

13th year | June 2017

# MAGAZINE#22

## Sustainability

Robert Bosch **Stiftung**

Robert Bosch **Stiftung** Magazine #22 Sustainability

### LITTLE CLIMATE SAVERS

*On the farm, schoolchildren  
convert straw to biochar.  
Scientists in the lab show how  
this protects the climate.*

REPORT

#### A station for staying put

A youth center strengthens  
democracy in a rural area –  
and stimulates a whole town.

PORTRAIT

#### Rooting out hunger

Junior Professor Michaela  
Dippold researches ancient  
types of grain. Her aim: to  
wipe out hunger in Africa.







#### EDITORIAL

Dear Readers,

Hans Carl von Carlowitz was a commanding figure with a stern expression and an opulent wig. As the chief administrator for mining in the Ore Mountains, he was responsible for keeping the Electorate of Saxony's mines and metalworks supplied with wood. In 1713 Carlowitz published a book on forestry. When referring to the long-term responsible use of wood as a resource, he used a new term: sustainability. Carlowitz has been famous for this choice of words ever since.

The fact that the word is so frequently used today proves the importance and relevance of the concept that Carlowitz described. Nowadays, our understanding of sustainability goes far beyond forestry. At the end of the 20th century, the Brundtland Commission, which developed prospective development policies on behalf of the United Nations, mentioned for the first time three dimensions of sustainability – ecological, social and economic – which are all dependent on each other and must therefore always be considered jointly.

We at the Robert Bosch Stiftung are particularly working on social and ecological sustainability. Even if we didn't use the term at the time, social sustainability can be regarded as a guiding principle throughout our work of the past 53 years. This has been joined in recent years by a commitment towards ecological sustainability. The endowment of a junior professorship in sustainable use of natural resources in 2007 was just the beginning. Ecological sustainability has since become an important topic in many of the foundation's projects, including and especially in Africa. This issue tells you more about some of these projects.

Enjoy your read.

Yours,

UTA-MICHAELA DÜRIG

JOACHIM ROGALL

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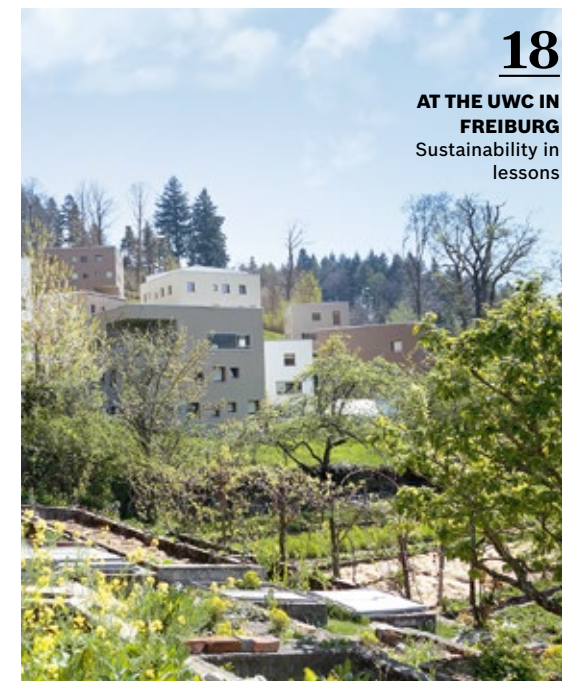
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that fills you up



“  
Taking samples  
from the field and  
measuring the  
cleanliness of soil is  
more interesting than  
normal lessons.  
”



Appearances deceive: what's  
burning here is escaping gas,  
not straw. The latter carbonizes  
instead – into biochar.

# MAKING UP GROUND FOR THE CLIMATE

*One day in the mud, one day in the lab: as part of the “Our Common Future” project, the Gengenbach Gymnasium secondary school sends its students to an organic farm and the University of Applied Sciences Offenburg. There they learn how to make charcoal out of straw – and why it helps the environment.*

**by Markus Wanzeck**

**T**he morning sky is grey, the clouds dripping with rain, the temperature worthy of a refrigerator. Yet the farmer Mr. Witt knows how to warm up his guests, who have come down from the Black Forest to his organic farm on the outskirts of Offenburg. “There aren’t many hares any more,” he says. “They’re threatened with extinction. But the few that are left are all right here – eating my organic lettuce.” The students laugh. Laughing helps against the cold. Physical labor too. And fire.

And this March day holds plenty of all that in store – the students will be learning how to make biochar. The 14 students of year 8 and 9 from the Marta-Schanzenbach Gymnasium in Gengenbach will also learn a

good deal about why that is good for both the sky and the soil. Today at Biohof Witt, they will be in raincoats. And tomorrow, in lab coats, at the University of Applied Sciences Offenburg. This unusual collaboration between the school and the university is a project funded by the Robert Bosch Stiftung as part of the “Our Common Future” program. The production of biochar is a sort of two-fold answer to both a pedagogic and an ecological question.

Nicole Diebold, research assistant at the University of Applied Sciences Offenburg, formulates the educational question as follows: “In their pre-school years, boys and girls are still very enthusiastic. Later, at school, that tapers off. How can we change ▶



► that?” The environmental question is how we can make our farming practices more sustainable in view of climate change and increasingly intensive land use.

Daniel Kray, Professor of Process Engineering at the University of Applied Sciences Offenburg, and his research assistants divide the students into three groups. The first one prepares the steel boiler in which the miracle charcoal will be created. A second one gathers the requisite substrate: straw, hay, vegetable waste. The third group gets a bucket, a huge hammer, a soil probe – and a task that seemingly has little to do with charcoal: Dennis, Justin, Yannik and Shane are charged with collecting the soil samples.

#### MORE INTERESTING THAN LESSONS

Together with Kray’s assistant Esmeralda Lüdecke, the boys tramp off to the field behind a greenhouse for growing parsley; the sloppy ground sloshes and slurps as if it would swallow them up the next instant. “We have to fill up this bucket!”, calls Lüdecke through the drizzle. “The important thing is that you don’t take samples parallel to the tractor tracks, but diagonally to them.” The youths don’t have to be asked twice: Shane promptly drills the soil probe into the ground. Dennis gives it a forceful whack with the hammer. Yannik scrapes the soil sample and half a worm from the probe. Justin logs the results in a list.

Later, and tomorrow in the lab, the students will determine the type of soil: fine clay, rough sand – or maybe silt?

**Hands-on chicken: a great way to get kids interested in the natural sciences.**

What is the carbon and water content of the soil? And what is its pH value? “Taking samples from the field and measuring how clean the soil is – that’s much more interesting than normal lessons,” says Shane, the student team’s probe-turner. The natural sciences can be captivating, and are also extremely relevant for everyday life and our environment. Conveying this experience is one of the goals of the “Our Common Future” program. And that simply cannot be done with a PowerPoint presentation in a heated classroom. It has to be out here, with rain in your face and up to your heels in mud.



The students take soil samples.



“*The production of biochar is a sort of two-fold answer to both a pedagogic and an ecological question.*”

#### LESSONS AT THE FIRE AND IN THE LAB

“Good soil should not be too sour or too dense,” explains Lüdecke. “It should also be able to hold nutrients and water.” Like a sponge, biochar is capable of holding water and nutrients and dispensing them gradually over time,” explains Kray. It also loosens up the soil. It can even bind heavy metals like cadmium, chromium and copper and thus keep them out of the food chain. “Moreover,” adds Lüdecke, “biochar offers space for the growth of microorganisms.” Just how it achieves all of these positive things is then a matter for the lessons at the fire and in the lab to demonstrate to students.

While group three continues to make holes in the field, the other two groups have set up the coal boiler, filled it with substrate and ignited it. The straw and other materials are burning bright. Or so it seems, at any rate. But that’s not the case. “Practically none of it burns,” says Professor Kray. “Almost all of it carbonizes.” As the students continuously pile on more straw and hay and plant waste, the biomass lacks the oxygen to burn. All that’s really burning is the escaping gas: at up to 871 degrees Celsius, as the students measure using a pyrometer – a sort of laser pistol. What’s left over is solid carbon. It’s just before twelve when the soil sample group returns from the field bearing eleven kilograms of soil. It’s a good amount to work with – after lunch. First the coal boiler becomes a barbecue: steaks, cutlets and vegetarian sausages land on the grill. ►



#### FURTHER PROJECTS:

##### Space pioneers

Students of Vegesack Gymnasium are working together with the Institute of Space Exploration Systems of DLR Bremen to study how plant yields can be increased in the most resource-conserving manner possible. The research should benefit not only farmers on earth, but also space exploration: basic research to support a mission to Mars!

##### Good influence

In a social science project between the Karl-von-Closen Gymnasium in Eggenfelden and the University of Innsbruck, students are studying whether environmental protection projects with youths also help change attitudes in their families. The results will be published.

##### Hydrogen in public transportation

Students of the Carl-Friedrich-Gauss Gymnasium in Frankfurt (Oder) work with scientists from IHP – Innovations for High Performance Microelectronics to research whether hydrogen-powered vehicle use is technically suitable and economical for public transport.

More than **600 students** from **22 schools** have taken part in **19 projects** since 2015 and have worked together with **80 researchers** from **20 scientific institutions.**



“

*The cooperation between school and university fosters a sense of approachability.*

”

► “Operating a biochar oven is extremely simple,” says Esmeralda Lüdecke. “But we’re process engineers. We would like to improve a few things. Using the waste heat, for example.” The energy question is one of the discipline’s favorite issues.

“For us, it’s more about the way there than the final product,” explains Bernd Spangenberg, Professor of Chemistry and Dean of the Process Technology department, to his young guests during their tour of the lab on the second day. “We ask ourselves, how we can generate something using less energy and creating less toxic material?”

