10
South Africa: Solar water heating systems for households								9.3	0	0	0	0	0	9.3	0



Environmental education

-atmosfair does not add any carbon credit for this project to its budget

Total	17.7	44.1	128.7	140.2	115.4	165.1	259.4	375.8	397.0	506.8	616.9	593.4	621.9	3988.8	1539.9
Mandatory offsetting target from voluntary climate change mitigation contributions ³	0	9.5	9.5	63.5	88.6	92.2	93.6	82.6	92	96.8	106.9	132.1	127.5	208.8	
Mandatory offsetting through climate protection projects commissioned by clients				3.5	15	63.8	40.3	66.4	80.3	60.7	169.3	252.4			
Accumulated mandatory offsetting	0.0	9.5	19	86	189.6	345.6	479.5	628.5	800.8	958.3	1234.5	1619.0	1746.5	1955.3	
Accumulated greenhouse gas offsetting; made or contractually bound to make	6	23.715	67.857	196.5	336.7	452.2	617.3	876.8	1252.6	1649.6	2156.5	2773.4	3366.9		3988.8 (2020)

Performance (actual offsetting in relation to contractually bound offsetting, accumulated)



¹In the table above, greenhouse gas reduction from monitoring periods spanning over multiple years were standardized to calendar years. As a result, discrepancies may arise for individual years in comparison with previous annual reports.

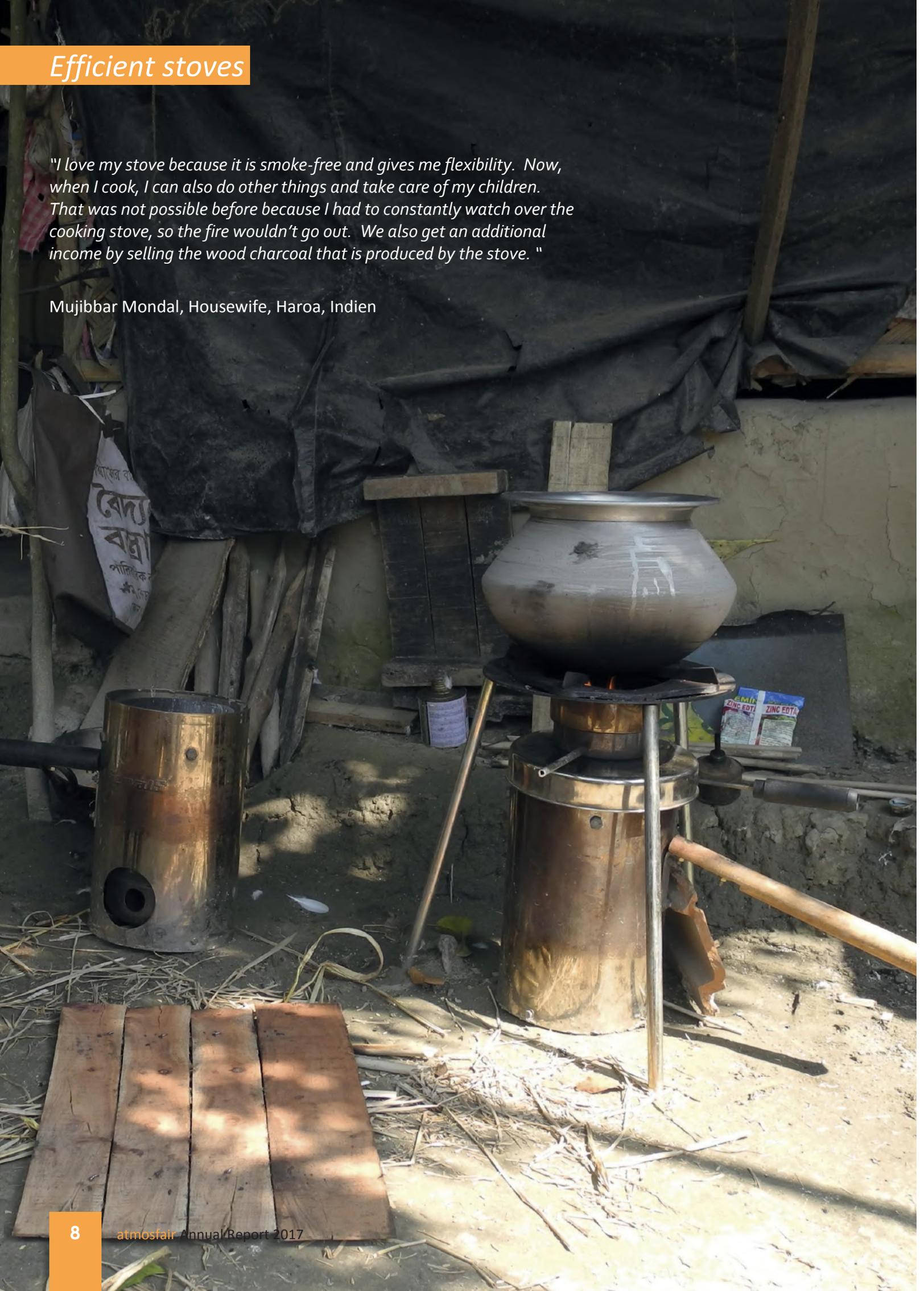
²Actual greenhouse gas savings can only be determined after external verification of the projects. Two to three years can elapse between the offsetting and its verification. Data regarding actual savings can therefore vary from previous annual reports, even for past years.

³It can take up to two years for a donation to arrive in a climate change mitigation project. Therefore, the income for the 2017 reporting year is shown here as a savings target to be met in 2019.

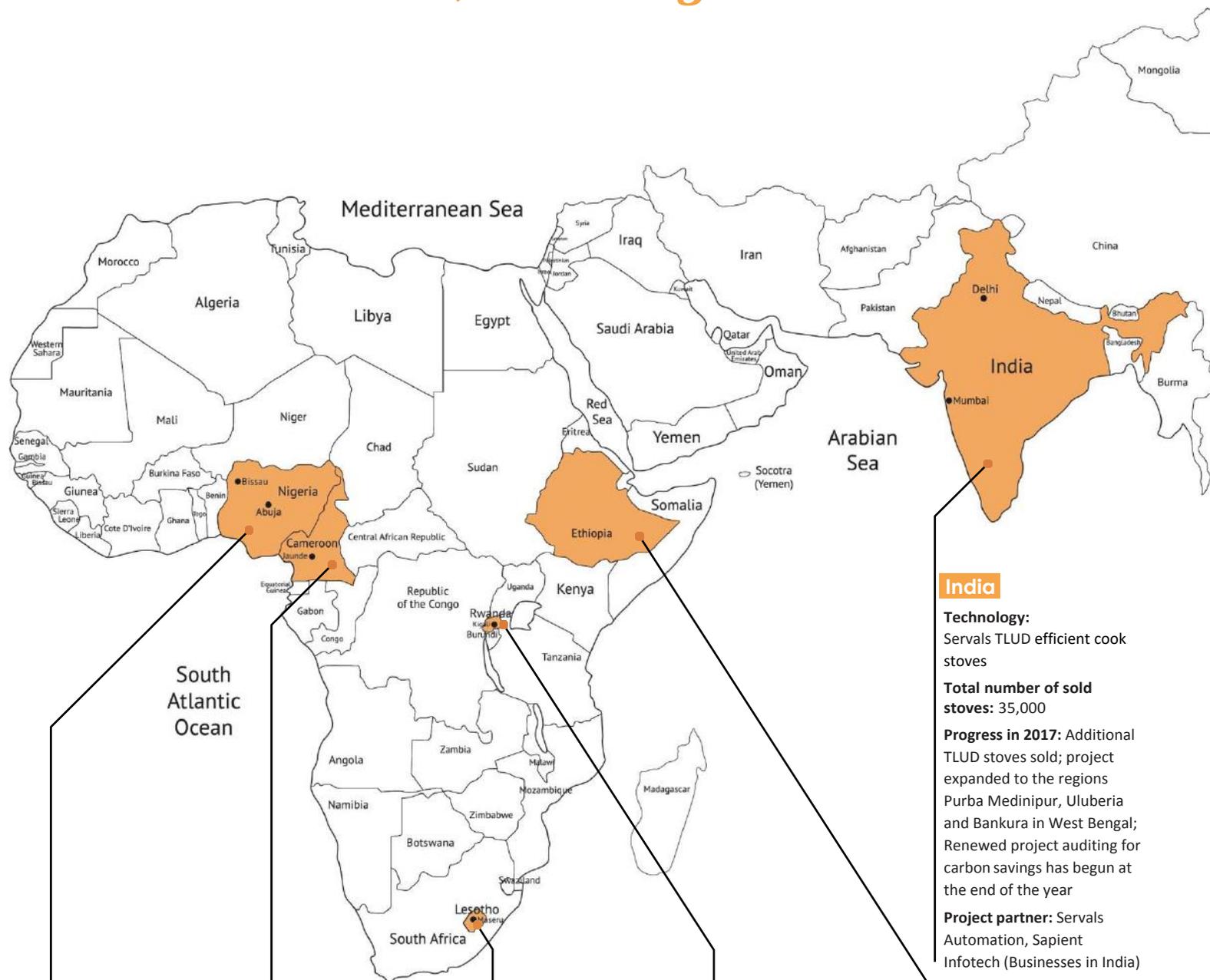
Efficient stoves

"I love my stove because it is smoke-free and gives me flexibility. Now, when I cook, I can also do other things and take care of my children. That was not possible before because I had to constantly watch over the cooking stove, so the fire wouldn't go out. We also get an additional income by selling the wood charcoal that is produced by the stove. "

Mujibbar Mondal, Housewife, Haroa, Indien



Countries, technologies and sold stoves



Nigeria

Technology: Save80, Envirofit
Total number of sold stoves: 25,000
Progress in 2017: Project auditing conducted with special permit due to security status, over 86,000 tons of carbon savings over a 2-year period have been documented
Project partner: DARE, BIA DARE, BIA (NGO and small businesses in Nigeria)

Cameroon

Technology: Envirofit
Total number of sold stoves: 9,800
Progress in 2017: Over 9,000 tons of carbon savings documented in the project's fourth year, Project handover at the end of 2017 to the stove producer
Project partner: Pro Climate International

Lesotho

Technology: Save80
Total number of sold stoves: 10,000
Progress in 2017: World's first climate project with a Fairtrade label, Fairtrade auditors on-site visit, over 24,000 tons of carbon savings in the fourth year confirmed by UN auditor
Project partner: Solar Lights (medium-sized entrepreneur in Lesotho)

Rwanda

Technology: Save80
Total number of sold stoves: 30,000
Progress in 2017: More than 5,000 additional Save80 stoves delivered and sold, fourth on-site auditing by UN auditor confirming 100,000 t of CO₂ savings, expansion of collaboration with the agricultural cooperatives and teacher associations for the expansion of the stoves to a national level
Project partner: Safer Rwanda, Rwanda Women Network (NGOs), UNHCR

India

Technology: Servals TLUD efficient cook stoves
Total number of sold stoves: 35,000
Progress in 2017: Additional TLUD stoves sold; project expanded to the regions Purba Medinipur, Uluberia and Bankura in West Bengal; Renewed project auditing for carbon savings has begun at the end of the year
Project partner: Servals Automation, Sapient Infotech (Businesses in India)

Ethiopia

Technology: permanently installed mirt clay cookstoves for Injera and portable Tikkil cookstoves
Total number of sold stoves: 22,000
Progress in 2017: The project continues to rely on the use of efficient mirt and tikkil stoves to limit deforestation and the inherent erosion of the soil
Project partner: World Food Program, Ethiopian Government



Good for everyone - a stove production plant in Northern Nigeria



In cooperation with the International Centre for Energy, Environment & Development (ICEED), atmosfair developed its own stove production for the Katsina region in Northern Nigeria. The Nigerian foundation produces clay stoves with the help of local artisans that are then sold on regional markets. The stoves are made on-site, out of local, partly recycled material and can thus be sold for a relatively low price. Additionally, the stove price is subsidized by the ICEED and atmosfair, which allows locals and IDPs to afford the wood-saving stoves, which gave it its name "Dadin Kowa" – "Good for everyone". These stoves save firewood and produce less smoke than traditional open-fire stoves.



The Dadin Kowa stove

Nigeria: Clay stoves as peacemakers

In Nigeria, the logging of precious forest and bushland is a daily issue. It is not only an ecological catastrophe but it also sharpens social and political tensions in the West African country. According to the consulting firm Maplecroft's "Deforestation Index", based on data from the UN Food and Agriculture Organization (FAO), Nigeria is the country with the highest rate of deforestation, higher even than Brazil and Indonesia. Between 1990 and 2010 Nigeria lost almost half of its woodland area.

One of the major causes is the extraction of firewood. In the northern regions, more than 90% of the population relies on firewood for cooking. Countrywide, the average lies at 75%. A family of seven people consumes approximately five tons of timber a year.



The atmosfair team testing the Dadin Kowa Stove

After a successful start in 2017, we have set ourselves the goal to produce enough stoves to cover the entire Nigerian market. atmosfair is in the process of building a stove production plant taking the current small-scale local craftsmen production to a whole new level.

This has severe consequences for Nigeria's society. Last year, Central Nigeria has witnessed violent confrontations over resources and land between the Muslim Hausa-Fulani pastoralists and Christian farmers. Additionally, people's safety in the north of the country is currently threatened by the terror organization Boko Haram, whose aim is to establish an Islamic califate. Since mid-2010, the group has executed several violent terrorist attacks and kidnappings and is responsible for over 20,000 deaths. The UN Refugee Agency, UNHCR, counts around 1.8 million internally displaced persons and 200,000 Nigerian refugees in neighboring countries, all fleeing the battles in the Northeast.



Desertification in Northern Nigeria

A coal chain for the Ganges Delta

Sahidul Mondal is a coal gatherer. atmosfair's „intelligent“ stoves changed his life

Sahidul Mondal lives with his wife and his son in a little village near Deganga in West Bengal. Sahidul and his driver leave very early in the morning, usually around 6AM to go visit the households. Sahidul is one of now 120 local employees that works for our stove project in India on the so-called "coal chain". Sahidul goes from home to home to buy coal from the village families and despite the early hour, many families await him impatiently – the sale of coal is a valuable extra income.

In the cooking process, atmosfair's stoves automatically produce coal, which the families in Deganga can then sell for a small extra-income. This is due to the "Top-Lit-Updraft" technology. The stove is lit from above (top-lit) and the wood burns in a closed combustion chamber under a low oxygen supply towards the bottom. This creates an up-draft gas, lighting a clean gas flame. Once all the gas is burnt, coal is leftover in the oven. This coal, if of a good enough quality, can be gathered and sold by the families.

Every two weeks, Sahidul knocks on the village doors. He collects the coal and proceeds to pile it up and clean it by hand. He sorts through the pieces of coal and removes impurities like wood or plastic remnants. This activity can get quite dusty – the coal comes with its share of dust and ash and Sahidul has to wear respiratory protection and gloves. Once the coal is sorted, Sahidul packs it into bags and weighs them. Every family receives eight Rupies, approximately 0,10 Euros, per kilo of coal. It doesn't sound like much, but regular cooking can produce up to 14 kilograms of coal in two weeks. This translates into an extra income of



Sahidul Mondal sorting the coal at the user's household

36,50 EEuros per year, which represents a whole additional monthly salary in local standards. Sanati Mandi, like many others, is very satisfied with her stove. "The stove was a good deal. I need less wood to cook, which means I spend less time and money gathering wood to start with" she says. "Plus, the stove is unique, because by selling the coal I was able to get the stove money back in 10 months and now it generates additional money for the family."