The goal of this two-day excursion is to transmit an impression to students of how process engineering can make a genuine contribution to mitigating environmental problems. The focus is to promote sustainability in two different ways. “First, the cooperation between the school and the university fosters a sense of approachability,” explains Dr. Stephan Elge, who teaches chemistry, biology, and the natural sciences and technology at Gengenbach Gymnasium. He is co-initiator of the biochar student

In the university lab, students examine their self-produced biochar.

project. The collaboration aims to create a lasting impact by encouraging more students to pursue a career in the natural sciences following their secondary school years – and thus, in a second step, contribute to making our economy and way of life more sustainable.

It’s no accident that Elge is the one to act as the bridge-builder between the school and the university. Elge used to be a molecular biologist, conducting basic genome research at the Max Planck Institute. But ultimately he decided to pursue a teaching career – a good decision, looking back: “This is a great opportunity to impart the scientific knowledge.” At Gengenbach Gymnasium, he has successfully led the “Jugend forscht” youth science research group for several years.

## DOUBLY SUSTAINABLE

For over 2,500 years people have been using plant-based charcoal to improve soil, for instance in the Amazon basin and Indonesia. It increases the nutritional content of the soil while promoting plant health. At the same time, the carbon binds large amounts of CO<sub>2</sub> in the ground for more than 1,000 years. According to model calculations, up to twelve percent of annual greenhouse gas emissions could be offset in this manner.

Photos: Martin Wagenhan

## BIOCHAR CAN MITIGATE THE EFFECTS OF CLIMATE WARMING

Shortly after the last sausage is taken off the grill, the barbecue fun comes to an end. Now begins the extinguishing of the fire, the quenching: water is pumped into the oven from the bottom. Steam at up to 700 degrees pours out and slowly extinguishes the embers. “The steam essentially washes the biochar out,” explains Kray. “What remains is a carbon framework – pure active carbon.”

This is where the students learn the first secret of biochar: its surface is truly miraculous. In the university lab, the young researchers will have the chance to see the lignin, the carbonized wood skeleton, under the two hundredfold magnification of a microscope – an intricate system of

mini-caves. A single gram of biochar has an almost unimaginable 300 square metres surface area. That’s a lot of space for water and nutrients, microorganisms and heavy metals.

Their second secret – that they’re good for the environment – is demonstrated by Professor Kray with an illustration that he brought along to the farm. It shows the earth’s carbon cycle: the carbon exchange between the ground, air and animal and plant worlds would be relatively balanced – if people were not simultaneously ensuring that seven billion tons of carbon were being pumped into the air annually as CO<sub>2</sub>. The imbalance is growing larger all the time. One of the consequences is climate warming.

The biochar can at least minimize this effect somewhat. The carbon

contained in hay, for example, would quickly be released into the air as CO<sub>2</sub> through decomposition or digestion if it were used for feed or composted. When carbonized, however, the carbon is captured long term. “This is ultimately the only way to keep it out of the atmosphere permanently,” explains Kray. “The biochar keeps the carbon on the field soil for 50 or even 100 years. And, on top of this, it does the farmer some good as well.”



Markus Wanzeck remembers his chemistry lessons as bone dry. So he enjoyed the biochar production at the farm all the more. He wouldn’t have minded some things being a bit drier, though.

Plenty of space for microorganisms: the surface of one gram of biochar covers 300 square meters.









## BRIEF BIO

### Dr. Michaela Dippold

studied geo-ecology and biochemistry at the University of Bayreuth. Raised on a farm in Bavaria, the 34-year-old has researched and taught since March 2017 as a Robert Bosch Junior Professor in the Department of Crop Science at the Georg August University of Göttingen.

Michaela Dippold's climate chamber makes these sorghum plants think they are in Africa.

# BACK TO THE ROOTS

*Why do traditional types of grain grow so much better in Africa than modern, high-yield varieties? Robert Bosch Junior Professor Michaela Dippold looks underground to find the answer.*

**by Alexandra Wolters**

**D**eception is all in a day's work for natural scientist Michaela Dippold, 34, and she's very good at it. She tricks wheat and millet plants into thinking they are growing somewhere in Sudan or Kenya, rather than in the middle of the German city of Göttingen. And it works. Stalks of African grain grow tall in climate chambers at the city's Georg August University.

As a geoecologist and biochemist, Dippold works with ancient strains that used to grow south of the Sahara before being replaced by higher-yield variants from Europe. "At the time, no one considered that the new crops had been developed for good soil and fertilizer, and not for the dry and nutrient-poor farmland in Sub-Saharan Africa," she explains as she rolls her swivel chair through the 25°C heat of the climate chambers and takes down a couple of pictures from a shelf. ▶



Technology is more important for Dippold's team than a green thumb.



“  
*What makes it possible for wild sorghum to grow five times taller in Africa than our modern strains?*  
”

- The photos are of grain fields in Sudan. Several depict plants with withered leaves and meager ears. These are the high-yield strains from Europe. The other pictures are of wild sorghum. Sorghum is a millet plant native to Africa. It is much smaller, yet healthy and strong, despite or because of its size.  
“Many plants that are native to Sub-Saharan Africa have developed strategies that help them flourish in especially dry and nutrient-poor soils.” Dippold speaks quickly and energetically. The subject is close to her heart. After all, the goal is to feed the rapidly growing population of Africa. But local types of grain are not enough to make this possibility a reality; their yields are too low.

**WHAT EXACTLY IS TAKING PLACE IN THE SOIL?**  
The solution is to cultivate high-yield strains that can make use of the adaptation mechanisms of the old strains. But to accomplish this, we need to know more about those capabilities and be able to

identify them. “What makes it possible for wild sorghum to grow five times taller in Africa than our modern strains?” That is the question being explored by Dippold, a soil scientist raised on a farm in the Bavarian town of Bamberg. For this research goal, the Robert Bosch Stiftung is sponsoring the junior professor in “Sustainable use of natural resources” 2017. Thanks to a grant of €1 million euros, the junior scholar will be able to build an independent workgroup over the next five years and continue to advance her research agenda.

The focus of her research is on the rhizosphere, a layer of soil between two and three millimeters thick located directly on the roots of the plant. She describes this contact zone as a hotspot where most of the processes in the soil take place and where plants exchange carbon for nutrients: “It all happens in the rhizosphere. How well a plant grows is decided here.” As a result, the area poses many questions and challenges for the geoecologist regarding sustainability. Why are some plants successful here? And can other strains learn to do the same?

**THE SOIL ARRIVES BY CONTAINER SHIP**  
Behind the thick doors of the climate chambers, country-specific climatic and lighting conditions can be simulated thanks to technology which continually inspires Dippold. But simulation is not an option where soil is concerned. “We need the original,” she says. And sure enough, one of her first acts as junior professor was to order 300 kilograms of soil per site: sandy, nutrient-poor soil from Sudan and iron-rich clay soil from Kenya.

As soon as the soil arrives on container ships, it goes straight to the plants. This is the practitioner who always has gumboots in her car so she can work in a research field or help out on her parents' farm at any time. Instead of work boots and a tractor, her work in the climate chambers calls for thin rubber gloves and tweezers. To find out what is taking place in the rhizosphere of the grain plants that are growing in

Photos: Frank Schultze/Zeitenspiegel

## OTHER JUNIOR PROFESSORS

The Robert Bosch Stiftung has supported sustainability science in Germany for ten years by way of junior professorships in “Sustainable use of natural resources.” The call for proposals is directed at researchers from a variety of disciplines. Here, we present three junior professors:



### Nina Farwig

A biologist and 2008 Junior Professor, Farwig studied protection strategies for forest fragments in South Africa. One of the measures she developed is still being applied intensively today: the use of beehives on agricultural land in the vicinity of forested areas.



### Thomas Müller

A biologist and 2013 Robert Bosch Junior Professor, Müller studies migratory patterns of gazelles in Mongolia to determine how economic developments can be reconciled with the preservation of ecosystems. His current findings show that the economy and infrastructure require space, but this space must be crossable by animals.



### Asia Khamzina

A hydrotechnologist and 2009 Junior Professor, Khamzina found a way to stop the desertification on the Aral Sea while also creating additional benefits. She forested exhausted dry areas that are now being used for foresting and agriculture.

the chamber, she marks elements such as water, phosphorus, and nitrogen with isotopes and traces their paths with a mass spectrometer.

How does the plant change the rhizosphere? Which substances does it give up, and which does it take in? Dippold already has a theory. She taps impatiently on a transparent box in which a wild sorghum stem is sprouting. “There is evidence that plants can significantly improve water absorption by excreting mucilage.” The substance she is referring to is a kind of gel that enables a water film to form between the roots and soil particles even during severe droughts. She also suspects that the old strains enter into partnerships with fungus networks, which enables them to be supplied with phosphorus.

Once she completes her research in the climate chambers, Dippold will test her findings on fields in Sudan and Kenya. If her findings are confirmed, the next task will be to develop fast, inexpensive tests that enable cultivators to immediately determine whether her new hybrids have the survival strategies that are needed to thrive in Sub-Saharan Africa.

By the way: Dippold admits that she only has a green thumb for crops and cactuses are the only plants capable of surviving in her office. “Other decorative plants don’t stand a chance with me. I always forget to water them.”



Alexandra Wolters was impressed not only by Dippold's research. The journalist also received a few gardening tips from the soil expert. For example, she suggested planting garlic alongside carrots to keep pests at bay.

“  
*It all happens in the rhizosphere. How well a plant grows is decided here.*  
”





# SUSTAINABLE USE OF OUR RESOURCES IS OF EXISTENTIAL IMPORTANCE

*Dr. Christof Bosch, 58, forester and grandson of Robert Bosch, runs a farm with around 100 cattle in the Alpine foothills of Bavaria. In this interview he explains why sustainability is a question of our priorities and is of existential importance for health, education, and peace.*

by Julia Rommel

**In view of major global challenges such as war and terror worldwide, it seems almost a luxury to address the problem of sustainability. Is the subject a luxury in your opinion?**

**Christof Bosch:** It is a fact that we are increasingly reaching the limits of our natural resources for meeting people's needs. Sustainable use of our resources is therefore of existential importance. However, we often take only an interest in 'soft factors' of sustainability, such as the aesthetics of the landscape, once we meet our basic needs. But securing those basic needs in the long term is precisely the main goal of sustainability. Only from our relatively comfortable vantage point can it look as if sustainability is a luxury problem.