Coal gatherer Sahidul Mondal from the Deganga region

Sahidul was one of the first coal gatherers. More than five years ago, an acquaintance asked him if he would be interested in participating in this project. He did not hesitate for very long – his job at a wood mill was very unsatisfactory. „Work there was very irregular and poorly paid“ Sahidul explains. He would struggle to come up with enough money to provide two nutritious meals for his family every day. An education for his son was unthinkable. Today, Sahidul’s son is ten and has been going to school for five years. He even learnt English, adds the proud father. Plus, the new income allowed repairs to the house and turned it into a comfortable home.

On behalf of atmosfair, Sahidul handles around 320 families in the Deganga region, a rural area only six meters above the sea level and gorged in the alluvial soil of the Ganges Delta. The region is remote and little developed. During the rains of the summer monsoon in July and August, the collection of coal becomes even more difficult, as during this period, large areas of land are flooded. Sahidul still manages to visit around 23 families and collects up to 450 kilograms of coal. At the end of each week, the coal is sold to small restaurants and businesses, such as tobacco-curing farms. It avoids using coal produced through energy-intensive pit extraction processes.

Restaurants that switched to the coal from the project save around six kilos of wood per kilogram of coal. The coal chain thus is a win-win situation for both the families in the villages as well as for the restaurant owners. Reducing wood consumption is also an ecological relief for the Ganges Delta region and helps protect the climate by reducing carbon emissions. It also helps reducing illegal logging and the inherent consequences like erosions.

Besides the climate benefits, atmosfair is able to stay in close contact with the stove-families and coal-gatherers, allowing us to provide our very important “after-sales-service”. In no other project do we have such a strong connection with the users and are able to react so directly to questions and problems. This is also the reason for which every single family that has bought a stove is still using it.

The stories of Sahidul Mondal and Sanati Mandi seem to have struck a chord with the Lions Club Germany. In 2017, they have decided to support their own project region in West Bengal. Through donations and flight offsetting made by members of the Lions Club Germany, atmosfair now also sells ovens in the Bankura region for a subsidized price. Over 500 stoves were sold in record time - and because the Lions India have also taken a liking to the project, they added another 250 stoves. Distribution of the Lions-stoves and more will start in 2018.



Sunderbarns: sometimes, in order to reach the vehicle, the coal has to be transported through rough terrain



Smoke-free lighting of the stove

Sahidul Mondal and his colleagues are pleased about the increasing support for the project. He wishes for the jobs in the coal chain to be maintained as long as possible. "This work has changed my life and the life of my friends."



Sahidul and his driver on the way to their households



Stove funded by the Lions Club Germany



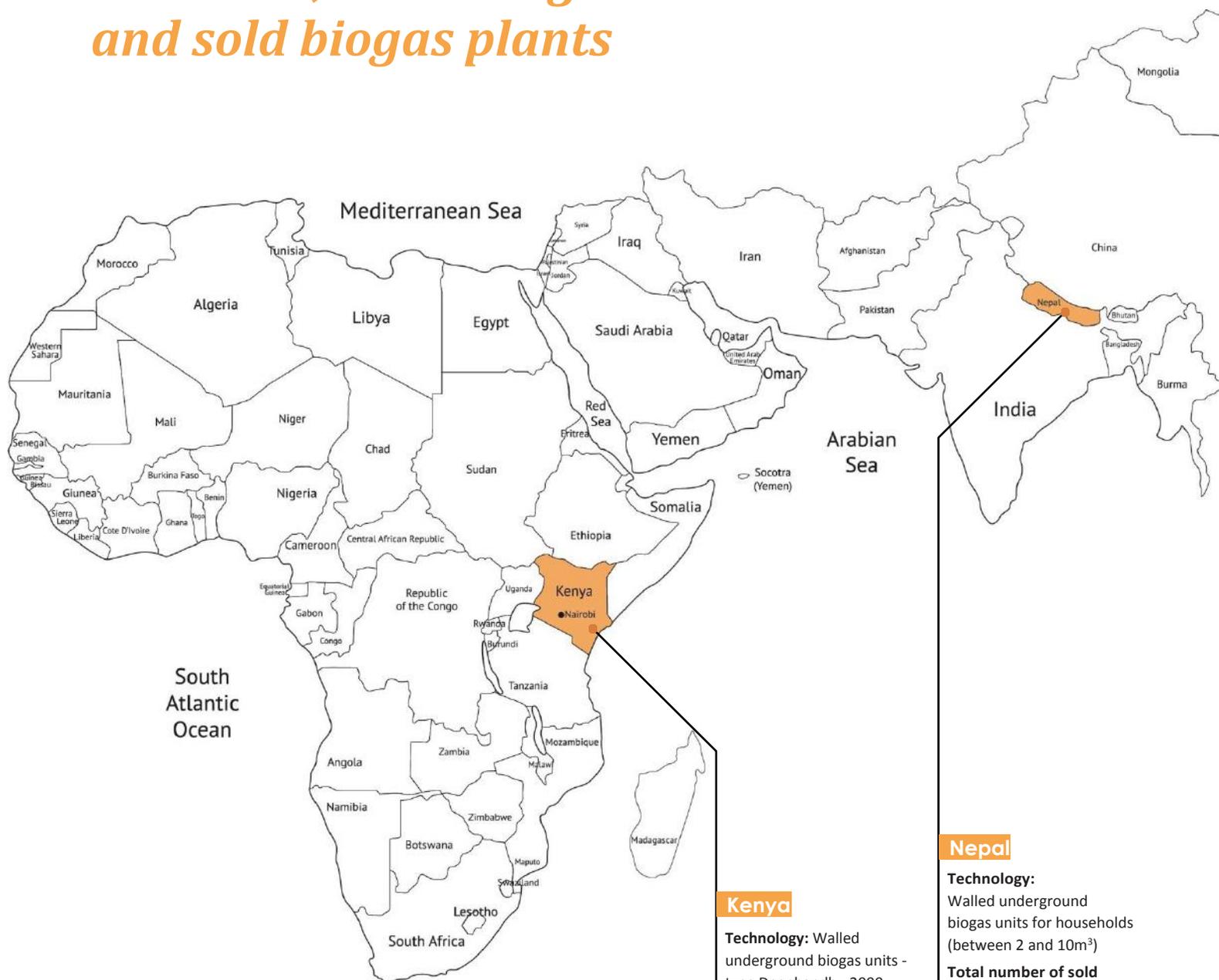
Stove user in Uluberia, Westbengal



"Ever since we received a biogas plant, we do not need to collect and carry wood from the forest anymore. If we damage the forest, there will be more flooding; this way, the biogas plants make an important contribution to environmental protection. Life has also become more comfortable. You only need to mix in the cow dung, and that's it!"

Kedar Khatiwada, Topgachhi, Nepal

Countries, Technologies and sold biogas plants



Kenya

Technology: Walled underground biogas units - type Deenbandhu 2000, produce around 3m³ biogas per day for cooking.

Total number of sold biogas plants: 656

Progress in 2017: The project's second auditing took place in November. An external auditor has confirmed that all units are in use and running smoothly. The UN has certified the savings of 5,463 tons of CO₂. Meanwhile, 656 biogas units have been installed and are now in operation.

Project partner: Sustainable Energy Services (SES), NGOs from Nairobi

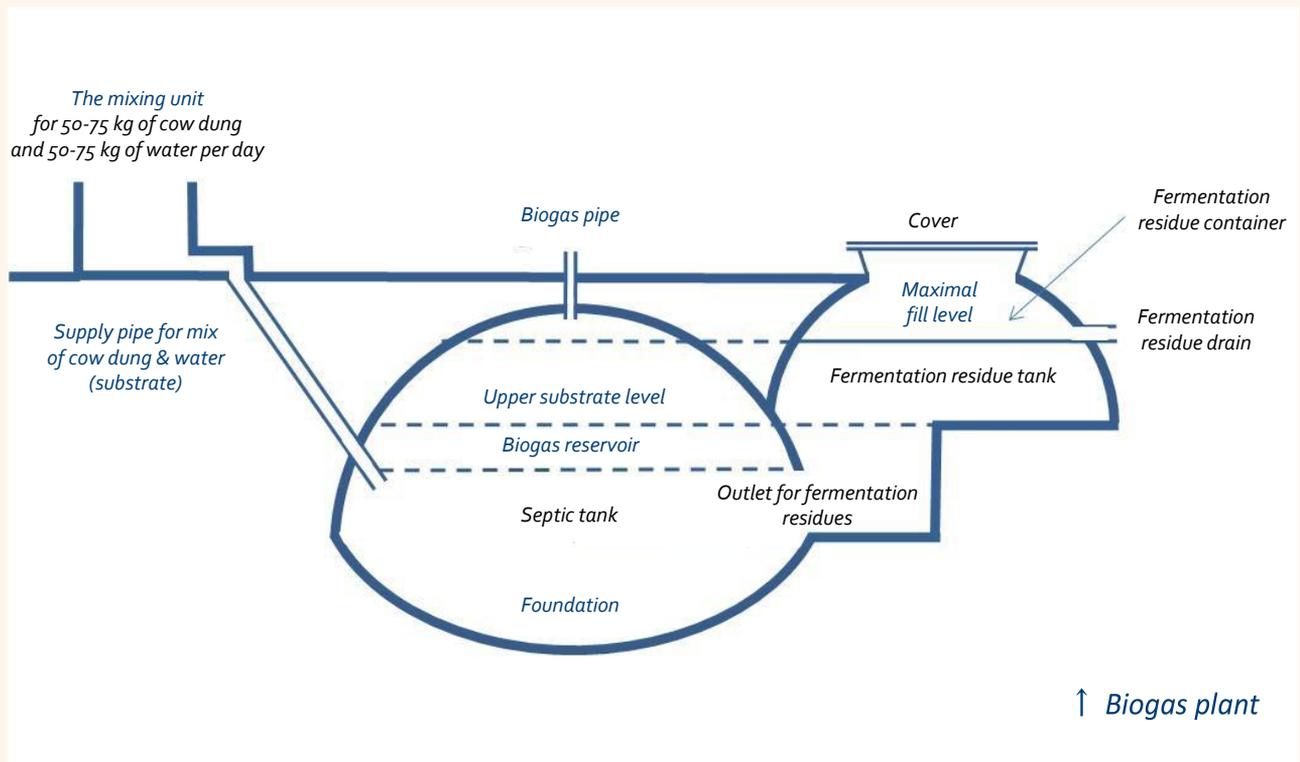
Nepal

Technology: Walled underground biogas units for households (between 2 and 10m³)

Total number of sold biogas plants: 156.000 units (biogas program currently in progress)

Progress in 2017: During the summer of 2017, Gold Standard certified carbon savings of 250,000 tons. At the end of 2017, we prolonged our cooperation with our partner AEPC for another three years. Additional carbon savings amount to 60,000 tons per year, averaged over a ten-year span.

Project partner: Alternative Energy Promotion Center (AEPC), Biogas Sector Partnership Nepal (BSP-N) (NGOs)



↑ Biogas plant

Biogas plant

General information:

Our household biogas units are filled with cow dung on a daily basis and provide the connected households with enough biogas to cook. The units have to be built out of solid and durable materials; they can contain up to six tons of cow dung and thus have to resist the resulting internal gas pressure.

The mix:

Every morning, the biogas plant users fill the unit with equal amounts of water and cow dung. The substrate then flows through a supply pipe to a septic tank.

Fermenter and gas container:

The biogas is generated inside the fermenter through anaerobic digestion. The size of the tank is determined according to the number of cows in the household. A single cow can produce around 25 kg of dung a day – enough to provide gas to cook for two people. The gas is retained in the tank as long as the tank pipe stays closed, making it a gas container at the same time.

Fermentation residue tank:

The fermentation residue tank collects the leftover substrate which can be used as a fertilizer on the fields and boost revenue. Since the substrate is not being actively compounded, its retention time in the biogas plant is relatively long. This helps killing all germs before they access the fermentation residue tank, but we still provide health and safety training to the small farmers for handling organic fertilizer.

Biogas pipe:

The biogas pipe goes through the garden directly into the household kitchen. Through the pressure in the biogas plant, the gas is transported automatically without the input of additional energy. Since the substrate in the biogas plant is humid, the biogas has to be dehydrated on its way to the kitchen.

Nepal: biogas plant project expansion benefits 100 businesses

In Nepal, small biogas plants play a big role. In 2013, almost 300,000 household biogas plants were installed, whereby the country's potential is averaged to be around 3 million. The atmosfair Biogas Support Project alone has finalized the installation of 156,039 units by the beginning of 2017.

Not only does the program contribute to climate change mitigation, it also boosts the local economy. In the last few years, around 100 active small businesses have flourished in the biogas sector. They build biogas plants, deliver training for users and promote the technology. They also carry out the very important task of documenting every unit in order for them to be charted by the UN.

Through the carbon savings made by these plants, atmosfair pays a subsidy on the purchase price for the user families. Several thousand people are already employed in the sector today and the Biogas Support Program provides training for 400 masons every year. Even the financial sector has seen an evolution in job creation as small local banks start granting microcredits to households.

In December, our cooperation with our Nepalese project partner Alternative Energy Promotion Centre (AEP) was prolonged for another three years. Small businesses can therefore continue to count on incoming contracts.

Kenya – more than just clean energy

November 2017, Nairobi. The trip starts in a traffic jam. We are leaving the Kenyan capital city and heading towards Kiambu County, our project region. Once we've escaped the smog, we follow the new highway and the main part of the trip flies by. However, once we've reached the biogas farms' villages, we have to slow down the pace again. The unpaved roads can only be tackled by four-wheel-drive jeeps; street conditions are just another element that reveals the significant wealth gap between the capital city and rural communities.

Together with our local partner David Karanja from the Kenyan organization Sustainable Energy Strategies, we have built around 700 biogas plants (see biogas plant figure). Kiambu County is home to small farmers and cattle – an important part of the equation, since the biogas plants are powered by cow dung. Households used to rely on firewood for cooking, which they would have to buy at the local market or collect in the forest on a daily basis. Today two cows and their dung suffice to fill the households daily biogas needs.

We meet Mary Wambui, who used to spend three hours a day collecting firewood in the forest. She is very pleased about the new biogas plant and not having to spend so much time gathering wood anymore – it is a relief, especially now that she has fallen ill. Her kitchen still bears the marks of numerous years spent cooking with wood; the black soot on the walls darkens the room. Mary Wambui's new biogas plant on the other hand is clean and can be used any time of the day. The only requirement is to fill it up with cow dung and water first thing in the morning.

The biogas units have made the daily lives of farmer Wambui and his neighbors significantly easier, saving them money and time.

Contrary to common belief, biogas technology is completely smell-free. No biogas plant user has been bothered by any unpleasant smell, even when the plant is placed right next to the kitchen.

Mary Wambui and her husband Stephen Mukani grow cabbage and broccoli for a living. Their garden is big enough to provide for themselves and still cultivate additional vegetables to sell on the market. It is not much, but since they have started using the fertilizer from the biogas plant, they have been able to harvest two weeks early. "Harvests have become more abundant because the fertilizer makes the plants grow bigger" explains Mary. This means higher revenues on the local market.

Along our trip we had the opportunity to exchange with many more women like Mary Wambui – their husbands usually being absent during day time, a common occurrence in Kenyan everyday life. The men go to the city to work while the women work taking care of the farm, the children and the harvest. They also need to tend to the animals, all while preparing and cooking food. In these conditions, not having to spend three hours collecting wood makes a big difference.

While driving back to Nairobi we draw the happy conclusion that our concept is a success. Back in Berlin we decided to expand our support to the small farmers by accompanying them in the marketing process for their harvested goods – the sustainable use of organic dung from their own biogas plants saves resources and is a closed cycle. We are currently evaluating if providing an official "organically produced" label for their goods would be worthwhile and if supermarkets in Nairobi would be interested in local and organically produced goods. The biogas plants can bring so much more to the users than just "clean energy" – as Mary Wambui has demonstrated.



„I like the solar systems, they bring bright and strong light. My clients are very satisfied with the quality of the systems and the long period of guarantee“.

Misanesh Kebede, shop owner, Amhara district, Ethiopia

Countries, technologies and installation of renewable energy systems



South Africa

Solar thermal heating systems

Technology: Solar thermal heating systems and insulation material

Total number of sold units: 2,300 houses were equipped with solar-powered water heaters, insulation material and efficient lighting.

Progress in 2017: The Systems are operating and maintained regularly.

Project partner: South South North, City of Cape Town, South African Export Development Fund

Use: Thermal insulation and access to hot water for households in the township Kuyasa that used to cover their energy needs with non-renewables.

Ethiopia

Solar-Home-Systems at schools

Technology: Solar-Home-Systems consisting of PV modules, batteries and LED lamps

Total number of sold units: 29 Solar-Home-Systems

Progress in 2017: One of two schools was identified and equipped with electricity access in December. In November the corresponding systems were imported and assembled successfully. Around 50 rooms got equipped with 29 Solar-Home-Systems and 110 LED lamps.

Project partner: FOSERA Ethiopia, Aldi Süd

Use: For the Gelsha Secondary School, electricity allows teaching in the classrooms and learning in the library after sunset. Teachers can now read in their lodgings and charge their phones. Costs are cut, and air quality improves as kerosene lamps are no longer necessary.

Ethiopia

Solar-Home-Systems

Technology: Solar-Home-Systems consisting of PV modules, batteries and LED lamps

Total number of sold units: 4,700

Progress in 2017: Significant increase in sales (+200%), access to foreign capital still restricted by the government limiting the project's expansion.

Project partner: FOSERA Ethiopia and FOSERA Deutschland, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ).

Use: Electricity for households with no or discontinued access to power. Job creation in system manufacturing and maintenance. Costs are cut, and air quality improves as kerosene lamps are no longer of use.

Honduras

Hydro-plant La Esperanza

Technology: Hydroelectric power station with 14,6 MW electrical output.

Electricity produced in 2017: 42,217 MWh

Project partner: Consorcio de Inversiones S.A. (CISA), Power plant operator.

Use: Electricity supply for local businesses and the region.

Iraq

Energy supply for refugee camp

Technology: Photovoltaic systems with Battery system

Total number of sold units: System still in construction

Progress in 2017: In 2017 the idea became a project. The German federal state Baden-Württemberg confirmed funding. Following an on-site visit, the system was designed, and all components were purchased or advertised for bids. Through numerous donations in kind the system's capacity was increased from 300 kWp to 370kWp.

Project partner: German Federal State Baden-Württemberg via the foundation Stiftung Entwicklungs-Zusammenarbeit Baden-Württemberg (SEZ)

Use: Daytime electricity supply for the Mam Rashaan refugee camp, creation of training and job opportunities in the camp.

Nicaragua

Wind power plant Amayo

Technology: 39.9 MW Wind power plant.

Electricity produced in 2017: 135,481 MWh

Project partner: Consorcio Elico Amayo S.A.

Use: The region's first wind park

India

Solar power plant India One

Technology: Solar thermal plant with 1 MW Electrical and 3,5 MW thermal power.

Electricity produced in 2017: Production will be launched in October 2017.

Progress in 2017:

Since October 2017, the system is in a test phase and produces electricity 22 hours a day. In March 2018, the system will produce electricity and heat continuously. The project was presented as a major part of the Federal Ministry for the Environment's "Ready for the future" campaign. Project partner: World Renewal Spiritual Trust (WRST).

Use: Electricity and heat for the neighboring Yoga and Meditations school; Research and development in Solar energy

India

Electricity from harvest residues

Technology: Biomass plant with 8 MW electrical output

Electricity produced in 2017: 63,252 MWh

Progress in 2017:

At the end of 2016, KPTL noticed vibrations in the plant's turbine. The plant was thereafter shut down for maintenance all of January 2017. In February 2017, the plant took up activity again produced almost 60% more clean electricity than the previous year.

Project partner: KPTL (Kalpataru Power Transmission Limited), plant operator.

Use: Farmers receive additional income for unused harvest residues. Job creation inside the plant, for trade, transport and storage of the harvest residues.

Kurdistan - Energy for the Mam Rashan refugee camp

For the very first time: atmosfair brings solar energy to a refugee camp

Travel report by Nele Erdmann, May 2017: Accompanied by a German-Iraqi group, atmosfair's own Nele Erdmann and Dietrich Brockhagen went to visit the Mam Rashan refugee camp close to Dohuk, in Northern Iraq. The goal: supplying electricity to a camp that is likely to serve as home to refugees for a long time to come.

Once in Erbil, we stumbled out of the aircraft right into a rented bus that would take us to Dohuk. After leaving the big city we followed empty roads through cultivated fields and mountain ranges. We drove through Kurdistan for a solid three hours until we saw numerous little white spots starting to appear on the horizon, lost in the green and grey of the hilly landscape. In the middle of nowhere, 2000 small white living containers are sitting on a soft slope, ruthlessly exposed to the hard sun.

We shake hands with Shero Smo, the camp manager. All our travel arrangements were made by our German and Iraqi partners and we are truly pleased to see that all our appointments work out as planned. It is a hot day with cloudless blue sky, and although the occasional wind makes the heat more bearable, temperatures still climb over 30°C. It is quiet – only a small number of people go outside, but most stay in their containers. A few children are playing on the football court and around the school. Even if the IS has been vigorously pushed back over the last two years, Mosul is still a battlefield and buses filled with refugees coming from occupied territory still arrive at the camp on a daily basis.

Shero gives us the tour. We're allowed to peak into the containers, with the families' permission. The containers are structured like caravans – a single room with plank beds on both sides, a tilting window, a stove, a washing area. They are small and excessively hot. Air conditioning requires a lot of electricity, which is evidently lacking. Most have built themselves an awning in order to store suitcases and food.

Mam Rashan's inhabitants are some of the more fortunate ones. The containers were financed by an aid project led by Caritas. Readers of the German Newspaper Stuttgarter Zeitung also sent financial support. An activities center was built within the camp, including among others a workshop in which the inhabitants can learn crafts such as sowing. Today is the grand opening of the center. The central room is filled with the camp inhabitants and even some political figures from Dohuk.

In Mam Rashan, 8,500 people currently live in 1,800 living containers. Iraq has been at war with the terror organization "Islamic State" since 2014. After being almost defeated in the country, the IS is reconquering small territories. Flight and

displacement are a daily reality. Families have to escape from violent conflicts and seek shelter. Many of the refugees in Mam Rashan know they are here to stay – returning to their home regions is impossible. The Camp keeps growing, and what was supposed to be temporary solution slowly becomes a permanent home. Most young families have to face the reality that they will have to stay here over the next few years; and their only chance for a future is by creating a place where manufacturing is possible, and children can receive an education, living a life as 'normal' as possible.

The camp management has not been idle: they have built two schools, a daycare, a hospital and even a football court and a playground as well as greenhouses and a trauma-center.

It all started with a phone call from Stuttgart in 2016. The German foundation SEZ from Baden-Württemberg wished to take action in Northern Iraq in the form of refugee aid and climate change mitigation. We came up with the idea of a carbon-free and self-sufficient electricity supply for the Mam Rashan refugee camp, which in turn would allow the construction of workshops while also providing training and knowledge transfer.

The tour and long exchanges with Shero and his co-workers confirmed the assumption that the camp needed a reliable energy source. Appliances such as fridges and stoves could only be used during night time. In the following days, the B.R.H.A (Board of Relief and Humanities Affairs) and the German Ministry of Energy also confirmed the urgent need for a daytime energy supply.

With a series of questions I try to evaluate a container's energy requirements. We walk around to collect as much information about electricity consumption, cables, junction boxes etc. as possible. Hoshyar accompanies us on these walks since he will take over operations after our departure. His English is perfect, he owns a small company and already has previous experiences with solar energy.

By the end of our trip we had gathered all the necessary information for our concept – a photovoltaic system with battery storage that will provide energy during day time. It will be in the middle of the camp in order to supply all inhabitants efficiently. The installation and maintenance will be carried out by the inhabitants – and atmosfair will provide the necessary training.

Only a few months after our visit, the German federal state Baden-Württemberg allocated us 400,000 Euros through the SEZ. This budget allowed us to order and ship the first main components for the photovoltaic system. Donations in kind from companies and the project budget lead to the installation of a 370-kilowatt solar power system with battery storage, which will cover a fifth of the camp's daytime energy needs. The goal is to supply the whole camp with solar electricity. The project's quality in terms of energy technology was well-received, as shows its nomination to "Top 5 Hybrid Energy News" beginning of 2018.

German State Secretary Theresa Schopper acts as political coordinator for the State Ministry of the German federal state Baden-Württemberg and has granted the ministry's financial support for the project.

— **Madam State Secretary, why are you supporting projects in Northern Iraq?**

Theresa Schopper: More than 350,000 displaced people live in camps in the Dohuk province in Northern Iraq. The crisis has forced them to live in unfinished building shells, provisional tents or with friends or acquaintances. Despite the victory over the so-called Islamic State, the humanitarian emergency situation in Northern Iraq is persisting. Yazidis in particular are unable to return to their destroyed homes. With our projects, we want to help support the local population, IDPs and Syrian refugees. They want to see the possibility of a future in their region – and despair might just force them to migrate further.

— **What motivated you to chose atmosfair as a partner?**

We are already active in the Dohuk region. We supported schooling for children and an economic and social center for women. We wanted to go further and tackle the insufficiencies in electricity supply through solar energy. We entrusted the foundation Stiftung Entwicklungs-Zusammenarbeit Baden-Württemberg with the execution of the project, and they have chosen atmosfair – a renowned expert in solar project development and implementation that include social elements – as a partner.

— **What do you like most about this project?**

The people in Mam Rashaan do not just get a solar system deposited in front of their door but can actively contribute to its construction and maintenance. They thereby do not only receive climate-friendly electricity but also professional qualifications that can come handy later. There is room for the project to expand further and it is sustainable: even if the camp was to be dissolved in the future, the electricity can still flow into the national energy network.

Introducing our on-site project team



Local Project Manager Hoshyar Rassamt

Hoshyar Rassam is atmosfair's local project manager. He is in charge of communication with the local authorities and of supervising the installation process. 17 years ago, Hoshyar moved to Sweden with his family, but he quickly returned to his home country, which he now supports with his technical expertise and entrepreneurship. He lives in two different worlds and tries to bring the best of each into the other one.



The camp manager Shero Smo with Sarah Mush from bw-i, Dietrich Brockhagen and Nele Erdmann from atmosfair

Shero Smo is Mam Rashaan's camp manager. He has been actively involved for five years to provide humane lodging and long-time perspectives for refugees in the camp. As head of the camp he is well aware of the urgent need for a daytime energy supply – he supports the project with all his heart.



Hazim Khdeda Mishko and family

Hazim Khdeda Mishko works as a technician in camp Mam Rashaan. He will receive training for the installation and maintenance of the solar power systems. Hazim had to leave his home with his family to escape from the IS terror militia and found shelter in Mam Rashaan, where he shares one of the 1,800 containers with his family.

Project news from around the world

Rwanda

Technology: Efficient Save80 stoves

Number of houses equipped: 30,000

Progress in 2017: More than 5,000 additional Save80 stoves were assembled and sold in Rwanda. UN auditors have confirmed savings of 100,000 tons of CO₂ on-site. Additionally, atmosfair expanded its cooperation with agricultural cooperatives and teacher associations.

Project partner: Safer Rwanda, Rwanda Women Network (NGOS), UNHCR



Ethiopia, World Food Programme

Technology: Mirt and Tikkil stoves

Number of distributed or sold stoves: 22,000

Progress in 2017: In 2017, and after the devastating drought that struck Ethiopia, atmosfair's partner WFP (World Food Programme) had to engage mainly in emergency assistance. WFP assists governments and communities by providing ecological solutions for climate change adaptation, such as reforestation of eroded areas and hydraulic engineering solutions in arid areas. Logging and the resulting erosion of the soil are growing problems that need to be addressed. Hence, the WFP continues to rely on our efficient stoves.

Project partner: World Food Programme



Dar es-Salaam

Technology: Composting facility

Progress in 2017: In August 2017, atmosfair held an information session for residents, local experts and environmental organizations in Dar es-Salaam. The goal was to inform city residents about the composting plant project. Participants engaged in the discussion, raising questions and suggestions. These ideas have now been incorporated into the project's realization. Last year, all participants agreed upon a collective implementation meaning construction can be launched in the beginning of 2018.

Project partner: Free and Hanseatic city of Hamburg; Kinondoni district, City of Dar es-Salaam.



Egypt drinking water system

Technology: Solar-powered water purification system

Progress in 2017: In January 2017, atmosfair produced a short film about the SuMeWa-system (Sun-Meets-Water), operating since October 2016. Plus, one year following the installation, interviews have been conducted among the users, thereby concluding the post-installation study.

Project partner: Deutsche Hospitality (formerly Steigenberger Hotels AG), AUTARCON, The American University in Cairo (AUC)





Indonesia

Technology: Composting facility

Project scope: household waste from 8,000 households, 15 recycling centers

Progress in 2017: The number of recycling centers participating in the KIPRAH Programme has increased from 12 to 14 and even reached 16 for a while. The amount of household waste that was collected and recycled was increased from 4,500 to 6,500 tons per year.

Project partner: Bremen Overseas Research and Development Association e.V. (BORDA Indonesia), coordinating the BORDA NGO Network (BNN).



Ethiopia Fosera

Technology: Solar Home Systems with LED lamps

Number of sold units: 4,700

Progress in 2017: The project saw a steep increase in Solar-System sales compared to the previous year. Overall sales have more than doubled. The government however still limits FOSERA Ethiopia's access to foreign capital, thereby hindering any further expansion of the project

Project partner: FOSERA Ethiopia and FOSERA Germany, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)



FlixBus load bikes

Technology: electrical load bikes

Number of distributed bikes: 5 bikes and 5 trailers

Progress in 2017: The non-profit organization Foodsharing e.V. was founded in 2012 with the intention to save food from unnecessary waste. Since 2016, climate change mitigation donations from Flixbus customers allow the industrious Foodsharers to save food products in five German cities with the help of electric load bikes. And in 2017, the company Carla Cargo has supplied these local groups with electrical trailers. The trailers can also be used as motorized handcarts; they can cover up to 40 km and carry up to 150 kg.

Project partner: FlixBus, Foodsharing e.V.



Lesotho Solar

Technology: Home Solar Systems

Progress in 2017: The project's planning phase was concluded successfully end of 2017. During an on-site meeting, local political, industrial, NGO and consumer representatives discussed the solar system's contribution to the country's sustainable development. After receiving such positive feedback we decided to launch the project.

Project partner: Solar Lights (Pty) Ltd (medium-sized businesses in Lesotho)



Climate Trek Nepal: reconstruction through sustainable lodge designs

An atmosfair project in cooperation with the forum anders reisen and local businesses in Nepal

Three years after the devastating earthquake in Nepal, atmosfair is still engaging in emergency relief in the heavily affected district Sindhupalchok north-east of Kathmandu.