**What role does technology play in sustainability?**

**C. Bosch:** The question of sustainability first arises due to technological progress. The subject only arose once people started to interfere with nature, for example, by farming or developing weapons that could be used to exterminate animals. And the process continues at an increasingly rapid pace. As interference with the biosphere increases due to technical progress and technology, it becomes more and more important to consider the sustainability of that interference. Technology is only useful when it does not destroy our livelihoods. However, every land usage system is technical, whether traditional or ultramodern, which is why each sustainability problem can only be solved with the help of technology.

**Sustainability is often set in opposition to technology ...**

**C. Bosch:** It is a common misunderstanding that sustainability is synonymous with maintaining the status quo. This cannot be the case, because we live in an evolving world in which the only constant is change. As a result, sustainability has to adapt to evolving conditions. If we were to attempt to bring technological progress to a halt,

## BRIEF BIO

**Dr. Christof Bosch** has served as Chairman of the Board of Trustees of the Robert Bosch Stiftung since April 2017. A member of the Board since 1997, he is dedicated to ensuring that the foundation tackles sustainability issues.

global population growth would nevertheless remain extremely unsustainable for many years to come. The goal is therefore to shape development rather than impede it. It is true that our use of the biosphere is changing faster and faster, but change has been the case ever since human development began. Even hunter-gatherers did not really have a sustainable lifestyle, because they lost their nutritional resources in many areas due to overhunting.

**Many people have the feeling that sustainable behavior primarily means giving things up, for example, driving cars less often or eating less meat. How can this impression be overcome?**

**C. Bosch:** This is obviously only the case for a society that lives in abundance. And upon closer examination it becomes clear that this way of thinking concerns individual purchasing decisions. If I want to take a trip around the world and can afford it, then I will actually take the trip. By contrast, there are other goods that can only be owned collectively. If, for example, I buy a new heater that causes less air pollution rather than traveling the world, I do not automatically receive the clean air I helped make possible. I only get it when other people do the same thing. It's only because we fail to consider how our decisions affect society as a whole that we get the impression that sustainable behavior is a question of giving things up. The real question is what is more important to me.

**Or how we can all benefit together?**

**C. Bosch:** Exactly. To return to the previous example, if I do decide not to travel, I haven't necessarily gained anything, because I'm sitting at home,

breathing in air that may be polluted and dirty. In reality the individual can only make a small contribution to sustainability through his or her decisions. We all have to pay as much attention as possible to this contribution. And that goes especially for people whose decisions have a big impact.

**Why is it so important to you that the foundation is strongly committed to sustainability?**

**C. Bosch:** Scarcity of resources, for example, drinking water shortages and fertile soil loss, along with climate change, are threatening health and peace even today. For a long time, Germans could act as if these concerns didn't affect us directly, but migration to Europe from North Africa can partly be attributed to these causes. Education is predicated on stable societies, and it becomes more difficult when environmental changes in distant regions of the world worsen drastically. The same goes for peace. That's why sustainable development is fundamental to orienting the work of the foundation.

**Your grandfather Robert Bosch placed heavy emphasis on making economical use of resources. He also established the farm that you operate today. Are you taking his ideas about sustainability further?**

**C. Bosch:** My grandfather didn't use the word sustainability; at the time, it was a concept used only in forestry. His dedication to agriculture had a great deal to do with his desire to show that, when faced with the threat of famine, Germany was capable of supplying itself from regional sources. In this sense, his suggestion was obviously sustainable, in part because his goal was to achieve long-term stability. The environmentally friendly farm that my family operates today is modest and cannot be compared to the model farm he built back then. But I definitely think that if my grandfather were running a farm today, he would go in a similar direction.

Photo: Robert Thiele, Illustration: C3 Infographic



# THE WHOLE WORLD IN THE GARDEN

*At the United World College in Freiburg, young adults from 90 countries study for the International Baccalaureate. And explore the meaning of sustainability as they go.*

by Kirsten Wörnle

**W**hen they arrived at UWC Robert Bosch College, the students were asked to write down what sustainability is in their languages: “borekraftighet” wrote Sol Marie from Norway – “bearing force.” Mohammad from Palestine wrote “Istidameh,” “be dependent on oneself”; Yokli from Cambodia wrote “Chey r pheab,” meaning “to keep forever.”

Two years later they sit in their ESS – “Environmental Systems and Societies” – class where they study a combination of natural and social sciences and grapple with technological and societal questions related to environmental protection. Today, they are tasked with developing scenarios for dealing with climate change. Imelda from Benin shows a film: her home city of Cotonou under water; she herself waded through the morass and later spent three weeks in the hospital. Mohammad shows photos from the Gaza strip, where practically no one has access to drinking water; wastewater and fertilizers have contaminated the groundwater.

Imelda, Mohammad and the others are students at UWC Robert Bosch College in Freiburg – one of 17 international secondary schools worldwide where young people can study for the International Baccalaureate for two years and practice mutual understanding in their daily lives. The students

here are not merely gifted, but have made an impression through their dedication and intelligent questioning of the world. Another focus in Freiburg: “sustainability.”

## ENERGY SAVING COMPETITION

“Sustainability is an abstract concept,” says Tobias Kellner. “Many people think it has something to do with saving energy.” The UWC sustainability coordinator stands in front of the gates of the former Carthusian monastery that is now home to the school. In front of him, the south-facing hill with the school’s garden descends steeply; the river Dreisam glistens in the valley below. “Sustainability means doing things in a way that would theoretically make them continue forever,” he explains. And: “We will never be a sustainable society if people alienate themselves from nature.” Which is why the new students visit the former monastery garden – a 2,000-square meter paradise that monks began tending some 500 years ago – already in the first week of school. Vegetable plants, herbs, medicinal plants and flowers sway in the breeze; in the center there is a fountain, and a stone wall surrounds the grounds. Kellner likes to ask the students how many people this patch of soil could nourish. All 200 students? Most think that would be feasible. “No,” he then explains, “it would be enough for two families at the most.” Understanding connections

In her language,  
there is no word for  
sustainability: Cecilia  
from South Sudan.

“  
*It becomes apparent  
how the environment  
and politics,  
technology and nature  
are intertwined.*  
”

and recognizing the dimensions of things are the learning objectives of the UWC in Freiburg. Sustainability is practically everywhere here in the special Creativity Activity Service (CAS) program in which students monitor the growth of mangold plants in their self-built greenhouse tunnel using sensors. It can also be found in the school’s internal competition to determine which dormitory is most economical in its use of energy. Even the food served in the cafeteria is inspired by a commitment to sustainability.

## NATURAL AFFINITY FOR ENVIRONMENTAL ISSUES

Learning with both heart and hands is one of the school’s core principles. As soon as one digs a little deeper, as here in the monastery garden, the bigger-picture connections are revealed: bees like the ones flitting around the garden make a contribution to the agricultural sector worth billions by pollinating plants and their dying off affects humans directly. Planting potatoes in the garden could ultimately feed more people than planting soy beans as feed for livestock. The chocolate we all love to eat contains cacao and children often have to take part in the cacao plantation harvest. Suddenly, the whole world is here in the garden, and one grasps how the environment and politics, power and powerlessness, technology and nature are all intertwined. “We want the students to become aware that everything is connected,” says Tobias Kellner, “and give them a sense of the magnitude of individual actions.”

“I didn’t realize how great the impact of our actions is,” says Bayu. The Indonesian has always had a natural affinity for environmental issues. But he didn’t always have a clear understanding backed up with hard figures. Bayu opens his laptop and shows a graphic with several large squares in red, yellow and green. ▶







- What looks like a cubist painting is in fact the travel activities of the students translated into their CO<sub>2</sub> emissions. Behind each square is their individual footprint on the planet.

#### GEOGRAPHY, A LIVELY SUBJECT

“If we want to keep global warming under 1.5 degrees Celsius, we can’t pump more than two tons of CO<sub>2</sub> per person per year into the atmosphere,” says Bayu. That’s roughly the amount his 14-hour flight home to Indonesia would cost, he discovered before the last summer holiday. So he decided to undertake the return journey to UWC overland. He pored over maps, timetables, and ferry connections and typed a meticulous plan into an Excel table. Travel data for the 24-day, 15,000 kilometer journey from Jakarta to Freiburg included 6,000 kilometers on the Trans-Siberian Railway. “What I learned on the journey,” says Bayu, “is that we’re all the same, just in different incarnations.”

“What might a sustainable society look like, and how would one live in it?” Questions like these captivated headmaster Laurence Nodder. The South African spent nearly his entire professional life fighting against Apartheid and discrimination by means of education. “When I turned 50, I asked myself: What will my grandkids think of me? It occurred to me that they would certainly not be able to understand how blind and self-absorbed our generation is in its attitude to-

ward the environment.” So he applied for the job of headmaster in Freiburg, where he encourages kids to think critically and make the diversity of voices heard. “Things are always lively in geography,” confirms Cecilia from South Sudan. “What are they talking about?” she and her fellow African students sometimes wonder when their western classmates present sustainability ideas. Electricity from solar cells? “We have a lot of sun, but no money for solar panels.” Hydropower? It might work, but the infrastructure is lacking. “Many sustainability standards and ideas simply don’t work with developing countries,” says Cecilia.

One example: the UWC cafeteria has introduced two meat-free days per week. Meat is particularly prized in Cecilia’s home country. “We don’t have intensive livestock farming, and therefore no land is destroyed by animal breeding.” Meat is the cornerstone of her diet. She takes part in the meat-free days, but with a heavy heart. The most important point, however: South Sudan is racked by civil war and famine. “Sustainability simply doesn’t fit with this reality,” says the young woman. “People are struggling to survive; they need peace, not sustainability.” When she went home last summer, she wanted to tell people about her new knowledge. But there are no words in her language for “climate change,” “greenhouse effect,” and “sustainability.”