In cooperation with seven villages, we are now supporting the creation of the country's first climate-friendly trekking path. The "Climate Trek Nepal" bridges reconstruction and sustainable tourism – a crucial sector in a country like Nepal that relies heavily on tourism as its main income. Throughout the last year, we have developed designs in cooperation with twelve lodge-owners for the lodges set along the trekking path. The engineering firm Scott Wilson Nepal joined us in June and our partner organization Samarth commissioned the architecture firm Traditional Hospitality.

The climate-friendly lodges will be equipped with sustainable energies and a particularly environmentally friendly design.

Following particular eco-standards allows energy savings during the construction process. The first drafts make provisions for the use of local raw materials, such as wood, clay and natural stone. Especially for the use of clay, the lodge owners receive instructions from the engineering firm. Additionally, leftover material from destroyed houses will be reused.

An important factor is orienting windows and terraces towards the South, in order for the lodge owner to use the sun's warmth as passive heating during daytime. According to the financial capabilities of the lodge owners, as many rooms as possible are to be equipped with insulating material.

After reviewing the drafts, the engineering firm customized each individual lodge and location. A significant part is making the constructions earthquake-proof.



Prototype of a lodge designed by Traditional Hospitality (2017)

After the traumatic events of 2015 when many people living along the trekking path lost their homes, making today's constructions earthquake-proof is a prerequisite for long-time stability, securing the sustainability of the investments into the climate trek.

Since 2017, Scott Wilson has been advising us in the purchase of building materials, the use of renewable energies as well as for the entire reconstruction process.

Many lodge owners have already started to reconstruct their houses following the new design, but construction pace heavily depends on each family's situation. Thus, construction progresses very different along the trek. The deadline is autumn 2018, when the trek is opening. First tours have already been sold - and sold out! – by the travel agency Hauser Exkursionen, member of the forum anders reisen and key partner in the project, and the very first adventurers will be able to discover the climate trek.



Individual Design - Lama Guest House, Chipling.



Construction of a lodge in Chipling



Lama Guesthouse, Chipling

Climate and awareness building: atmosfair expands education work at schools



More „Germanwatch climate expeditions“ with a focus on mobility

Together with Germanwatch and Geoscopia we have launched the „Germanwatch climate expedition“ with a focus on mobility and travel in 2015. After a successful pilot phase, we were able to expand our offer considerably in 2017 and to carry out 50 climate expeditions about mobility.

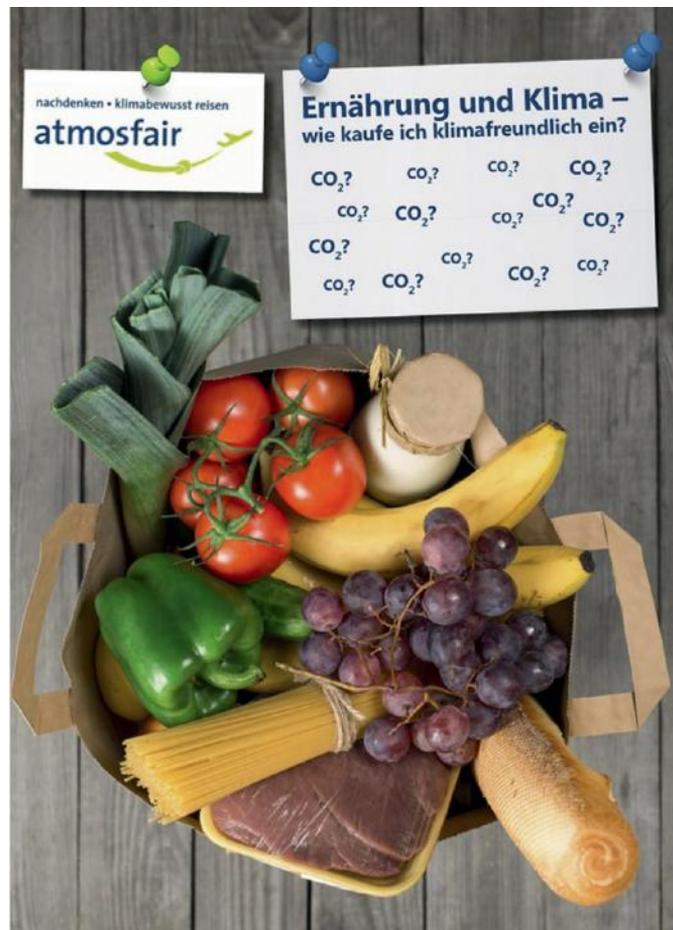
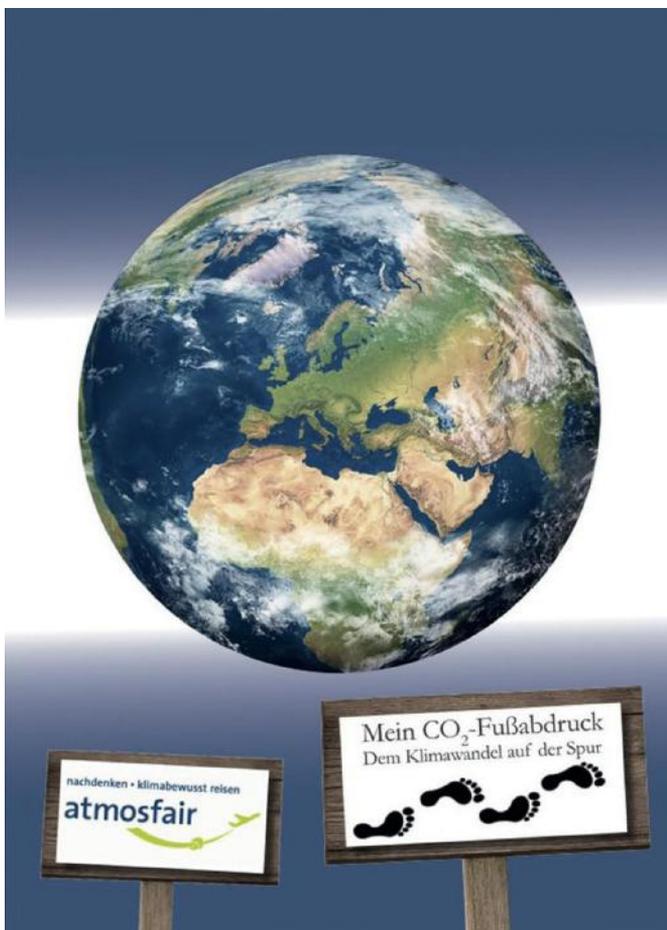
For financing our project, we also work together with external donors, which have contributed significantly to the project's success. In the course of climate action, Aldi Süd has financed the execution of around 30 climate expeditions in the year 2017 and another 40 climate expeditions by the end of 2018.

The „Germanwatch climate expedition“ turns all eyes on earth: from space down into the green classroom.

During 90-minute long interactive teaching units, the students elaborate on the subjects of climate change and raw material extraction through live satellite images and the comparison with archive images.

New cooperation with Umwelt-Aktion e.V

We are happy to have partnered up with the Deutsche Umwelt-Aktion e.V. In close cooperation, we have developed two new teaching units in the course of the summer 2017, „my carbon footprint“ and „nutrition and climate“. Both themes have already successfully been presented at primary schools in Hamburg in autumn 2017: over 100 classes have booked our climate modules!



An integral part of the new teaching units „My carbon footprint“ and „Nutrition and climate“ are two 8-paged workbooklets. They accompany the teaching unit and offer the opportunity, the come back on the theme and further develop it.



How can we be fair to the atmosphere? – Climate change in the classroom

„How can we be fair to the atmosphere?“ – All 18 fingers rush in the air; the children from 4A know exactly what exhaust fumes are and who suffers from them. They are well acquainted with the concept of climate change and its inherent injustice. It is a special day for the children of this primary school in Hamburg as we address a subject that affects us all, and them especially. Today, we talk about their future and everyone is eager to participate. After an hour spent on physical experiments and analyzing pictures of faraway countries, many questions have been asked and many explanations have been delivered – the debate is in full swing. “I find it fascinating how heat travels in and out of the earth’s atmosphere“ explains one of the children after the lesson.

“I liked the stories with the children in the different countries“ shares another, and her friend adds: “I liked all of it“. At the end of the lesson the teacher asks: “Is there anything you did not like about this lesson?“ „That we have to stop!“ the class boasts back. In this school in Hamburg, the teaching unit “My carbon footprint“ is a huge success.

Last November, atmosfair and Sabine Merkle, an environment educator working for the Deutsche Umwelt-Aktion e.V. (German Environment Action) both visited the primary school in Hamburg.



A simple experiment enlivens the subject and makes the abstract theme more accessible. A lamp, a globe, a Plexiglas shell and a thermometer show how the greenhouse effect works.



Crayons, multiplication tables and a few spot-on questions are the pupil’s efficient tools to investigate their own carbon footprint.

The school accepted atmosfair's complimentary offer to bring the climate change debate into the classroom. The teaching module addresses the causes and consequences of climate change but also touches upon what individual contribution can contribute to climate change mitigation. Sabine Merkle guides the students through an age-relevant questionnaire and helps them determine their carbon footprint. Climate change directly affects the children and their daily lives, which makes them eager to learn. After the module, the class collectively puts together a list of concrete solutions on how to reduce carbon emissions. There are plenty of possibilities and the children have no problem coming up with good ideas, such as taking the bike or public transports rather than a car; avoid wasting electricity and heat and taking long transport routes into consideration when buying food.

Given the critical contribution of food production in carbon emissions, atmosfair has developed and dedicated a second teaching module on the subject, in cooperation with the Deutschen Umwelt-Aktion e.V. This module takes the children shopping and helps them discover the carbon emissions 'contained' in their food. Unlike 4A, the class 4C chose the module "nutrition and climate". This module also rapidly sparked the children's interest – they impatiently await their turn to fill their shopping cart and put their items on the "climate scale". The scale allows to

Education and raising awareness – bringing social change

Technical progress is essential if we want to stay within the 2°-limit – but a change in our consumption habits is just as important. The earlier the learning process takes place, the better. Studies have shown that a growth in knowledge has a positive effect and can therefore influence people's actions.

A team of researchers from Switzerland and the USA published their findings in the scientific journal *Nature Climate Change* (6/2016). They concluded that "higher degrees of knowledge about the causes of climate change are linked to higher levels of concern [about climate change]". Especially awareness about the consequences of climate change leads to an increased willingness to commit to climate protection. Already in 2015, a group of scientists from the USA had conducted a study about climate change awareness and interviewed people from 119 different countries (*Nature Climate Change* 5/2015). The results show that education generally increases climate change awareness. However, many people – despite being well-informed – still do not consider climate change to be a personal threat, especially in industrial countries. Thus, atmosfair tries to bridge theory with practice in order to sensitize students about climate

visualize the amount of carbon emissions entailed in the item's production process. This stimulates the children to question their consumption habits in a fun way. It is delightful to see how straightforward and determined about consumption habits they are and if it was up to them, our yearly carbon footprint would look much better.

Interactive and appealing materials

The children's interest in climate change is inspiring. The appealing teaching materials we developed help inciting the pupils to participate. In addition to storytelling, pictures, experiments and games, we have developed a booklet for each module, which accompanies the lesson and gives the children a chance to come back to the subject later on and further develop it.

The success of both teaching modules speaks for itself. We've launched "My carbon footprint" and "Nutrition and climate" in autumn 2017, and the modules have already been carried out in around 100 school classes in Hamburg and over 100 classes in Berlin. During the course of the next semester, atmosfair will expand its offer to schools in Hannover and Magdeburg. Hopping from city to city, our goal is to reach at least 10,000 students in Germany by the end of 2020.

change. Knowledge resulting from personal and practical experience moves the students and sustainably alters thinking and behavioral patterns. The "Germanwatch climate expedition" and our educational offers "My carbon footprint" and "Nutrition and climate" were created based on this approach, as well as the energy saving initiative "fifty/fifty" and the nationwide school competition "Energiesparmeister" (energy savings master) – initiatives we have been promoting for numerous years.



Interactive teaching



1967



1987

2017

Sources: airliners.net, @zhanggm969, Shimin Gu

Climate-friendly air traffic, an oxymoron?

Decarbonizing air traffic

When comparing photographs of commercial aircrafts from the years 1967, 1987 and 2017, it is difficult to point at any differences. The concept stayed the same: wings with jet engines hung underneath and a long tube for the passengers ending with the tail unit used for steering. This basic design is what the pros call “Tube & Wing” and it has not changed in 50 years.

However, the inside has undergone drastic changes. Aircrafts have become lighter; aerodynamics and efficiency have improved. In 1960, a Boeing 707 would consume ten liters per passenger per 100 kilometers on long-haul flights; today an Airbus A350 only needs three. This applies to all commercial aircrafts. Over the last 60 years, carbon emissions were reduced by 60% per passenger, a rate of 1% a year.

Unfortunately, it is not enough. In order to limit global warming to 1.5°C, with a probability of at least 50%, as specified during the Paris climate conference in 2015, humanity only has a ‘budget’ of 200 Gt of CO₂ left. By 2020, air traffic alone will require one gigaton of CO₂ and double by 2030. If we were to include the added severity of pollutants being emitted at high altitudes, such as the creation of cirrus clouds etc., this would mean that flying alone would consume half of humanity’s admissible carbon budget and the carbon budget would not be able to fit other sectors of the world economy, such as agriculture, steel and cement production, road traffic, consumption etc. – hardly a terrific plan.

Flying carbon free by 2050 – a necessity

The slow and constant improvements in carbon efficiency as at present are not enough. By 2050, flying has to become carbon-free, and other sectors of the world economy have to be decarbonized as well. Following this mindset, the Deutsche Bahn has set itself the goal of completely decarbonizing its trains by 2050. Other companies are following the same path.

One particular feature of air traffic sets it apart from other sectors. It is called the snowball effect and is dictated by physical laws making it hardly negotiable.

The snowball effect, or:

How many kilograms of energy does an aircraft need to transport one kilogram of load?

1. 1 Kilogram of load requires
2. 1 additional Kilogram of uplift for the plane
3. Uplift comes with a price – air resistance increases
4. More energy is needed from the engines → need for larger engines or more kerosene
5. Larger engines or more kerosene weigh more
6. Increase of the aircraft's weight (by less than 1 kilogram)
7. Go back to step 1

Every additional kilogram of load makes the aircraft heavier, which in turn requires larger engines and more kerosene etc. The seven-step process shown above has to be run through multiple times before the initial kilogram can be transported.

Example Airbus A380

Maximum take-off weight: 548 Tons
 divided by = snowball effect of 6.6.
 Payload: 83 Tons

Almost 7 times more mass are necessary for aircraft and fuel, than can be transported with it. For a truck this is reversed: from 40 tons total weight, 27 are payload; a factor that sets aircrafts apart from cars and trains, as the weight of the latter does not have to be held up in the air. Flying is energy-intensive.

What works? Alternative n°1: new designs

Can we make flying carbon-free faster? The constant but small improvements in efficiency are not enough, but what would happen if the whole aircraft was redesigned?



Model glider



Boxwing

Gliders are leading the way: their slim and long wings keep the twirl at the end of the wing, where pressure from above and below meet, and its decelerating effects small. In order for wings to become more streamlined without losing lift capacity, they have to become longer. As a consequence, the wings would have to be folded to fit inside aircraft hangars, which gave them the name of “box-wings”. These can save up to 20% more than their predecessors.



Blended Wings

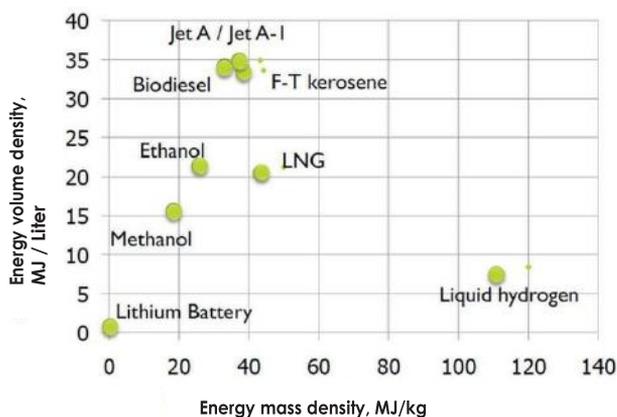
Another alternative are “blended wings” – a fusion of body and wings. In this scenario, the body itself becomes a lift-element and smooth transitions between aircraft and wings will delight all aerodynamics enthusiasts. These aircrafts will allow to cut fuel consumption by 30% and could be fully operational by 2050.

There is no quick fix

And that is the main issue: with the climate clock ticking, these developments will not be ready on time. If in the past it took 10 years for a concept to reach the market, today this timeframe lies at about 20 years. That is how long it took for the global aircraft fleet to switch from conventional hydraulic steering of tail units and other flaps to electrical steering through small electric engines.

Electrical aircrafts?

Unfortunately, the snowball effect also applies to electrical flying. An efficient aircraft will either require an energy source with a good energy to weight relation, such as hydrogen, or of energy to volume, such as kerosene. A common lithium-ion battery performs 50 times worse than kerosene. Given the current state, fully electrical aircrafts can be no larger than small transporters and only fly short distances. Production could be launched in 2030. For long-haul flights however, the capacity of today's batteries would have to increase dramatically.



Alternative solution n°2: new fuel

New types of fuel could feature the same energy density as kerosene, making them aircraft-compatible. These fuels can be divided into three categories:

- HEFA / HVO – Hydroprocessed oils and fats
- Biomass fuel
- Power-to-gas (kerosene from renewable energies)

HEFA: This fuel is based on vegetable oils and animal fats that are transformed into kerosene in refineries. Even though waste fats from plants such as *Jatropha*, *Camelina* or algae can be used, palm oil and palm fat are the much-preferred option, in turn opening a new chapter in the plate-or-tank conflict over land use. Even if conflict could be avoided with *Jatropha* and *Camelina*, which do not require good soil to grow, they have not proven profitable enough in the past.

Overall, the use of bio fuels has proven to be problematic: the carbon savings are much smaller than anticipated, if not negative. Many calculations ignore the fact that the land used to grow agrarian products would be used in any case, be it for bio fuel or not. Palm oil, sunflower or soybeans all bind CO₂ while growing, be it for comestible use or not. Even though the use of this resource is already widely spread, it will not be able to solve the air traffic's emission problem.

Fuels based on biomass use solid biomass like wood, household waste or agricultural waste and transform them into synthetic gas, which can in turn produce hydrocarbon chains through a chemical process and energy input, which are the foundation for liquid fuels.

The technology however is relatively complex and thus commercialization is taking its time. In Germany, one major project has already failed, making a major contribution to the production in the near future very unlikely. But even if the technological barriers were to be overcome, raw material availability would still be a major challenge.

Kerosene from renewables: This process mixes CO₂ and hydrogen to a synthetic gas which can generate synthetic kerosene through a chemical process under electrical input. The CO₂ can be extracted from existing biogas plants, cement and steel production or even directly from the atmosphere. The kerosene would then be carbon-neutral as the aircraft only emits the CO₂ that was previously sucked out of the atmosphere.

All the different steps of the process are well-engineered, but the overall chain presents high conversion costs. If for an electrical car, starting with 100 initial electrical units, only 70 reach the street through the battery and engine, the same result for an aircraft running on renewables kerosene would be 10 units, and even less if the CO₂ had to be sucked out of the atmosphere first. The plate-or-tank issue is therefore avoided, but the process still requires extra areas for solar energy plants or wind farms. On a large commercial scale, these would probably lie in countries with high levels of solar radiation and large unused areas, such as deserts etc. But most of the countries in question do not even provide their own population with energy – sparking an ethical debate over developmental justice. Should we use electricity to produce relative luxury goods like kerosene when the local population still lacks basic necessities?

In short: there are no easy solutions for climate-friendly flying. The technical potentials in airframe and engine design bring a valuable contribution but are too small and too slow to allow a decarbonization by 2050. Regarding alternative fuels, only kerosene from renewable energies has the potential to bring about climate friendly flying in the future. It is however a very complex process that requires very large amounts of renewable electricity, which itself is still needed for the global energy transition.

atmosfair wins government contracts in Switzerland, Germany and Liechtenstein

During the past year, atmosfair received confirmation of two additional government contracts issued by the German government. We applied with the small biogas plant project in Nepal and the energy efficient stoves in Nigeria and Rwanda. All projects were approved in both contracts – a gratifying feedback for our teams in Berlin, Nepal and Africa.

Consistent project criteria apply: how well do the projects support climate and social policy in the country? Besides carbon savings, what possibilities of development does the project bring for the local population? Is the calculation of greenhouse gas savings coherent and has it been verified by liability-bearing auditors? Do the projects support the climate-policy goals of the German federal government? Regarding greenhouse gas emissions, the German government places great emphasis on including non-carbon related effects, such as the formation of contrails and ozone in high altitudes. Just like atmosfair, it follows the standards provided by the Federal Environment Agency.

The governments of Switzerland and Liechtenstein renew their offsetting with atmosfair

Last year, the governments of Switzerland and Liechtenstein have set a bid for the offset of their carbon emissions related to government travel. atmosfair obtained both contracts and thus received several hundred thousand of euros for climate change mitigation projects.



A family filling its biogas plant in Nepal



Rwanda, women working at the local stove assembly



Nigerian family and their new Save80 stove

Greenpeace Energy: „United in our fight against climate change“

The green electricity provider Greenpeace Energy eG and atmosfair have been working together since 2017. In his interview, Greenpeace Energy's own Matthias Hessenauer explains why the new windgas technology is more ecological than biogas, which emissions are inevitable on our way to an energy transition and what the campaign "Hate helps" entails.

Why is Greenpeace Energy working with atmosfair?

Most travel activities are not yet fundamentally carbon-free. Therefore, all of Greenpeace Energy's carbon emissions produced by travelling and events are offset with atmosfair. Furthermore, atmosfair is a trustworthy and strong partner and extending our cooperation just seems to be a logical step.

How does your partnership work?

The partnership is multi-faceted. On the one hand we would like to win over offsetters as new customers for Greenpeace Energy. Offsetting translates a certain awareness and switching to climate-friendly electricity could correspond to their profile. For every new customer that comes to us via atmosfair, 30 Euros are donated to the stove project in India, giving people the opportunity to make a contribution not only to atmosfair but also to climate change mitigation.

On the other hand, *proWindgas* has allowed the introduction of wind-gas to the market. It promotes a technology that can store wind power. At this early stage, a major part of the technology still runs on fossil fuels, but we are planning on increasing the amount of renewable hydrogen. We therefore offer our clients to offset the share of fossil energy via atmosfair, and so far, we have financed 61 stoves in West Bengal.

Why did Greenpeace Energy choose the project in India?

The world's largest mangrove forests are situated in West Bengal. They are a natural barrier to heavy storms and the consequences of rising sea levels. The Ganges Delta has seen a significant increase of population and, consequently, a rise in timber consumption, which has in turn led to a reduction of this unique ecosystem and had significant consequences for the regional biodiversity, threatening for example the survival of the Bengal tiger.

Living conditions also suffer from climate change. The energy efficiency, the possibility of using less resources for cooking and the additional incomes for the families have motivated us to support this project.



Matthias Hessenauer, Greenpeace Energy

What added value does atmosfair bring to Greenpeace Energy?

For us, atmosfair is a partner that helps us ameliorate our carbon footprint in a sustainable fashion. atmosfair offers a reliable and transparent opportunity to offset unavoidable emissions. Of course, our long-term project is to render energy provision fully carbon-free, but it is still currently impossible in the gas sector. Beyond that, it is important to stay in contact. Even if we are not active in the same way, we stay united in our fight against climate change. Bringing different actors together is always worthwhile and atmosfair is a wonderful partner.

Greenpeace Energy is the first energy provider to offer a gas supply that promotes innovative power-to-gas technology. What targets were set with *proWindgas*?

proWindgas is a key technology for a successful energy transition. Until now, renewable energies could only be stored for a short period of time. With *proWindgas* and the use of electrolysis, wind and solar electricity can be stored in the regular gas network as renewable hydrogen (and renewable methane). Should our energy networks system be switched to renewable energies, in a period with no wind or sun, Germany would still need electricity access. The power-to-gas technology can span over many weeks, as the gas is converted back into electricity in flexible gas power plants. *proWindgas* can supply all of Germany with a 100% renewable energy source, meaning we can shut down the coal power plants without losing any supply guarantee.

From an ecological point of view, we prefer *proWindgas* over biogas. First, we avoid problems over land use. To cover Germany's demand for renewable gas with biogas, we would need twice the amount of land that is currently available in Germany.

For the moment, biogas is still produced in industrial agriculture through the use of energy crops, such as maize, and from intensive livestock farming – which pose serious threats to soil fertility, the diversity of species and the quality of the groundwater. Additionally, this practice generates an increase of land prices and weighs against the expansion of organic farming. Thus, Greenpeace Energy does not include biogas in its gas mixture.

• **How important is climate change mitigation for Greenpeace Energy?**

Greenpeace Energy was founded to accelerate a withdrawal from nuclear and fossil energies, such as coal. Climate change mitigation is in our DNA.

• Based on the idea of “Hass hilft” (“hate helps”) and in order to celebrate Greenpeace Energy's 18th birthday, you've rewarded each of the 11 best 'hater emails' with a donation of 100 Euros to *atmosfair* – what effect were you looking to achieve?

“Hass hilft” is an extraordinarily charming initiative – hostile attitudes are beaten with their own weapons. Some of our critics question the existence of a human-made climate change and others call us “eco-fascists”. Plus, we receive a lot of negative comments from the pro-nuclear sector, people who have a completely different world view to ours. So, we decided to counter right-wing discourse with donations to climate change mitigation.

• **What would you like to see develop in this partnership?**

My wish would be to motivate even more people to act for climate change mitigation. Equally, I hope that more people who donate to *atmosfair* will step away from nuclear and coal electricity and chose an environmental-friendly supplier and help stimulate technological innovations for a climate-friendly energy supply.

„Industry initiative over competitive thinking!“ - Climate protection at ISA-TRAESKO GmbH

For 30 years, *Isa-Traesko GmbH*, a shoe manufacturer and trading company with its own procurement organization in Asia, has been a supplier of the global shoe market.

In her interview, head of corporate responsibility *Juliane Michel-Weichenthal* outlines the reasons for which *Isa-Traesko* chose *atmosfair*.

• **atmosfair: Ms Michel-Weichenthal, what led you to a partnership with atmosfair?**

Juliane Michel-Weichenthal: Conciliating economic success with social and environmental responsibility has always been a core element of our family business. At our location in *Neumünster*, we encourage our coworkers to submit sustainability projects. These can range from large, such as solar panels or electromobility with charging stations, to small initiatives, such as reducing printing or drinking locally roasted and sustainable coffee.

In 2016, we systemized the process. The German Global Compact Network showed us how we could calculate our carbon footprint as a company. We wanted to offset all relevant emissions that could not be reduced – including business travel – through a reliable and transparent partner. We quickly stumbled upon *atmosfair*.

• **What motivated your choice of the Tonk project in India, transforming crop residues into electricity?**

India has always been a reliable market for high quality shoes and we have regular suppliers there with whom we have happily been working with for many years.

Our numerous trips to India made the country grown on us and we are thrilled to participate in such an innovative project. But on the long-term, we could imagine supporting an additional project, in China for instance, where we have many partnerships with manufacturers.



Mustard harvest in India

• What responsibilities do German companies have in the global market?

While it is easy to implement climate-friendly actions in Neumünster, they are more challenging when it comes to our global supply chain. We have to face the resulting responsibility as an importer but also as a corporate group. The many exciting sustainability initiatives that are flourishing everywhere make me confident in the belief that more and more market players will ally in order to work together. No company can take on the systemic change that is necessary to the textile and shoe industry on its own. Competition and competitive thinking must step back to leave their place to industry initiative for tackling global challenges.



Mustard crop residue power plant: Weighing the residues



Juliane Michel-Weichenthal and the suppliers in the Tamil Nadu state in southern India

Airline Index 2017: Only one percent of aircrafts are highly efficient

For the 23. UN climate conference in Bonn 2017, atmosfair presented its yearly ranking of the most climate-friendly airlines. The result is sobering. The world's airlines are only slowly putting efficient and modern aircrafts in operation. Compared to the most efficient aircrafts, such as the Airbus A350-900 and the Boeing 787-9, the most efficient airline fleets still produce 20% more carbon emissions. Airline fleets with a medium carbon efficiency in technology and operations emit more than double as much as the most efficient aircrafts. Only 1 out of 100 aircrafts are classed as highly efficient.

The world's carbon emissions increased by 4%, while the number of flown kilometers increased by around 7%. The necessary decoupling of traffic growth and carbon emissions is not yet in sight.

The AAI shows that new aircrafts such as the Boeing 787-9 and the Airbus A350-900 can bring consumption down to less than 3.5 liters of kerosene per passenger per 100 kilometers on the most fuel-intensive trajectories. The A319 with sharklets is its medium-haul pendant.

These new aircrafts put the carbon-efficiency bar very high. Thus, airlines with an unchanged fleet or whose new aircrafts show little improvement perform more poorly in the AAI 2017.

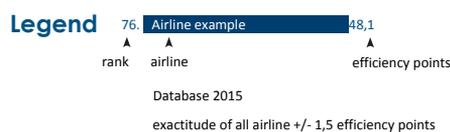
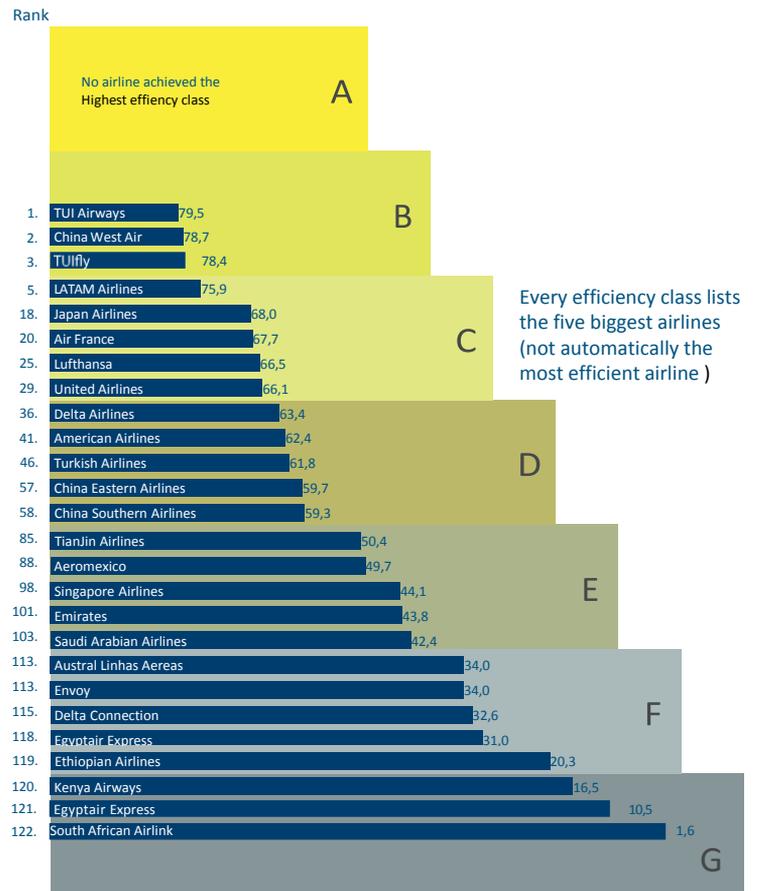
As these aircrafts do not dominate in any airline fleet, none of the airlines reach the highest efficiency class (A) and only three rank in the efficiency class B (compared to 10 in the previous year).