#### UWC ROBERT BOSCH COLLEGE

**The United World College** is an international educational movement that prepares students from around the world for the International Baccalaureate irrespective of their financial means. The only German UWC was opened in Freiburg in 2014 and is funded by the Deutsche Stiftung UWC and the Robert Bosch Stiftung. Sustainability coordinator Tobias Kellner and student Bayu (above) work together in the school’s garden.



Kirsten Wörnle was impressed by the global knowledge with which the students discussed climate change.





# NUDE FOOD

*Three years ago, Milena Glimbowski founded a packaging-free grocery shop. When the project started to test her limits, the “Changemaker” exchange with other social entrepreneurs gave her new energy. Her idea has long since inspired many imitators.*

**by Bastian Henrichs**





The shop is a hit – Milena Glimbowski (left) is now working on new ideas for avoiding waste.



later, Glimbowski, 27, is sitting at a huge kitchen table made of black-painted beams in her office in a Berlin courtyard building, sipping tea. It wouldn't be quite right to say that the five days with other social innovators from around the world changed her life. But they did give her fresh ideas, motivation and energy to develop her project during a difficult phase.

The idea for the shop was hatched in a girlfriend's kitchen in 2012. They loved to cook and often did so, but were always troubled by the huge amounts of plastic waste. They wrote a business plan and gathered €110,000 of start capital through a crowdfunding project. They opened a shop near Görlitzer Bahnhof in Berlin and dreamed of a franchise business.

When her business partner backed out of the business after a year, Glimbowski wondered how she could manage it all alone. The meeting with like-minded young people at ChangemakerXchange came at the perfect moment. The young people who come together multiple times each year at different locations have one thing in common: they work on innovative solutions for social, environmental or societal problems in their respective environments. At the exchange meetings, they deepen their knowledge and further develop their initiatives and business models. They network and, ideally, even start joint

Photos: Kathrin Harms

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*She noticed how hard it is to run a retail business. Not to mention one dedicated to producing no waste if at all possible.*  
”

**M**ilena Glimbowski was exhausted and ready for a holiday on the evening when she, without much in the way of expectations or desire to attend, went to the opening event of the Change-makerXchange program of Ashoka Deutschland and the Robert Bosch Stiftung. She'd been through a year full of ups and downs. She had opened up a grocery shop in Berlin-Kreuzberg. It was the first one in Germany without plastic packaging; a shop in which nuts and noodles, fruits and flour, lentils and licorice hang in large containers on the wall. But shortly after opening, her business partner backed out and Glimbowski was faced with the realization of how difficult it is to run a retail business. Not to mention one dedicated to producing no waste and with all organic products. She stood behind the counter, did the books, placed orders

and researched producers six days a week. And now: workshops, talks and networking with others? She wasn't planning to take part in the entire five-day event – the only thing she knew about it was that it was a gathering of young social innovators from Europe, Turkey, North Africa and Asia.

#### THE IDEA CAME TO HER WHILE COOKING

But the evening went differently than expected. She learned about projects by young people from Sweden, Egypt and Portugal that were aimed at influencing and changing things in their fields. They were fresh and full of enthusiasm – just as Glimbowski had been when she opened her grocery shop. “There was such a great atmosphere the first evening that I just decided to go along after all,” says Glimbowski. “In Potsdam there was food, drinks and music. There was no one there that I knew, but it was the same for everyone. The atmosphere was just great.” Today, almost two years

#### FACTS

### FOOD & PACKAGING

18%

of all food in Germany ends up as waste. A majority of the waste could be avoided through prudent shopping practices.

€235

is the value of the food thrown away by the average German each year.

96%

of mandatory-deposit disposable packaging is returned to the automated return machines – and thus stays in the raw material cycle.

projects. Glimbowski spontaneously gave a talk about her franchise idea and why she had ultimately discarded it. She listened as others explained how they had managed to achieve healthy growth. “Seeing that there are people my age who have a similar mindset, represent the same values and have already pulled something off impressed and motivated me,” she says. She's still in contact with many of the participants and still uses the network for exchanging ideas.

At this point, Glimbowski is seldom in the shop; a branch manager handles the daily business. With its stuccoed ceilings and pretty tiles behind the counter, the room is reminiscent of an old grocery shop. The customers take their time and buy consciously. They bring their own containers, jars and jute sacks or borrow some, fill up with what they want in the desired quantity and pay by weight. In addition to the saved packaging waste, it also has the effect that customers are not obliged to buy pre-defined amounts and therefore throw away less food. The assortment is not restricted exclusively to food. A total of 650 products is sourced whenever possible from the region and represents the most organic alternative available. There are dentifrices, detergents to mix yourself, flower pots made of coconut fibers and the books to match: Living Better Without Plastic and Happy Living Without Waste.

#### DOZENS OF IMITATORS

Her small “Original Unverpackt” (original, without packaging) shop has become a brand. There are already dozens of imitators in Germany, and even one in Brazil. She has shown the shop to managers from large corporations; designers wanted to know what the kitchen of the future might look like. Glimbowski is now developing new ideas for her primary concern: avoiding waste and packaging-free shopping. She regards it as part of the educational work that is so close to her heart. “Many people know that plastic is bad, but few people have actually heard of the many solutions out there,” she says. So last year she started an online

magazine dedicated to waste prevention and environmental protection. In web seminars, she explains how to open a packaging-free retail business, and has also opened an online shop.

Next she wants to integrate her own products – naturally without packaging – into the product line-ups of other retail businesses. And when everything gets to be a bit too much and confidence in herself and her ideas flags, she pulls out a letter that she received after the ChangemakerXchange meeting. In it, the participants wrote what they like about Glimbowski and her company and why she should definitely keep going.



Bastian Henrichs met Milena Glimbowski for the first time in 2014. At the time, the “nude food” shop was still just an idea. He was delighted to see that it has since turned into a functioning business.



# PLANNING FOR AN UNCERTAIN FUTURE

The architect and urban planner Vanessa Miriam Carlow and political scientist Dagmar Schulze Heuling joined forces with others under the auspices of the SPIELRAUM program to develop a concept for sustainable urban development for the future. A challenge considering the uncertainty around how cities are developing.

by Eva Wolfangel

Dagmar and Vanessa, you met each other at a “future workshop” where you had 24 hours to establish common ground regarding your approaches for the future of a sustainable city and develop a new project. How is that possible in light of your very different disciplines?

**Vanessa Carlow:** It definitely does take a bit of time to find a common language. When I heard Dagmar’s presentation, it was immediately clear to me – she works on the same themes as my institute, just from a completely different perspective. Our fundamental question is how to pursue urban development against the backdrop of an uncertain future. How can we plan for a future without knowing how it will look?



**Dagmar Schulze Heuling:** Vanessa presented her vision of “Berlin as a 10-million inhabitant city” and at first I had no idea how we could combine those ideas in a single project. But then I had the idea to ask: What could Karl Popper’s idea of an open society mean when translated to the city?

“**Dagmar Schulze Heuling: Today’s decisions influence future generations.**”

Is it really so unclear how cities develop?

**V. Carlow:** There can be no doubt: most people live in cities today and that will presumably be the case in the future as well. But it is less clear which cities they will be and how fast cities will grow. One example of that is Berlin after the wall came down. The population growth initially projected to happen in the short term will only be achieved in a few years. The city actually shrunk for a time.

How can philosophy and Karl Popper help here?

**S. Heuling:** The idea of an open city calls all fixed regulations into question. One specific example: the infrastructure as

we plan it today already determines some things for the future. We could ask, for example, how the water supply should be best organised in the future. We should be willing to question apparent certainties.

**V. Carlow:** From an urban planning standpoint it is a great good to ensure that everyone has access to clean water – in many cities of the world, that is a distant prospect. But how can we do that today without knowing how the city will look in 300 or 400 years and where its boundaries will be? Our project asks such questions.

**S. Heuling:** That’s the technical aspect. From a philosophical perspective, we

has to ask: Who has the right to tell people how they should live? When we make decisions, we should recognize the fact that we are thereby predefining things for future generations. So we should always ask ourselves: Is there a way of minimizing the extent of the intervention or keeping things flexible?

**V. Carlow:** In the water example, for instance, that includes more than just the question as to the location of the canal, but also the question of centrality or decentralization according to municipal or private supply. We’ve gained the Berlin State Chancellery as a partner and want to use Berlin – as one of the most dynamic cities anywhere at the moment – as a template for making recommendations

## ROOM TO PLAY

### Shaping Urban Transformation –

this is the motto of the Robert Bosch Stiftung ROOM TO PLAY (SPIELRAUM) project, in which interdisciplinary teams are supported in their efforts to develop clever ideas for a sustainable future in cities – and beyond. Initial concepts like the one introduced here were developed in fall 2016, 13 of which qualified for a prototyping phase. Selected research projects will be implemented from summer 2017 onwards.



“**Vanessa Carlow: Planning is as dynamic as the course of a lifetime.**”

on how to proceed: How can we make the city as sustainable as possible, despite the uncertain future?

How does that work in practice since we can’t see the future?

**S. Heuling:** One good practice, for example, is to think in scenarios. One goal of our project is to assist decision-makers with recommendations.

Hasn’t that already become a widespread practice in German government agencies? Are other countries further ahead in this regard?

**V. Carlow:** The employees in the senate administration are well aware that the future will be different from what one thinks today. What I still don’t see much of in Germany today is scenario planning as it is practised very resolutely in the Netherlands. There the decision-makers sit down at a table with citizens and look at the possible scenarios based on the available data. In areas threatened by floods, for instance, they try to think in different futures, in terms of high, medium or low probability, and seek solutions to each of the problems.

Is it even possible to convey to the population the background knowledge required to make such decisions?