By reaching 80% of the possible optimum, it is again a charter airline that reaches 1st place in the atmosfair ranking - the British TUI Airways (former Thomson Airways). Third place goes to its German sister company TUIFly.

Second place goes to China West Air. This regional airline is the first Chinese airline in the top group for the second year in a row. Out of the world's top 50 most efficient airlines 16 are from Europe and 10 from China.

In relation to its competition, Lufthansa, Germany's biggest airline, improved its results and managed to reach rank 65 (efficiency class D) despite the sharpening of the standards. Compared to previous years, Lufthansa attained higher efficiency by improving its fleet's utilization.

AAI 2017 Evaluation medium-haul flights (from 800 km to 3,800 km)



What's on in Berlin

Sunfire wins Kanthal® Award

The Sunfire GmbH, which received the Kanthal® Award in October 2017, made a generous 5,000 Euro donation to atmosfair. The prize was awarded to Sunfire for developing a process converting regenerative electricity, carbon and water into synthetic gas. This energy source could be a game changer for carbon-neutral fuels and for a climate neutral future. The prize money however is not intended for the awardee but is to be transferred to a non-profit organization that follows principles similar to those of the Kanthal® Award: sustainability, health and safety. Thank you Sunfire for your support!



Kanthal Award: Dietrich Brockhagen, CEO of atmosfair and Niels Aldag, CCO of Sunfire

China is getting ready for CORSIA

In September 2017, atmosfair welcomed a Chinese delegation of airline, airport and university representatives. While touring through Germany with the support of the GIZ, the delegation collected and transmitted new insights about international climate change mitigation in the transport industry. During the meeting, CEO Dietrich Brockhagen presented atmosfair's offset schemes along with preparation advice regarding the "Carbon Offsetting and Reduction Scheme for International Aviation" (CORSIA) that will become effective in 2019.



High-ranking Chinese airline official's visit at the Berlin office

Touring exhibition "Deutschland Energiewende" (Germany Energy Transition)

The touring exhibition "Deutschland Energiewende" is a gripping educational course on the German energy transition that also promotes international cooperation and sustainable energy sources. The exhibition was designed by the GIZ in cooperation with many service providers and commissioned by the German Federal Foreign Office. Overall, six different versions in different languages of this interactive exhibition have been touring the world since 2016 and have attracted enthusiastic visitors at more than 30 locations. The travel emissions are being offset with our biogas power plant in India.



Presentation of the carbon offset certificate at the Foreign Office in February 2018

Energy supply for the refugee camp Mam Rasha

Together with the foundation Stiftung Entwicklungszusammenarbeit Baden-Württemberg (SEZ) and the German state Baden-Württemberg atmosfair gave life to the project “Energy for Mam Rasha”. 10,000 refugees based in Northern Iraq will be provided with sufficient electricity via renewable energies. The first step of the project is the installation of a 300 kW photovoltaic plant with battery storage, that will then be upgraded through further donations. The goal is to provide 100% electricity supply to the whole camp. This project has been made possible by our project partner the SEZ, our suppliers, major donations of materials and services as well as private donors.



Dietrich Brockhagen and Philipp Keil (Managing Director SEZ) signing the contract

The “Non-financial reporting” (NFR) Webinar – no spaces left!

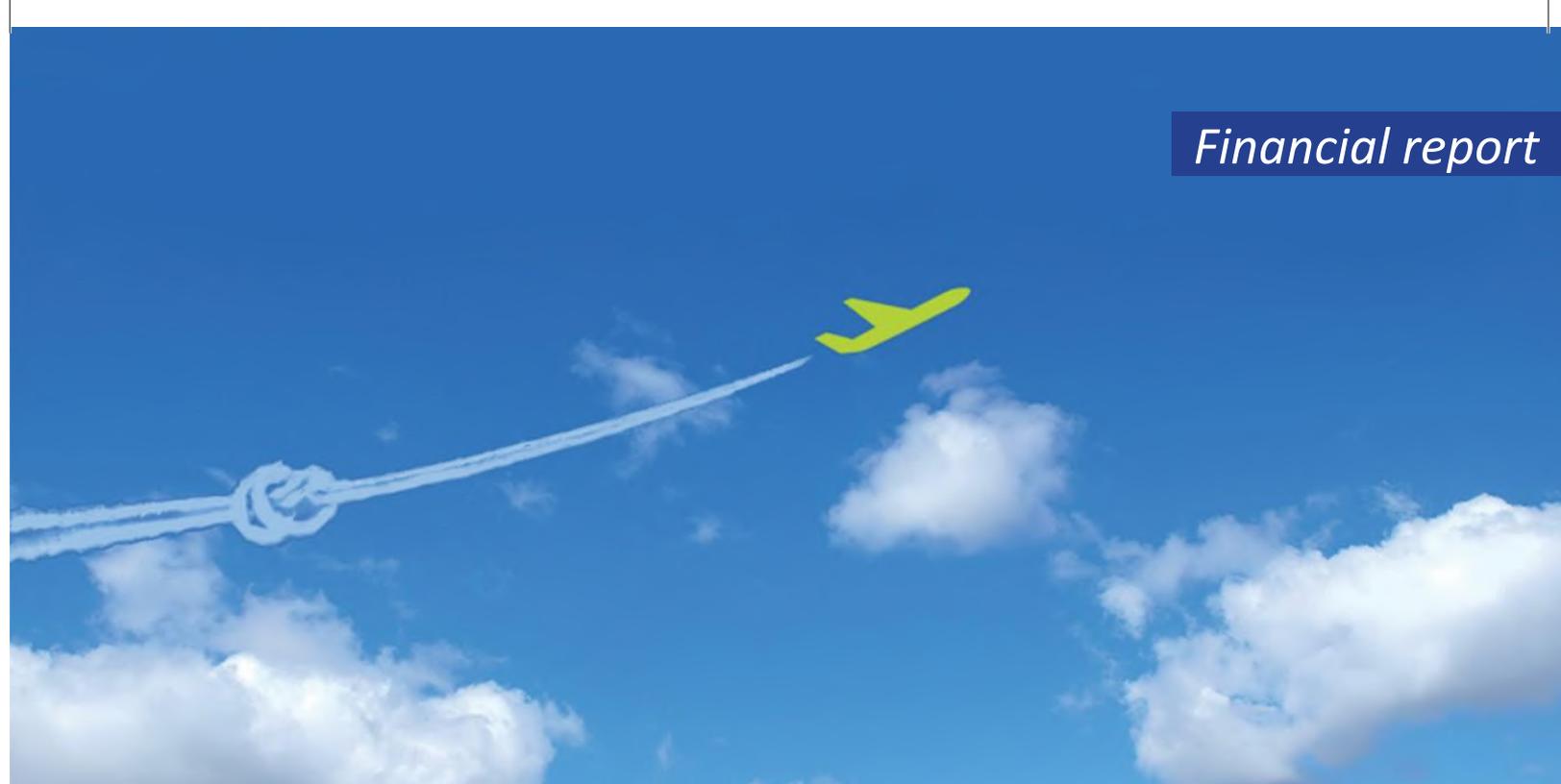
Travel managers of companies, airlines, hotels and VDR-members were all invited to the webinar held by atmosfair and the association Verband Deutsches Reisesmanagement (VDR). We also received support from Attorney Miriam Vollmer from Becker Büttner Held (BBH), who specialized in “non-financial reporting” (NFR). Demand was so high that both webinars were fully booked. Numerous middle-sized businesses, but also larger ones, wanted to establish if they were able to meet the new legal requirements. In 2017, the European CSR guideline 2014/95/EU was transposed into German law. atmosfair assists members of the VDR and other businesses in establishing their business travel related carbon emissions and in diminishing their employee’s carbon footprint.

The attorney’s expertise aligned with our Best Practice progress reports met great interest and raised many inquiries.

Furthermore, at the start of 2018, Miriam Vollmer founded a law firm specialized in climate and energy law called “Recht Energisch” based in Berlin-Charlottenburg. She acts offers advice to businesses and NGOs about the daily and special challenges posed by the Energy Transition and digitization.



Miriam Vollmer, climate and energy attorney at “Recht Energisch” law firm in Berlin-Charlottenburg



Financial report

2017 has been a year of significant improvements for atmosfair; with revenues exceeding € 7 million, 2017 has been atmosfair's most profitable year since its foundation in 2005.

Even in 2017, atmosfair is not yet to receive and/or rely on any government incentives. atmosfair's financial independency is strengthened by the fact that no individual party accounts for higher than 10% of the company's revenue. For over 10 years, alongside donations, atmosfair has been generating incomes by running business activities. This surplus serves to support atmosfair's non-profit activities, keeping the share of income spent on administrative costs, customer care and fundraising under 7%. Since establishment, 90% of all inbound donations were spent on the direct purchase of climate change mitigation technologies. These included units such as energy efficient stoves and solar homes systems, as well as the support of project developers to produce renewable energy; We are proud that only € 10 out of every € 100 is spent on overheads and administrative costs, or resources such as customer relations staff, IT, accounting, rent, PR or credit card fees.

Organization / Non-profit

The foundation Zukunftsfähigkeit based in Bonn continues to be atmosfair gGmbH's sole shareholder. The four-headed advisory board, composed of two representatives of the Federal Ministry for the Environment and of two representatives from environmental organizations, approved the climate change mitigation projects contracted for 2017. In these bodies, no remuneration or compensation was given out. The fiscal authorities certified the non-profit, limited liability company's tax exemption for 2017. For climate change mitigation contributions received in 2017, the non-profit organization issued donation certificates in due form.

Financial independence

In 2016, atmosfair was funded solely by carbon offset donations and in-house business operations (which are permitted for non-profit organizations to a limited extent). By not receiving any state funding in 2017, atmosfair continues to remain financially independent. The sole shareholder, the foundation Stiftung Zukunftsfähigkeit, did not issue any payments to atmosfair nor did atmosfair issue payments to the foundation.

Income and expenses

In 2017, atmosfair generated earnings totaling € 7.1 million. The largest expenditure was the funding of climate change projects. This includes the purchase of technologies (e.g. efficient stoves), project development and implementation, auditing fees by the TÜV and other UN-accredited auditors, as well as the costs of project staff working abroad. In total, atmosfair's gross expenditures amounted to € 6 million, whilst reserves and provisions from previous years were also liquidated. New reserves of € 1.5 million for climate change mitigation were created, including reserves destined for pilot projects.

In addition to the carbon offsetting project expenditures, the personnel costs for project planning and implementation amounted to about € 470,000 in 2017. Since its creation, atmosfair has spent about € 20 million on supporting climate change mitigation projects and contractually pledged funds of another € 15 million to project operators.

Salaries under the collective wage agreements of German federal states (TV-L)

After climate change mitigation projects, personnel expenses were the second largest cost factor. atmosfair's employees earn salaries in accordance with the public sector tariff system of the German federal states (TV-L), project managers being currently paid at level 11 and team leaders at level 13. General administrative costs for telephone, postage and office supplies amounted to around € 30,000; € 69,000 were spent on rent. Credit card fees and payment services also required payment – these are necessary in order to account for incoming online payments and to transfer them onto atmosfair's bank accounts. These amounted to € 14,000 in 2017.

Reducing internal costs

atmosfair strives to maintain the efficient use of donations. Only a fraction of these donations which are not being utilized amongst climate change mitigation projects are to be allocated to internal running costs. These cover administrative costs and customer care.

In 2017, these amounted to approx. € 525,000, which can be broken down into personnel/material costs in the PR department as well as IT, accounting, credit card fees and travel expenses etc. (see figure p.41, blocks b) and c) under expenses).

Reducing costs through self-generated revenues

In 2017, atmosfair earned surpluses through commercial business operations. These services earned a net operating profit after tax (NOPAT) of € 100,000. This was generated through the operation of climate change mitigation projects on behalf of customers, as well as the sales of the CO₂ reporting software and consulting services (corporate climate services). These were used as a contribution margin in order to lower running costs (see figure p.40, expenses, block e)). 2017's low expenditure is also made possible because atmosfair continually avoids of all forms of paid advertisement (e.g. promotion teams) and relied exclusively on gratuitous, content relevant campaigns, such as for the atmosfair Airline Index to gain visibility in the media.

atmosfair gGmbH balance sheet

Assets	Euro	Liabilities	Euro
A Fixed assets	517.992,00	A Equities	6.176.060,83
I. Intangible assets	3,00	I. Subscribed capital	25.000,00
II. Tangible assets	17.989,00	II. Reserves provided for by the articles of association for projects	6.151.060,83
III. Financial assets	500.000,00	Short-term reserves for climate change mitigation projects	
		Available reserves (also for climate projects)	
B Current assets	8.262.507,82	B Accruals	1.959.532,57
I. Inventory	121.551,97	Tax accruals	19.110,49
II. Receivables		Accruals for climate change mitigation projects	1.923.616,00
Trade accounts receivable	791.840,10	Other accruals	16.806,08
Other assets	370.753,26		
III. Cash on hand, bank balances etc.	6.978.362,49		
C Prepaid expenses and deferred charges	1.414,94	C Liabilities	649.697,13
		Trade accounts payable	639.852,77
		Other liabilities	9.844,36
		D Deferred income	0,00
Balance sheet total	8.785.290,53	Balance sheet total	8.785.290,53

Income statement 2017

	2017	2017	2016
Income	€	%	€
Voluntary climate mitigation contribution for climate change mitigation projects	6.553.822	92,1	3.509.649
Climate change mitigation projects on behalf of customers and funds towards the purchase of technologies, before taxes (CBO)*	240.619	3,4	450.281
<i>Sub-total climate change mitigation projects</i>	<i>6.794.441</i>	<i>95,5</i>	<i>3.959.929</i>
CO ₂ accounting software, consulting etc., before taxes (CBO)*	299.265	4,2	202.803
Additional income (interests etc.)	22.454	0,3	22.6346
Total	7.116.159	100,0	4.185.367
Expenses			
a) Climate change mitigation projects for carbon offsetting, private and business customers			
- Direct expenses (Planning, setup, operation, technology purchase, verification, staff in developing countries)	-6.224.992	-87,5	-3.184.906
- Liquidation of reserves from the previous year and non-deductible input taxes	1.701.484	23,9	430.244
- Reserves created for climate change mitigation projects, non-profit section	-1.504.301	-21,1	-179.370
<i>Total</i>	<i>-6.027.809</i>	<i>-84,7</i>	<i>-3.364.276</i>
- Personnel: Project planning and support by atmosfair staff in Germany and in project countries	-470.785	-6,6	-308.766
b) Administrative costs: support for donors and partners, fundraising, public relations work			
- Personnel costs	-259.420	-3,6	-224.557
- Editorial work for PR	-16.206	-0,2	-18.876
<i>Total</i>	<i>-275.626</i>	<i>-3,9</i>	<i>-243.433</i>
c) Other administrative costs			
- Administration (telecommunications, postage, office supplies, insurance, membership fees, depreciation)	-30.380	-0,4	-67.546
- Rent and maintenance	-68.938	-1,0	-64.147
- Credit card fees, payment services, account fees, exchange rate differences	-14.050	-0,2	-12.530
- IT (fees, maintenance costs, server rental fee)	-31.144	-0,4	-50.647
- Accounting, tax advisory services, financial statements, financial auditors	-34.208	-0,5	-64.542
- Printing costs of publications	-7.525	-0,1	-893
- Work contracts	-49.494	-0,7	-37.910
- Travel expenses	-14.649	-0,2	-6.608
<i>Total</i>	<i>-250.388</i>	<i>-3,5</i>	<i>-304.821</i>
d) Commercial business operations: climate service for companies			
- CO ₂ accounting software	-15.572	-0,2	-25.323
- Personnel: climate service for companies	-32.428	-0,5	-28.070
- Taxes on income for climate services and climate change mitigation projects for corporate customers	-43.552	-0,6	-43.279
<i>Total</i>	<i>-91.551</i>	<i>-1,3</i>	<i>-96.672</i>
e) For informational purposes: use of surpluses			
Surpluses from commercial business operations 2016 to lowering administrative costs	103.122	1,4	102.601
Total	-7.116.159	-100,0	-4.185.367
Result after creation of reserves climate change mitigation projects / Use of surpluses	0		0