**V. Carlow:** I find this aspect of our project especially important – planning is just as dynamic as the course that life can take. One can’t see the future. It’s clear that things will go wrong at times. We want to enable citizens to make an informed decision. To do so, we need to transmit possible scenarios to the public in tangible and understandable ways and let them play a role in deciding which future seems most desirable.



Illustration: C3 Infografik





*The number of chronically ill people is rising. They require healthcare services. But doctors are in especially short supply in the countryside. The Robert Bosch Stiftung supports model health centers designed to guarantee sustainable primary and long-term care.*

**by Alexandra Wolters**



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**Hardly any  
young doctors want  
to become a GP  
in the countryside.**  
”

**C**lean air, the Wadden Sea, relaxing surroundings. The German town of Büsum has all this in spades. But one resource threatens to run dry at the third-largest vacation spot on Schleswig-Holstein's North Sea coast: There aren't enough doctors. A few years ago, three of Büsum's five general practitioners reached retirement age and were unable to find anyone to take over their practices in the remote province. “Hardly any young doctors want to become a GP in the countryside and serve around the clock as a lone warrior,” explains Harald Stender, coordinator of outpatient care in the district of Dithmarschen. This phenomenon applies to many structurally weak regions in Germany. The abundance of rolling walkers parked in front of the medical center in Büsum clearly shows why this development is a problem. The population of the community is getting older. Roughly half of the town's approximately 4,800 residents are over 60 and therefore at greater risk of getting sick.

#### LOCAL HEALTH CENTER

In 2015, the Büsum municipal council decided to act. It offered to take over the doctors' practices and run them. The doctors agreed and the municipality purchased and modernized the existing medical center. And in 2016 it opened the first municipal medical center in Germany. Two doctors have retired since then, and young successors have been

appointed. “They appreciate the fixed working hours, the opportunity to confer with colleagues, the option for part-time work, and hence the ability to reconcile career, leisure time, and family,” says Stender in describing the advantages of the medical center, which includes a physical therapy practice and a pharmacy.

In the future, the municipality plans to put its healthcare system on sound footing and offer its residents comprehensive primary and long-term care. The Robert Bosch Stiftung supports Büsum and four other German initiatives in accomplishing this goal through a program known as “PORT: Patient-Oriented Centers for Primary and Long-Term Care.” The goal of the project is to develop and build local health centers that will guarantee primary care, offer preventative and health-promoting activities and facilitate better treatment of chronically ill patients on a comprehensive and ongoing basis. To accomplish these objectives, the foundation will provide €2 million in funding over the next three years.

In Büsum, the money will be used to set up training rooms for healthcare provision and to support telemedicine, which will enable, for example, high-resolution images to be sent to medical specialists at other locations. In addition, the town plans to recruit additional non-medical practitioners to handle GP visits from chronically ill patients, thereby reducing the workload of the doctors. In future, case managers will receive the patients, record their medical history, conduct initial tests, and then serve as a mediator and establish contact between all involved. “In the future, we don't want to simply send patients on their way once the diagnosis is complete. Instead, we want to provide them with as much additional help as possible.” Stender summarizes his vision of healthcare as follows: “From one source, under one roof.”

## PORT TIMES FIVE

### The five initiatives

supported by the Robert Bosch Stiftung's PORT program are designed to serve as models. Over the next three years, the initiatives aim to develop local health centers tailored to the needs of the regions' inhabitants. In addition to Büsum, the program supports the towns of Hohenstein and Calw in Baden-Württemberg, Willingen-Diemelsee in Hesse, and Berlin's Neukölln district. The Neukölln initiative shows that even in heavily populated cities there are structurally weak areas that suffer from a shortage of doctors.

All the projects have in common the idea of sustainable care from a single source and under a single roof. Patients at the health centers will be cared for not only by doctors and medical personnel, but also by social workers and trainers, such as dietitians. Chronically ill patients will not only be cared for, but will also learn how to live as well as possible with their illnesses in their familiar environment.





# THE ONLY PLACE TO GO

*In Anklam, a new, very special youth and cultural center – the “Democracy Station” – has been established. We visit a place that stimulates a whole town and makes it a better place to live.*

by Jan Rübel

**G**uided by a gentle hand, a watering can sweeps over an idyll of strawberry plants and purple crocuses – to the onions and radishes – and suddenly stops over last night’s cigarette ends. Puk screws up her nose and puts down the watering can. “You can’t go easy on them,” she mutters, pointing southwards to where muffled bass sounds are coming from the square in front of the railway station. “You have to put up with it if you’ve got a public garden,” says the 19-year old high-school graduate. “But we’re working to raise awareness,” she adds with a smile.

In the square, some lads are kicking a bread roll about. One lanky kid throws another’s cap onto the roof of a bus shelter, and two teenagers in tight leggings stand around a ghetto blaster. Some are rollerblading to the music: Syrians in baggy shorts and Germans in the Thor Steinar outfits that symbolize the far-right scene. Welcome to the Demokratiebahnhof (Democracy Station) in Anklam, Mecklenburg, a youth and cultural center of a very special kind.

Puk has been working here since last September as a social year volunteer. She hurries across the square to the station building, which stopped selling rail tickets years ago. After the reunification it was turned into a casino, and then it was empty. Today, the scouting association has taken over the building, and they have a mission: to make it a place where children, teenagers and young adults can meet and get to know each other. There are no full-time administrators, just autonomously organized commitment and co-determination, all on a voluntary basis. “We want to make Anklam a better place to live,” says Puk. “People get involved. That makes them want to stay.” It’s something Anklam badly needs. Since reunification, a third of the town’s inhabitants have left, and now

It looks like a normal station, but the former railway building in Anklam actually houses a youth and culture center.



only 13,000 people live there. It’s losing its young people, its women and its well-educated – all drawn to bigger cities where they see better prospects for their education, careers and quality of life. This is gnawing at the seams of civil society and opening up holes which are often filled by nationalist conservative and extreme right-wing networks. In state elections last September, 26.2 percent of people in Anklam voted for the Alternative for Germany (AfD), and the National Democratic Party of Germany (NPD) got 9.3 percent. Far-right thinking is commonplace here.

But new spaces to get away from it are appearing. The activists from the scouting association are working to make things better in Anklam: with their ideas about optimism and learning by doing, about mutual dialogue and sharing of experiences, about setting yourself targets and achieving them yourself. In short, they offer young people the freedom to carry out their own projects. And this requires an

“*The house is a meeting place. There are no full-time administrators, just autonomously organised commitment, all on a voluntary basis.*”



► actual place to do it. Since 2014, they have rented the old railway station building, and the Robert Bosch Stiftung has been helping to fund the project team's events as part of its Land Re-claimers (Neulandgewinner) program.

KIKI'S MISSION IS TO SMILE

"We're not simply 'left-wing,' says Puk as she goes inside. "We want to give people the space to think for themselves." Today is youth club day. Kiki and Flo\* are playing table football. "You're cheating again," shouts 13-year-old Flo just a little too aggressively and looks over to Martin Rosenthal. Rosenthal is a native of Anklam, currently training as a youth worker, and is working here as part of his course. "You know what, Martin, I haven't had a cigarette today!" Flo thinks the town is boring. "The station's the only place to go." He's had another argument at home today. His dad listens to far-right rock music, which Flo hates. He jumps up and writes "FCK NZS" on the blackboard. Flo gets angry very quickly playing table football. He's in year seven at a special needs school, after being expelled from two ordinary secondary schools. "I threw chairs at the teachers and threatened them with a knife. Man, they got on my nerves."

Kiki sighs. His name is actually Muhammad, but that's too difficult for Anklam natives, he says, so he chose an easier name. Like Flo, he comes here nearly every day after school. The 19-year old Syrian is in year nine at secondary school. Back home in Latakia he finished year 11. He's been in Germany for 19 months, 17 of them in Anklam. He was put back two years because his school qualification in Syria wasn't recognized here. "And I've got to get better at German." Kiki says he discovered the station straight away. "It was at the New Year's Eve party on the square in 2015." He wants to stay in



Puk wants to change things in her home town. Her current project is working with schools to create a magic garden.

Anklam, despite the far-right presence. "You can tell by a lot of people's faces that they want to keep their distance." He strokes his beard. "But for me, it's a kind of mission. People know so little about us, so I show them that we can be good people too. They're learning. Now people say hello to me on the street, even some of the right-wingers." Some of them even call him their brother now, he says. Kiki's mission is to smile, and that's his contribution towards living together in Anklam. But that can be hard at times, thinking of the war he fled from and his sick parents in Latakia.

**THE PEOPLE RUNNING THE STATION ARE REVITALISING CIVIL SOCIETY** There's so much to do at the Demokratiebahnhof. There's the garden, the bike workshop, and this week there are bags to screen-print - as a thank you to donors who are helping set up a

The program includes cooking, talks, music and discussion evenings.



“The young people are there anyway. The question is who can offer them something, who can give them a way out.”



Signs of the Demokratiebahnhof: where secondary school and special school students, locals and refugees all meet.

LAND RECLAIMERS

The Land Reclaimers (Neulandgewinner) program was set up in 2012 to support people whose independent, creative action and commitment to civil society are strengthening the future prospects and quality of life of the rural areas they live in. These people excel in developing ideas for free spaces, trying out new paths and setting examples for others.