* CBO = commercial business operations

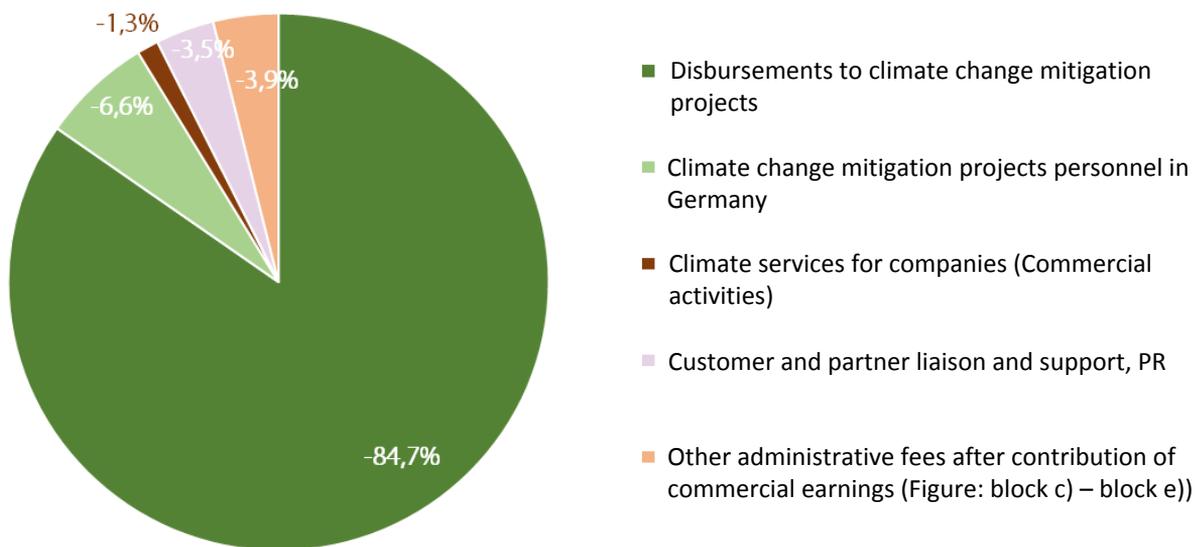
Target achievement

So far, all contracted projects have met the offsetting requirements (see overview, figure p.7). atmosfair has offset more greenhouse gases than contractually required by the contributions.

CEO's review and discharge

The CEO of the gGmbH has drawn up the financial statement on December 31st, 2017. A financial auditor was commissioned to audit the annual report; results are expected in Q3 of 2018. Statutory presentation of the 2016 financial statement to a financial auditor in 2017 resulted in a confirmation from the financial auditor without raising any objections.

Expenses of atmosfair gGmbH 2017 [1000 EUR]



References (Selection)

Companies



NGOs, political bodies and organizations



Climate-friendly events



Partners (selection)

Business travel



Tourism



Climate change mitigation projects



11.11.2017 Der Spiegel



Climate – TUI's head start

Today, modern and efficient aircrafts can transport passengers on complicated routes without consuming more than 3.5 liter kerosene per passenger per 100 km. However, these aircrafts, such as the Boeing 787-9 or the Airbus A350-900 are only rarely put into operation – a shame according to climate protection NGO atmosfair. Currently, only one aircraft in a hundred is categorized as 'highly efficient'. According to calculations by atmosfair, the British TUI Airways is the most climate-friendly airline.

03.05.2017 Der Tagesspiegel



Corporate group ALDI SÜD and ALDI launch online action for climate change mitigation / Virtually produced green electricity generates 50,000 Euro for climate project in schools

Mülheim an der Ruhr (ots) - ALDI SÜD invites its customers to support climate change mitigation without leaving the comfort of their home. On the website aldisued.de/klimaneutral they can now take a virtual walk through the woods, with puzzles to solve about renewable energies. For each correct answer they receive a part to construct a green power plant, all while learning about sun, wind and water power. For every kWh these virtual power plants produce, ALDI SÜD donates 20 cents to two climate change mitigation projects – until reaching 50,000 Euros. In cooperation with the non-profit organization atmosfair, ALDI SÜD supports educational projects about environmental awareness in German schools and provides solar systems to two schools in Ethiopia.

16.05.2017 GEO SAISON



If I told you....

... that the pope thinks that carbon offsetting is hypocritical, what would you say? We asked Dietrich Brockhagen, CEO of atmosfair

"... "Aircrafts pollute the atmosphere, but with a fraction of the ticket price you can have trees planted to compensate the damage you made. Such hypocrisy!" pope Francis recently criticized environmental NGOs. What would you answer? Dietrich Brockhagen:

When a traveler – for example pope Francis – takes the plane, he contributes to global warming that is already affecting people living in the Global South. Now, rather than staying idle, he might as well help reducing carbon emissions by supporting clean technologies. That is exactly what atmosfair does. But I think what pope Francis wanted to express, is that carbon offsetting is only deferring the problem even though it is possible to solve it – and I agree with him.

13.04.2017 FWV



"The project "New Energy for Nepal" has received

the quality seal "project sustainability" from the Council for Sustainable Development.

The Forum Anders Reisen and the climate protection organization atmosfair launched the initiative in 2015, after the earthquake in the Himalayas. It was chosen out of 240 applicants and 67 nominated projects. From small biogas plants over efficient cooking stoves to photovoltaic and water treatment, this concept provides a cheap and resource efficient supply of electricity, hot water and cooking possibilities to the Nepalese region north of Katmandu. "

30.03.2017 ÖKO-TEST



Tourism with a good conscience - fair travel

"...Concerning the climate, air traffic is and stays the main issue. According to Tourism Watch, long-haul flights are responsible for 80% of carbon emissions in the tourism industry. Organizations like atmosfair provide a possibility to at least offset the pollutants. "... " But atmosfair also indicates that offsetting is only the second-best solution – if flying is unavoidable. Unfortunately, a solution too seldom exploited. According to atmosfair's CEO Dietrich Brockhagen, the number of offset flights in Germany only amounts to four digits – a number which he admits to be frustrating in an interview with Öko-Test. The price to offset a medium-haul flight lies between 15 and 20 Euros per flight. "Of course, I understand that there are people who have already been saving up all year to go on holiday and cannot afford it. But there are enough people who spend the same amount on a Latte Macchiato and a sandwich at the airport without hesitating." He emphasizes: "those who step into an aircraft belong to the privileged 5% of the world's population..."

28.12.2017 FOCUS ONLINE



Stuttgart Successful continuation of the

humanitarian project in Northern Iraq "... "After completion of the project in June 2018, the center will be run autonomously by the people in question. Thus, the structures we are building are sustainable." pointed out State Secretary Theresa Schopper "... "

On behalf of the Federal State Baden-Württemberg, the non-profit organization atmosfair has launched a solar project aiming to provide a secured electricity supply and professional qualifications for the refugee camp Mam Rasha near Dohuk, between September 2017 and April 2018. 8,500 people, mainly Yazidi families, currently live in this refugee camp without a secured electricity supply. "With the help of this project, the camp will receive an uninterrupted electricity supply from regenerative sources with technology from the German state Baden-Württemberg." explains Schopper.

25.10.2017 Greenpeace Magazin



Wednesday opinion: flying does not have to be harmful to the climate

No other activity reveals our carbon footprint as clearly as flying. Ironically, it is the CEO of atmosfair who explains in an interview that climate-neutral flying might soon be possible. "... " The process is called PTL – "Power-to-Liquid", explains Dietrich Brockhagen during an interview with the TAZ, and it produces liquid fuels with electricity. However, in order for the concept to conquer the market, renewable electricity has to become much cheaper. In Brockhagen estimations, this will be the case in 2050.

23.09.2017 TAZ



Fare evasion at the climate's expense

Interview with

Robin Köhler with Dr. Dietrich Brockhagen, atmosfair "... "for a regular round-trip flight from Berlin to Teneriffa, atmosfair calculates 1284 kilogram CO₂ per passenger. "How do you come up with this number?" "We can calculate exactly which aircrafts emits how much – carbon and other pollutants – and divide it by the number of passengers. "... " Many passengers refuse to offset their flight because they see it as granting indulgence. However, the money arrives at its destination, carbon emissions are offset and verified, therefore it is not granting indulgence. This argument is often used by people who simply do not wish to pay. In my opinion, it would be acceptable for someone who does not fly to call it that – but claiming to be interested in environmental protection and still fly without even offsetting is not. It is like fare evasion at the climate's expense. "

25.04.2017 Süddeutsche Zeitung



School excursion to London - unfathomable and bewildering

For only two school classes approximately 20.5 tons of carbon dioxide are emitted. At least, these greenhouse gases can be offset through companies like atmosfair via a relatively low price, but the problematic remains. [...] responsible teachers will discuss this subject with their students anyway.

9.12.2017 FRANKFURTER ALLGEMEINE



Climate-friendly Christmas celebrations

"Even Christmas can be damaging to the environment, environmental associations argue – and give tips about how to become more eco-friendly. "... "People who have no choice but flying can offset their emissions through websites such as atmosfair.de. This also works for cruises or whole events – such as Christmas parties and family celebrations."

13.11.2017 Frankfurter Rundschau



FR.de - E-Paper - Multimedia-App

Lufthansa is lagging behind

atmosfair deplores the sluggish speed at which the aviation industry is appointing more modern and energy efficient aircrafts. Only one out of 100 aircrafts worldwide, can be categorized as highly efficient, e.g. the Airbus A 350-900 or the Boeing 787-9. "... "Our results show, that the world's air traffic is not on course, not for the 1.5 °C goal nor for the 2°C goal", says atmosfair's CEO Dietrich Brockhagen.



This is only a small excerpt of a large variety of national and international media voices. 370 – that is the number of pages of atmosfair's 2017 press review, available for download (only in German) on the atmosfair homepage (www.atmosfair.de/en/about_us).

Patrons



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



Prof. Dr. Mojib Latif
Professor at the Helmholtz Center for Ocean Research



Prof. Dr. Hartmut Graßl
Former director of the Max-Planck Institute for meteorology in Hamburg

CEOs



Dr. Dietrich Brockhagen
Physicist and economist formerly held positions at the German Aerospace Center (DLR), the European commission and the German Federal Ministry for the Environment



Steffen Pohlmann
Financial accountant
Accounting and controlling

Management



Dr. Bernd Freymann
Head of the project team



Jakob Völker
Physicist & economist
Authorised signatory



Michaela Thurau
Dipl. BWL & MBA
Renewables
Head of Business Development

Scientific advisory board for atmosfair standards



Christoph Bals
Political director of the North-South organization Germanwatch, has followed German climate policies with a critical eye for 16 years.



Norbert Gröfßen
Head of KI II 7 dept. at the German Federal Ministry for the Environment: mitigation financing, Int. Climate mitigation Initiative



Dr. Silke Karcher
Head of Department at the German Federal Ministry for the Environment (BMUB), Dept. KI I 6 "fundamental questions on European climate and energy policy; new market mechanisms"



Klaus Milke
Chairman of the foundation *Stiftung Zukunftsfähigkeit* and Germanwatch, brings experience and contacts with industry to climate change mitigation

CDM project development



Sven Bratschke
M.A. Global Change Management
CDM Project management



Florian Eickhold
Dipl. in Latin-American studies
CDM expert



Nele Erdmann
Dipl. Wi.-Ing. Energy & Environmental management
CDM Project management



Janine Adler
M.A. Sustainability Economics and Management
CDM Project management



Denis Machnik
Dipl.-Ing. Environmental Science and technology
CDM Project management



Claudia Schoner
M.Sc. Integrated Natural Resource Management
CDM Project management



Julia Hoffmann
M.A. Environmental studies & sustainability sciences
CDM Project management



Bhai Raja Maharjan
Geographer
Nepal Consultant



Allan Mubiru
Economist
Rwanda Country Manager



Toyin Oshaniwa
Environment and Sustainability Management
Nigeria Country Manager



Dr. Katrin Mikolajewski
Geographer
CDM Project management

Customer relations and product development



Bernd Becker
MBA
CO₂-Reporting & Consulting for business travel



Cathleen Herrich
MBA in tourism management
Key Account manager
Travel, Events & CO₂-Reporting



Saskia Sanchez
Freelance, travel agency and sustainability trainer



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Dipl. in Physics
Business Development



Lina Tabea Maguhn
B.A. Business/ environmental management
Social Media



Dr. Henning Kothe
Doctor of internal medicine & pneumology



Anna Lene Maaß
M.A. German studies
Strategic Partnerships & Corporate Relations



Christina Sandig
Master of Education
Educational projects



Beate Müller-Guthof
Public Relations/
Business Development



Bernhard Ellmann
M.A. Philosophy
Educational projects

Weitere Mitarbeiter



Maik Höhne
Industrial engineer
CO₂-reporting for cruises & air travel



Tobias Posselt
B.Sc.-Student
Environmental sciences and technology
HR & Office Management



Thorsten Schmid
Dipl. Geocology
IT Manager



Olaf Schreiber
Physicist
IT coordination & Project management



Lukas Roth
B.Sc. Industrial engineering
CO₂-Reporting & Distribution



Andrea Geldner
Dipl. landscape architecture
Database Controlling and Quality management

Selection:

2018 Stiftung Warentest: "Over the clouds" – Comparing carbon offset schemes

In its magazine "Finanztest" 3/2018, the foundation Stiftung Warentest tested organizations offering voluntary carbon offsetting. "Quality of offsetting" and "Transparency" were some of the included criteria.

Organization	Overall score	Offsetting quality	Transparency	Quote from the tester's report
atmosfair	0,6 (very good)	very good	very good	"Test winner"
Klima-Kollekte	1,1 (very good)	very good	good	
PrimaKlima	1,5 (very good)	very good	very good	
myclimate Deutschland	2,2 (good)	Good	Good	

Source: Stiftung Warentest – Finanztest, Heft 03/2018. Access full article here (download fee € 1,00): <https://www.test.de/CO2-Kompensation-Diese-Anbieter-tun-am-meisten-fuer-den-Klimaschutz-5282502-0/>

"In 2016, all six tested providers offset around 170,000 tons together through private donors. [...] the test winner atmosfair alone accounted for savings of around 130,000 tons..."



Our test winner brochure reviewing all of atmosfair's received awards and distinctions can be accessed via our website: (www.atmosfair.de/en/).

2013 Stiftung Warentest: "Testsieger fürs Fest" - Spendenorganisationen im Test

The chart shows extracts of the test results (selection with a focus on environmental organizations). It contains four organizations of the best category "transparent and well organized" in the original order.

Name of the organization	Transparency	Organization and monitoring
Transparent and well organized		
atmosfair	medium	high
BUND- Bund für Umwelt und Naturschutz Deutschland	medium	high
Greenpeace	medium	medium
WWF Deutschland	medium	medium
Moderate transparency and organization		
NABU Naturschutzbund Deutschland	low	medium
Deutsche Umwelthilfe	low	medium
Bundesverband Tierschutz	low	low
Inefficient organization		
Bundesverband Tierschutz	medium	medium
Vier Pfoten- Stiftung für den Tierschutz	medium	low

"In its annual report, atmosfair offers a detailed account on how the donations are being put to use."

Tab. 19: Gesamtübersicht Bewertung Anbieter

Direkte Anbieter (Privatpersonen/Unternehmen)	Realitätsnahe Berechnung (20%/10%)		Qualität der Kompensation (65%/70%)		Verbraucherkommunikation (15%/20%)		Bewertung gesamt	
	Bewertung		Bewertung		Bewertung		Bewertung gesamt	
atmosfair (Flug)	3	sehr gut	2,95	sehr gut	2,76	sehr gut	2,93	sehr gut
Arktik	2,8	sehr gut	2,88	sehr gut	2,09	gut	2,71	gut
myclimate (Flug)	1,4	akzeptabel	2,43	gut	2,16	gut	2,18	gut
go Climate (Flug)	1,8	gut	2,54	gut	1,02	akzeptabel	2,16	gut
Green Miles (Flug)	2	gut	2,19	gut	1,32	akzeptabel	2,02	gut
CO ₂ OL (Flug)	2,8	sehr gut	1,61	akzeptabel	1,86	gut	1,89	gut
PrimaKlima-weitweit (Flug)	2,8	sehr gut	0,83	mangelhaft	2,6	gut	1,49	akzeptabel
Climate Company	2	gut	1,37	akzeptabel	1,48	akzeptabel	1,46	akzeptabel
Climate Austria (Flug)	0,2	mangelhaft	1,28	akzeptabel	1,44	akzeptabel	1,09	akzeptabel
co2mpense (Flug)	2,8	sehr gut	0,33	mangelhaft	1	akzeptabel	0,92	mangelhaft
Waldakte Mecklenburg-Vorpommern	1,2	akzeptabel	0,64	mangelhaft	1,57	akzeptabel	0,88	mangelhaft
Globe Climate (Flug)	1	akzeptabel	0,24	mangelhaft	0,22	mangelhaft	0,39	mangelhaft
Gesamt	1,98	gut	1,61	akzeptabel	1,63	akzeptabel	1,68	akzeptabel
Direkte Anbieter (Unternehmen)	Realitätsnahe Berechnung		Qualität der Kompensation		Verbraucherkommunikation		Bewertung gesamt	
	Bewertung		Bewertung		Bewertung		Bewertung gesamt	
First Climate	3	sehr gut	2,42	gut	1,96	Gut	2,47	gut
Climate Partner	3	sehr gut	2,13	gut	1,18	akzeptabel	2,16	gut
Future Camp Climate	2,8	sehr gut	1,83	gut	1,08	Akzeptabel	1,98	gut
Gesamt	2,93	sehr gut	2,16	gut	1,41	akzeptabel	2,20	gut
Gesamt direkte Anbieter	2,46	gut	1,88	gut	1,52	akzeptabel	1,94	gut
Indirekte Anbieter (größere Unternehmen)	Realitätsnahe Berechnung		Qualität der Kompensation		Verbraucherkommunikation		Bewertung gesamt	
	Bewertung		Bewertung		Bewertung		Bewertung gesamt	
Green DSL	3	sehr gut	2,08	gut	1,58	akzeptabel	2,07	gut
TUI Deutschland	0,4	mangelhaft	2,43	gut	1,6	akzeptabel	1,9	gut
Deutsche Post DHL GoGreen	0,4	mangelhaft	2,28	gut	1,76	gut	1,83	gut
Mazda	1,2	akzeptabel	0,83	mangelhaft	0,54	mangelhaft	0,81	mangelhaft
Gesamt indirekte Anbieter	1,25	akzeptabel	1,91	gut	1,37	akzeptabel	1,65	akzeptabel

Bewertungsschema: 2,75 – 3,00 Punkte = sehr gut, 1,75 – 2,74 Punkte = gut; 1,00 – 1,74 Punkte = akzeptabel, < 1 Punkt = mangelhaft

"The test winner is – as in several other international competitions – atmosfair"

Tab. 3 Empfehlenswerte Anbieter

Rg.	Retailer	Gesamt	HK1	HK2	HK3	HK4	HK5
Sehr empfehlenswert							
1.	Atmosfair	4,52	4,90	4,80	3,80	4,15	3,70
Empfehlenswert							
2.	Myclimate	4,27	4,40	4,65	4,48	2,90	4,20
3.	CLIMACT	4,07	4,20	3,90	3,60	4,80	3,70
4.	Pure	4,00	4,50	3,60	4,25	4,30	2,35
Eher empfehlenswert							
5.	Carbon Passport	3,72	4,10	3,70	3,00	3,40	3,55
6.	Climate Care	3,71	3,60	3,95	3,00	4,80	3,15
7.	e)mission	3,69	4,20	3,10	4,35	3,05	3,05
	CO2logic	3,69	4,20	2,95	3,65	4,50	2,55
9.	Climat Mundi	3,63	3,30	3,35	4,23	4,65	3,70
10.	Clear	3,61	4,20	3,60	2,85	3,70	2,20
11.	Tricorona Green	3,59	4,10	3,40	3,40	3,55	2,35
	co2balance.com	3,59	3,70	3,10	3,05	4,35	4,20

HK1: Qualität des Ausgleichs, HK2: Transparenz, HK3: Qualität des Emissionsrechners, HK4: Bildungsangebot, HK5: Kundenorientierung

"The reason behind atmosfair's leading position is the use of the CDM Gold Standard as an assessment method to ensure offsetting quality. Additionally, the Emissions Calculator is absolutely exemplary."



Selection:

2017 German Council for Sustainable Development (2017) Project award

“New Energy for Nepal“ – a joint project for climate-friendly development in the Helambu region after the wake of the severe earthquake in 2015 – was selected out of 240 applicants, and won the jury’s heart over 67 other projects.

On March 21st 2017, Petra Thomas, Managing Director of the Forum Anders Reisen and Julia Hoffmann, Project Manager at atmosfair, received the “Project Sustainability“ award for the project “New Energy for Nepal”.



2015 Travel One (2015) Sustainability award in tourism

In 2015, the joint project „New Energy for Nepal“ was awarded the Sustainability Award by renowned German travel specialist magazine Travel One.

It was with great pleasure that atmosfair, Hauser Exkursionen and the Forum Anders Reisen accepted the award in September 2015 in Frankfurt. The jury was unanimous; the project’s concept and its careful and long-term implementation, which combined reconstruction, sustainable tourism and climate change mitigation, absolutely embodied the idea of sustainability.

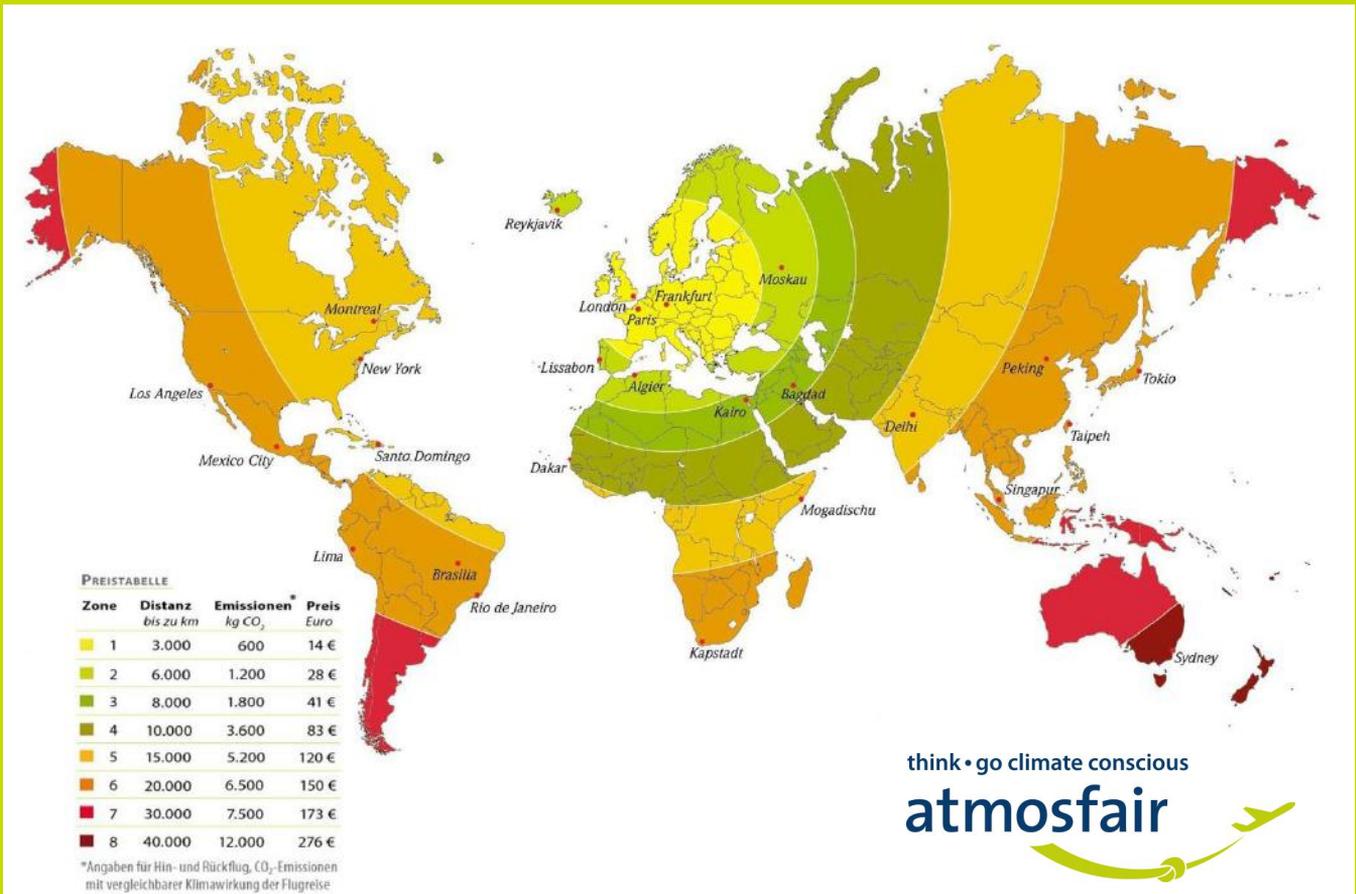


2012 Geo Saison (2012) „Golden Palm 2012: The best trips“

Around 250 travel excursions were competing for the Golden Palm 2012. A panel of experienced tourism experts evaluated the travel packages according to different categories: “Discovery travel and tours”, “Traveling with children”, “Short and city trips” and (this year’s novelty) “active travel and gourmet tours”. The Green Palm, the award for social or environmental commitment, went to Dietrich Brockhagen, founder and CEO of atmosfair, who appeals to the environmental conscience of flight passengers in a sustainable way and supports climate change mitigation projects.

Green Palm: To airlines, he is an inconvenience. Dietrich Brockhagen’s calculations show exactly the amounts of pollution generated by flights and their effects on the climate. But he is also a man of solutions: through his organization atmosfair, flight passengers can offset their emissions and their donation goes to climate change mitigation in developing countries. As a pioneer of an environmentally just transition of the travel industry, he received the Green Palm 2012.





think • go climate conscious

atmosfair

High standards for carbon offsetting

Climate change mitigation

Approach

If I fly –
I fly atmosfair

Climate change mitigation projects



CO₂ calculation



Organization & finance



standards

- Carbon offsetting is only the second-best solution to simply avoiding carbon emissions
- Climate protection is more important than the maximization of donations
- An essential component: raising awareness leads to a long-term and direct reduction of carbon emissions

- Long-term CO₂ reduction
- Contributes to North-South technology transfer
- Provides help directly and locally
- Contributes to local environmental protection

- Exhaustive
- Based on scientific evidence
- Documented
- Verified

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

atmosfair was founded in 2005 as part of a research project led by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety. It entailed the creation of ambitious standards for voluntary carbon offsetting.

The atmosfair standards serve as a benchmark for the carbon offsetting market that has since emerged. atmosfair was declared the winner of numerous international comparative studies.



Bundesministerium
für Umwelt, Naturschutz
und Reaktorsicherheit

Implementation

- Cooperation with business travel specialists for travel optimization, including videoconferencing
- No cooperation with partners that fail to meet the atmosfair standards (e.g. concerning carbon calculation) despite the possibility of high incomes.
- No offsetting of activities for which better solutions for carbon reduction are already available (e.g. private cars or electricity consumption)
- Accurate presentation of climate impacts (see CO₂ calculation), independently from the industry

- All projects must meet two standards: CDM (UN) and “Gold Standard” (environmental NGOs), up to 10 % of the savings according to Gold Standard Microscale
- Calculation and monitoring of carbon reductions in compliance with UN standards
- Qualified and UN-accredited auditors (e.g. TÜV) that bear liability for mistakes
- Documentation of all auditing reports via the UN Climate Change Secretariat website
- No forest projects, renewable energies and energy efficiency only
- Joint implementation with experienced partners in developing countries



Gold Standard
for the Global Goals

- Inclusion of all effects air traffic has on the climate (e.g. condensation trails, ozone formation etc.) according to the latest scientific findings (IPCC), leading to a significantly higher result than with carbon emissions alone.
- Proprietary Emissions Calculator, verified by the German Federal Ministry for the Environment
- All data and methods are accessible on the atmosfair homepage



- Low administrative costs: More than 90% of donations go directly into climate change mitigation projects in developing countries – for development, implementation, and operation.
- Donations are tax-deductible and reviewed by tax authorities in Germany
- Complex legal status “non-profit company with limited liability” (gGmbH): liability and disclosure in the German commercial register
- Advisory board composed of high-profile patrons and environmental experts, from the German Federal Ministry for the Environment, NGOs and the scientific community



DR. ECKART VON HIRSCHHAUSEN

Dr. Eckart von Hirschhausen has been roaming Germany's main stages and medias as a comedian, author and TV-host for over 20 years. His specialty? Addressing medical issues in a humorous way and connect healthy laughs with messages of sustainability. Behind the scenes, Eckart von Hirschhausen shows commitment through his foundation HUMOR HILFT HEILEN and is active as a messenger and advisor for the "Deutsche Krebshilfe" ("German Cancer Aid"), the "Stiftung Deutsche Depressionshilfe" (German Foundation for Depression Aid) and "Phineo" and many more.

Our earth has a fever - only this time, drinking plenty of fluids and resting is not going to help. The curing recipe is choosing vegetables over meat, cycling over driving and holidays on the countryside over the Maldives. And if flying is involved, then fly fair – with atmosfair.

Eckart von Hirschhausen, doctor, comedian, and founder of the HUMOR HILFT HEILEN foundation

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