Photos: Tobias Böhm

rehearsal room for bands. The gift box for the needy also has to be tidied up, because people have given lots of new games and toys. Every week they cook together, and there are talks, music and discussion evenings. Of course, you can also join the scouts. Puk disappears into the office to ring a few schools and ask if they want to help look after the garden. "I joined the scouts when I was nine," she says. She's thinking about moving away to study. "But I'll come back afterwards. You can achieve so much here." The old station building in Anklam is a hub, a magnet - not least because of the regional trains which stop next to it and take you from the small town out into the big, wide world, as well as the school buses which stop at the square. Initially, people in Anklam were sceptical about the democracy project. The scouts came from the university town of Greifswald, 37 kilometers' drive

away and a different world! And then there was the dirt and the noise on the square, which nobody did anything about. But patience gets its reward. The mayor was won over by the project, having established that the people at the Demokratiebahnhof weren't trying to act as deputy policemen, but wanted to revive civil society in Anklam. More and more residents came to take a look and gradually the complaints are stopping. Everyone comes together at the Demokratiebahnhof: secondary school and special school students, children whose parents vote NPD and children whose parents vote green. And Syrian refugees. The young people are there anyway. The question is who can offer them something. Who, apart from the trains and buses, can give them a way out? The scouts don't tolerate tobacco, alcohol or other drugs in the building. Outside, where the house rules don't

apply, it's a different story. A gang of four are passing a bottle of beer around in the bus shelter, and a lone youth on the platform puffs on a cigarette. "Who wants to help out in the garden next week?" Puk asks at the youth club, once she has finished her phone calls. Three or four hands go up straight away. The plan is for a magic garden with hidden-away seats where you can chat and relax. Already, the apple and cherry trees are becoming cloaked in a gentle green. Spring is taking over. Anklam - a desolate spot in the north-eastern corner of Germany, abandoned and intimidated? That's not what it looks like here.



Jan Rübel grew up in Aurich, East Frisia, where the station building was also empty. The Demokratiebahnhof in Anklam seemed like a magnet to him, with so many different visitors all getting along together.



# A REMEDY FOR POPULISM

*Climate economist Ottmar Edenhofer explains how to steal populist thunder on three subjects at the same time: climate change, growth, and social justice.*

**T**hroughout the world, right-wing populists such as U.S. President Donald Trump, Front National leader Marine Le Pen, and the Alternative for Germany party (AfD) have made it a cause to oppose climate policies. The situation becomes especially dangerous when they get into office. Admittedly, large democracies such as the U.S. have checks and balances that make it difficult to eliminate climate protection measures. But as U.S. president, Trump has the potential to seriously interfere with climate protection. This is clear from his latest executive orders aimed at repealing environmental regulations imposed by his predecessor, Barack Obama.

The root cause of these efforts can be traced to the fact that populists scorn climate protection as a social “elite issue.” In addition to this are the partially justified concerns of the lower and middle classes regarding their existence and economic standing, as well as their lack of participation in economic growth and political decision-making processes.

One persuasive means of stealing populist thunder with regard to climate change, economic growth, and the subject of social justice is CO<sub>2</sub> pricing. This approach is effective because CO<sub>2</sub> prices have a threefold effect: They provide incentives for developing technologies that produce no carbon dioxide, they penalize the use of fossil energy sources,

and they generate revenues that can be used to reduce tax burdens or to increase investments in infrastructure in a way that primarily benefits low-income households.

At present, countries worldwide subsidize the use of coal, oil, and natural gas at a cost of \$150 per metric ton of CO<sub>2</sub>, once all the social costs are factored in. The first step should consist of eliminating subsidies for fossil energy sources. To this end, financial resources that are lacking today will be made available for the construction of vital infrastructure. The Mercator Research Institute on Global Commons and Climate Change (MCC) has shown that over the next 15 years, the money saved from ending fossil subsidies would ensure that people in 70 countries have universal access to drinking water, people in 60 countries have working sanitation facilities, and people in 50 countries have electricity. What’s more, building infrastructure creates jobs and stimulates the economy. This might interest Donald Trump, who promised a large-scale infrastructure program during his campaign, but has yet to provide any details as to how the program might be financed.

**THE DOOR HAS OPENED EVEN WIDER**  
In industrial countries, CO<sub>2</sub> pricing also can help combat social inequality, whether pricing takes the form of a tax or is accomplished by means of an effective system for

## BRIEF BIO

**Prof. Ottmar Edenhofer** is Director of the Mercator Research Institute on Global Commons and Climate Change (MCC), Chief Economist at the Potsdam Institute for Climate Impact Research, and Professor of the Economics of Climate Change at the TU Berlin.

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*CO<sub>2</sub> pricing can also help combat social inequality.*  
”

emissions trading. This could be achieved by applying revenues to progressive tax cuts, so that lower-income households receive more relief than wealthy ones. Low-paid earners would benefit particularly from this type of sustainable financial reform thanks to higher net earnings and the creation of additional jobs.

Should this type of reform turn out to be too complicated, the money could also be distributed to each citizen in the form of identical lump-sum payments. Relatively speaking, low-paid earners would receive more relief from the payments. If a lump-sum approach is taken, taxpayers using less CO<sub>2</sub> would get more back than they paid in. Those who use more, pay for it. This solution would be easy to explain and implement.

Although international climate protection has suffered a setback with the outcome of the U.S. election, the Paris Agreement has not lost its momentum. To the contrary, the door has opened even wider for increased CO<sub>2</sub> pricing. That’s because China, the largest emitter of greenhouse gases in the world, plans to implement the world’s largest emission trading system this year. Together with Europe, the People’s Republic could create the largest carbon market in the world.

Government leaders and heads of state from the world’s largest industrial nations will meet soon at the G20 summit in Hamburg. The German government will work to ensure that these countries intensify their commitment to international climate cooperation. After all, the G20 countries are responsible for nearly 80 percent of the world’s CO<sub>2</sub> emissions. Their finance ministers might still be interested in carbon pricing even if climate protection is not yet one of their priorities. If climate policies and fiscal policies are jointly developed and implemented, it will be possible to offer a convincing alternative to right-wing populism. Climate protection, economic growth, and social justice would profit equally as a result.



Photo: Potsdam Institute for Climate Impact Research



## EDUCATION SUB-SAHARAN AFRICA

**ESSA** was set up in 2016 to help improve education in Sub-Saharan Africa. A first focal point is on higher education. The aim is to improve collaboration between educational bodies and those promoting education. It also aims to strengthen personnel and other resources, for example through the cooperation initiated by ESSA between the African Leadership University (ALU) and the INSEAD Business School, which teaches management skills to managers such as the heads of NGOs or employees of university administration departments. It also plans to develop a knowledge platform on education and educational support in Sub-Saharan Africa.

# EDUCATION FOR TOMORROW

*Countries in Sub-Saharan Africa lack many things, including good education. Many aid organisations and campaigners are trying to improve the situation, but have so far not had a solid basis for assessing supply and demand. This is where a new initiative comes in.*

**P**aint is peeling off the walls, the door does not close properly, and the students' textbooks are old and tattered. But at least these children at the Mafiga school in Moringoro in rural Tanzania are here and able to learn – and they do so with enthusiasm. This puts them at an advantage over many of their contemporaries: many children in countries south of the Sahara do not attend school at all. The future is too uncertain, and most families have so much work to do that their children are more urgently needed at home. Teaching is made more difficult by poor equipment and by the prevailing conditions in many places. Some classes have more than 100 students, and the teachers use outdated methods.

It is not just the quality of the schooling and teacher training that is

inadequate; the universities are lagging far behind from the world's leading institutions. In addition, the educational attainments do not match the needs of the labor market. And the problems of the education system in the Sub-Saharan region will continue to increase. Experts estimate that Africa's population will double by 2050, which will exacerbate the systemic challenges.

The new Education Sub-Saharan Africa (ESSA) initiative from the Robert Bosch Stiftung aims to improve education in Sub-Saharan Africa. First, it will systematically analyse demand and collect information on the aid and assistance that already exist – a huge challenge, considering the differences between education systems and quality levels in the 49 countries south of the Sahara. As a first step, workshops like

those at the Mafiga school in Tanzania will be conducted with students and teachers in order to define the most urgent problems in education. “We have an education for yesterday, but we need an education for tomorrow,” a schoolgirl says. One example is that, as elementary schools teach in Kiswahili, many students encounter English for the first time in high school. Such students therefore experience great difficulty in mastering the transition to high school.

In another workshop, students from 12 African countries pooled ideas on how to tackle the problems in their countries' education systems. They felt that the value of education urgently needed to be reassessed as, in many countries, learning is not viewed as an investment. Prospects in the labor market are often so bad that a long period of education does not pay off, and young people cannot find a job, even with a degree.

ESSA will bring together different bodies and contribute with training courses among other things towards creating a better knowledge base on education and its promotion in Sub-Saharan Africa – and, in the long term, an education for the future.

Learning with great enthusiasm: students in rural Tanzania.



Photo: ESSA

# CAIRO'S STREETS ARE PAVED WITH MONEY



*Egypt's capital is suffocating in waste. Researcher Sherien Elagroudy shows how to earn money with waste and preserve the environment. She is an example of the many excellent African scientists who are working on the future of the continent.*

by Eva Wolfangel

**T**he birds have recognized the value of waste. In large flocks they circle above the mountains of rubbish, screeching greedily as they swoop down, shredding everything the garbage truck belches out, dragging nourishing fibers from old vegetables or tearing remains from meat wrappers. Every day they get their beaks on 2,000 tons of city waste from southern Cairo: a quarter of the waste produced by this city with millions of inhabitants ends up at the dump of the 15th of May city. All that energy!

But people cannot see it. They wrinkle their noses when they get near the dump. What is the point of waste? Just get rid of it. A van crosses the dump, and in it is a woman who has taken a bird's-eye view: Sherien Elagroudy.

“People say rubbish is not gold,” she says, “but that is wrong.” The environmental engineer from Cairo's Ain Shams University is the first Egyptian to receive a doctorate in the processing of waste. That was 16 years ago. Today she is a Fellow of the global “Next Einstein Forum” (NEF) and carries her conviction of the value of waste into the world: “I want people to start thinking differently.”

Elagroudy is an example of the many outstanding researchers in Africa whose work is helping to resolve actual problems in their home countries. Because scientists like her often work under less than ideal research conditions and have very few international connections, the Robert Bosch Stiftung and the African Institute for Mathematical Sciences (AIMS) ▶





Elagroudy conveys her message to the world as fellow of the Next Einstein Forum.

► initiated the NEF in 2013. The Next Einstein Forum gives African researchers greater visibility in the international science and research community and provides them with a better network. Africa's science scene is growing, and young people are increasingly interested in a scientific career. The challenge is to offer them good conditions in their home countries. Africa needs the brightest minds to collaborate on the future of the continent. It needs researchers who want to bring about local change with their work. Minds like Elagroudy's.

Today the 41-year-old professor leads her masters students to the dump, which has, thanks to her, long become more than that: it is now a facility, a waste processing plant. The van passes the sorting system and countless rows of plastic waste, first rough pieces, then finer ones, until the plastic waste looks like insulating material: colorful, but with a homogeneous consistency. On the other side, rows are piled with food waste and organic waste, arranged neatly in straight lines like the mounds in an asparagus field.

The young man next to Elagroudy looks at these rows and smiles. Ahmed El Tarek is a master student and knows that his professor has made sure that two tons of waste are no longer just dumped here every day, but are processed into fuel and compost. Elagroudy showed the operators of the facility how to extract the plastic, break it down into ever smaller pieces and dry it in the sun, and finally compress it into large bales and sell it to cement plants as fuel.

#### ECONOMICS IS ABOUT MORE THAN JUST PURE FINANCE

For El Tarek, the visit to the waste recycling plant is like a trip into his own future. The 36-year-old civil engineer has his own company, but he is looking for a new business model and new knowledge. At Cairo University they recommended he contact Elagroudy.

## NEF

The Next Einstein Forum is an initiative of the African Institute of Mathematical Sciences and the Robert Bosch Stiftung and aims to raise the visibility of African scientists at an international level. The initiative consists of mainly two elements: a science conference every two years — the next one taking place in Rwanda in March 2018 — and around 15 outstanding NEF Fellows. These talented young researchers present their work to the forum and create connections around the world.



Research for the environment: Sherien Elagroudy and Ahmed El Tarek (left) discuss a study with students.

#### WASTE IN EGYPT

## FACTS AND FIGURES

22 million tons

of domestic waste are generated in Egypt every year; this volume increases by around 3% each year.

Only 60%

of waste in Egypt is collected; the majority ends up in landfills or fly-tipping sites without any further processing.

60,000

people live as garbage collectors in Cairo: that's how they earn their living and provide the country with a record-breaking recycling ratio.

“  
Convincing people of the value of garbage  
is at least as great a challenge as the  
technical difficulties.  
”

“I did not know that there is a science related to waste,” he laughs. But the more he learns about it, the more certain he becomes that Cairo's streets are paved with money. The fuel obtained from plastic waste is used in cement plants for example. If the state provided fewer subsidies for coal, this sustainable fuel made of waste would be in even greater demand. But the government has a huge flaw in its reasoning, says Elagroudy: “They do not consider how well we protect the environment through recycling.” Or how quality of life would improve in a big city without rubbish on every street corner. Or how much the health of its citizens could improve without the pollution from burning coal – and certainly not how much carbon dioxide it could save. “Economics is about more than just the purely financial side.”

#### ENERGY CRISIS AS AN OPPORTUNITY

But how can you get it into people's heads? The Egyptian energy crisis of 2011 offered an opportunity to do so. Suddenly there was no longer enough oil and gas to run the power stations, cement plants with their high energy demand shut down, and there was no power. “We had to act quickly,” says Elagroudy. She grasped the opportunity to demonstrate that waste contains energy.

Back at the university, the scientist is surrounded by students and employees. She discusses the next steps one employee needs to take to launch his invention onto the market; a young man proudly hands her his master's thesis. “I want to be a pioneer like Dr. Sherien one day,” says the young man. Together they

study a graphic: “Germany deposits only two percent of all its waste in landfills,” says Elagroudy. Developing countries in contrast put 99 percent in landfills. “But we are a step further with our waste-to-energy system,” the professor says proudly. She is excited about students like El Tarek, who approaches research with an eye to application. “It ensures that things won't just remain a theory.” After all, convincing people of the value of garbage is at least as great a challenge as the technical difficulties.

#### A NEW BUILDING FOR WASTE

Shortly before she finishes work, Elagroudy makes a detour over the yard before collecting her son from nursery school. A new building dedicated to waste is being built here, a center of excellence. To build it, Sherien Elagroudy raised the largest subsidy amounts that have ever been awarded in Egypt: 10 million Egyptian pounds from the government and another 4.5 million from the university. Partly due to this success, Elagroudy was named one of the 15 most talented NEF Fellows in Africa. “On three floors, students will examine waste and improve how it is recycled,” she says enthusiastically. “We will bring up an entire new generation of young people with a special awareness of the problem of waste.” And finally convince the government of the value of waste.



Eva Wolfangel loves creating portraits of scientists and the topics they are passionate about. She was particularly impressed with Sherien Elagroudy's enthusiasm and persistence when faced with such a huge challenge.

Photos: Hadeer Mahmoud



# IN THE FOUNDATION’S FOCUS

*In order to react even more flexibly to global challenges, the foundation has identified focus areas it will concentrate on in the coming years. Here are several examples of the projects and approaches involved in this work.*

## NEW FOCUS AREAS

**How do we organize** migration, integration and inclusion so that everyone benefits from immigration? How can we preserve and strengthen social cohesion in Germany and Europe? And how can we create sustainable living spaces in both urban and rural areas? The foundation will focus its work on these questions in the future, along with the traditional areas of support in health, science, education, society and international understanding.

## MY FOREIGN TWIN

The date is 7 August 1963: a girl is born in Constance, another in Aleppo. At 14, one of them discovers a passion for sailing, while the other is already engaged. Both start a family, and both experience loss. At 53 years of age they meet. Are they “foreign twins?” A project of that name in Constance brings refugees and natives together who were born on the same day. It has generated not just an exhibition and a poster campaign, but also many encounters characterized by curiosity, respect and empathy – all in the spirit of the program entitled “Get together – Strengthening Dialog Between Refugees and Local Communities.”

Constance, Germany



Aleppo, Syria



## MIGRATION, INTEGRATION AND INCLUSION

*What is important for integration*

Refugees in Germany desire real contact with the population and stable personal relationships. This was revealed by the early results of a study into the living situations of asylum seekers, conducted by the SVR Research Unit (Expert Council of German Foundations on Integration and Migration) and the Robert Bosch Stiftung. According to the study, nearly all refugees who were surveyed would like to work and learn German. They also said that they were affected by the separation from their families and by the uncertain asylum status. The aim

is to develop recommended courses of action for improving integration from the insights of the study. That also includes surveying those who are usually only the subject of discussion.

Practical and fundamental research like this will improve our knowledge base and contribute to an open and objective discussion about migration – and thereby create a basis for an effective culture of welcome and recognition. At the same time, the foundation is working to ensure that every person living in the country has access to healthcare, education, science and society.

Photos: Jan Zapfner (1), Sofie Puutjärven (1), Theodor Barth (1), Kollegium Gotenschule (1), Volker Langenberger (1)

## SOCIAL COHESION IN GERMANY AND EUROPE



*Projects at the “Diversity Workshop” contribute to making diversity standard in our society.*

Reading is great,” says Mohammed. Wolfgang Hachtel, a volunteer, cannot imagine a better outcome for the work he does. For more than three years, the 76-year-old has been a volunteer for “My First Library,” a project organized by the “Culture Connects” club in Bonn. Every week he goes to an elementary school and reads to children with a migration background. “Mohammed was my first book mentee and he is a wonderful boy”, says Hachtel. He now has six book mentees whose parents are from Turkey, Algeria, Tunisia, Morocco, Sri Lanka and Croatia. “No matter how different these children are, they all have curiosity, open-mindedness and a zeal for reading in common.” The club launched the project in order to improve the exchange between different cultures and generations –

and receives support from the Robert Bosch Stiftung as part of its “Diversity Workshop” program. The aim of the program is to initiate contact between people from different social, cultural or religious backgrounds as a basis for mutual understanding and social cohesion. The foundation currently provides up to €7,000 to round 50 projects that contribute to lively neighborhood relations and building bridges between different worlds. Examples include an initiative where schoolchildren and refugees run a youth club together, and a history exhibition organized by students and senior citizens. Another is the above-mentioned reading campaign that make books accessible to children while introducing their mentors to a foreign culture. As well as financial support, the projects also receive technical advice from experts.

## SETTING AN EXAMPLE EVERY DAY

We all benefit from the freedoms offered by our open society. But radical and populist voices are increasingly challenging these achievements. They incite hate and propagate separation and social exclusion. The “Initiative for an Open Society” – a network of private individuals, campaign groups and institutions – is countering this development. For the period before the German Bundestag elections in September, the initiative has organized daily events and projects that strengthen social cohesion and stand up for tolerance, diversity and democracy. The foundation especially supports smaller initiatives that campaign for a strong community.

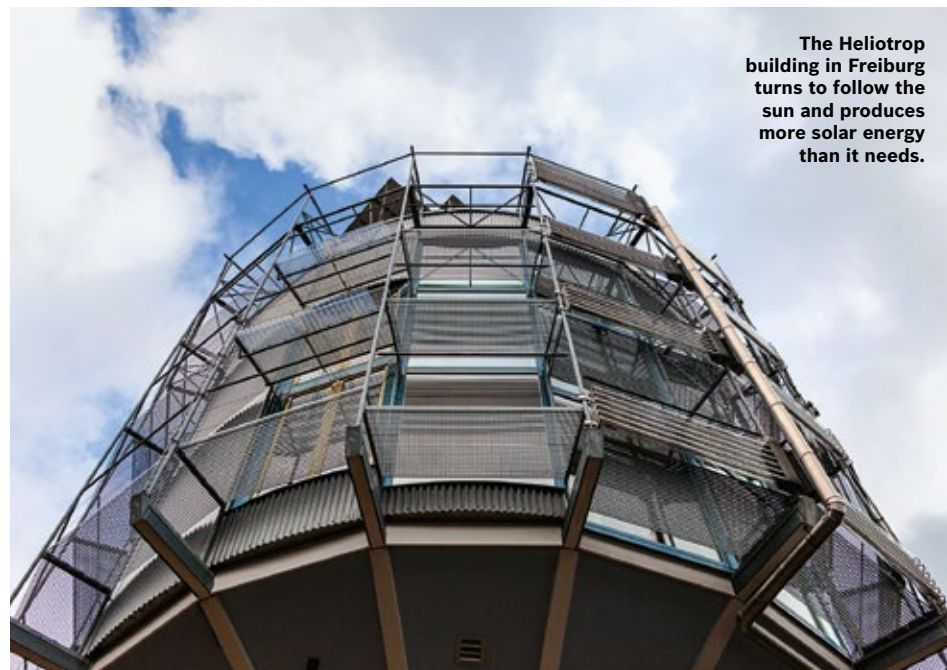


## ACROSS BORDERS

Schoolchildren from Strasbourg, Kehl, Tallinn and Helsinki examined the topic of taking flights for an entire school year. At the end of the project entitled “Open your eyes,” they exchanged experiences in Strasbourg and organized an exhibition. Together with refugees they organized a picnic on the French-German border. The project was part of an ideas competition entitled “On y va – auf geht’s – let’s go!”, which aims to encourage European citizens to participate in a lively cross-border community within Europe.



# SUSTAINABLE LIVING SPACES



The Heliotrop building in Freiburg turns to follow the sun and produces more solar energy than it needs.

*How can cities become more sustainable? Within the Baladiya program, city planners from the Maghreb look for answers.*

**F**ive degrees, grey skies and rain – Germany’s first solar settlement is probably not producing much energy today. Hafsa Bakri opens her umbrella and steps outside with the other participants of “Baladiya – New Paths in Urban Development.” Regardless of the weather, the young Moroccan and her fellow participants from Algeria and Tunisia are off to inspect Vauban, a sustainable district in Freiburg. And so the architects, town planners, landscapers and environmental engineers follow the local architect through small roads and bombard him with questions: What wood was used to build the Heliotrop house, which turns towards the sun like a sunflower in order to heat itself with solar collectors in winter? Where can you get low-cost solar modules?

The Baladiya program is all about exchange, both among the participants from North Africa as well as with their German colleagues who join them for

discussions, lectures and competence training. The Robert Bosch Stiftung has been running Baladiya in cooperation with the European Academy (Europäische Akademie Berlin) and the Society for International Co-operation (Gesellschaft für Internationale Zusammenarbeit) since 2013. Over the course of a year the participants attend several modules in Germany and North Africa, and can take part in a work placement if they wish.

Environmental engineer Hafsa Bakri will return to Freiburg for her work placement. She is in her early 30s and works at the regional directorate for the environment in Marrakesh. To her, the Vauban quarter is an ideal example. “And here, renewable energy sources are just one component: others include planting greens on roofs, collecting rainwater and reducing traffic,” Hafsa Bakri tells us enthusiastically. “I want to launch a pilot project in Marrakech that also combines several different aspects of sustainability.”

## DOCTORAL CANDIDATES FOR SUSTAINABILITY

The Robert Bosch Stiftung is supporting the creation of a doctoral studies course at Leuphana University of Lüneburg. Starting in October of this year, and under the heading “Processes of Sustainability Transformation,” twelve scholarship students will conduct research into the central challenges of the 21st century. They will examine topics such as resource shortages, climate change and social justice from inter- and trans-disciplinary perspectives. Research results should identify mechanisms and opportunities for sustainable change.

## APPROACHING GLOBAL PROBLEMS TOGETHER



The fight against climate change and social injustice knows no borders. Together with the EU-China NGO Twinning Program, the Robert Bosch Stiftung and the Stiftung Mercator promote cooperation between civic organizations from Europe and China. The program allows NGO employees to spend up to two months with a partner organization in another country that deals with social or ecological topics. The aim is to promote mutual understanding and identify starting points for further cooperation.

Photos: Simon Bierwald/Stiftung Mercator (1), Martin Geier (1)

## NEWS

### INTERNATIONAL UNDERSTANDING

## What do we stand up for?

**W**ith Brexit approaching, the challenges involved in the integration of refugees emerging, and neo-nationalist and anti-democratic forces gaining strength, European cohesion is being challenged in many areas. Some are questioning the values long considered non-negotiable in Europe. At the same time, part of society has withdrawn from rational discourse. For the second time, Leipzig Book Fair and the Robert Bosch Stiftung have organized the “Europa21. Thinking Tomorrow’s Society” focus program. At events held between March 23 and 26 and entitled “We in Europe – What do we stand up for?”, artists, intellectuals

and journalists like Katja Riemann and Martin Roth (on the right) discussed if and how solidarity in Europe can be improved in the future. Roth reminded everyone what is at risk: “For God’s sake, let us preserve peace.” Among the topics discussed were the social change, the culture of debate, and our identity as Germans and Europeans: “While talk shows reproduce a black-and-white approach every day, we want to work on a constructive culture of debate,” said Esra Küçük, curator of Europa21. The program also included workshop discussions with authors from Turkey and Israel, who provided insights into their work and spoke about the artist’s role in eventful times.



“For God’s sake, let us preserve peace,”

appealed Martin Roth.

### INTERNATIONAL UNDERSTANDING

## Awards for German-Arab film teams

**I**n many Arab countries you need courage to make films – particularly if you want to tell stories of independence and self-determination. And that is the subject of the German-Egyptian film project entitled “The Trap,” which won this year’s Film Prize for International Cooperation in the short film category. Other winners of the award, worth 180,000 euros in total, were “Night,” a German-Jordanian animation, and “Behind Closed Doors,” a German-Moroccan documentary film project. As part of Berlinale Talents, the most important international event



More than 50 teams competed for the prize this year, and three projects won awards.

for young film makers, the foundation gave awards to young film makers from Germany and the Arab world for the fifth time. And with success: in March, “Gaza Surf Club” became the first film made with the support of the foundation to be screened in German cinemas.

### EDUCATION

## Recognition of our work in education

The Robert Bosch Stiftung was nominated as the 2017 Didacta education ambassador for its extensive and sustainable commitment to education. The Didacta Association recognized in particular the contribution of the foundation to quality development in schools and to training pedagogic experts in early childhood education. As the initiator of the German School Award and founder of the German School Academy, the foundation has drawn public attention to good school practice.





## FOUNDATION

## A network for alumni

At the start of the year the Robert Bosch Stiftung founded a competence center for impact-oriented alumni work. The new International Alumni Center Berlin (iac) is also creating a Bosch Alumni Network that will connect former scholarship students, recipients of long-term support and employees and integrate their expertise into the work of the foundation.

## SOCIETY

## Opportunities in crisis situations

The Expert Council of German Foundations on Integration and Migration (SVR), which is supported by the Robert Bosch Stiftung, presented its annual expert report in April 2017. In the report, experts describe the deficits in the European refugee and asylum policy, but they also look at emerging opportunities for Europe and Germany and formulate suggestions on how to further develop EU refugee policy. The expert analysis also covers successful integration in Germany – in particular regarding living, education, integration in the labor market and the communication of values. The recommendation: avoid special programs and use the existing structures.

## INTERNATIONAL UNDERSTANDING

# Bridges across the Atlantic

*Madeleine Albright promotes transatlantic solidarity in Stuttgart – foundation expands cooperation with Brookings*

The world is in a chaotic state, and the EU is standing on one leg – at the 3rd Stuttgart Dialog, an event co-organized with the Stuttgarter Zeitung, Madeleine Albright painted a gloomy picture of world politics to an audience of about a thousand. The more chaotic the world, the more it demands leadership – but not American dominance. Nevertheless, the former U.S. Secretary of State found some words of optimism: she hopes that the new American president will be able and willing to learn. America needs partners, Albright said in favor of close transatlantic cooperation. Albright should therefore be in favor of the new “Brookings – Robert Bosch Foundation Transatlantic Initiative.” It aims to develop and expand reliable networks between the U.S. and Europe and provide independent research for policy recommendations on transatlantic challenges.



A pretzel pin for Albright to add to her brooch collection.

## SOCIETY

## An observer of rage and hope



Abbas Khider knows what he is writing about: the author fled to Germany from Iraq in 2000.

His current novel “Ohrfeige” (slap in the face) is set in a home for asylum seekers and deals with the dreariness of waiting. Abbas Khider was recognized for his complete works by being awarded the last Adelbert von Chamisso Prize for outstanding authors writing in the German language whose literature is affected by cultural changes. A total of 78 authors have been distinguished with the prize. The jury was impressed at how Khider dealt with problems of our time in a tragicomic way. “He makes us smile, plays with clichés, and lets us marvel at the miracles in adversity.” The promotional prizes went to Barbi Marković for “Superheldinnen” (superheroes) and to Senthuran Varatharajah for his book “Vor der Zunahme der Zeichen” (before the signs increased).

Foundation's laid – what's next?

## PEACE

## THE ENVIRONMENT IS THE VICTIM OF CONFLICTS

*Gidon Bromberg, a 53-year-old Israeli lawyer, founded Eco Peace, an environmental and peace organization, in 1994. Today it is active in conflict regions around the world.*

**Why is the protection of peace and the environment such a good fit?**

**Bromberg:** Environmental destruction is not usually the trigger for violence and conflicts. Nevertheless the environment is often the immediate victim of violent conflict, whether you are talking about bodies of water, open areas or biodiversity. And that has negative effects on the livelihoods of all parties in the conflict. An understanding for nature's lack of respect for borders is one of the few things that encourage warring factions to cooperate. Our experience has shown that even people involved in deep-rooted conflict will co-operate if they recognize that environmental protection is in their own interest – for example a supply of clean water. In the process they learn to understand the needs of other party and are more likely to compromise. We help them break through the cycle of reproach.

**How did you come into contact with the foundation?**

**Gidon Bromberg:** A Bosch Fellow who spent part of his fellowship on a work placement with us drew our attention to the foundation in 1998. We received support for the first time in 2012 for a joint project with the “Forum for Civic Initiatives” in Kosovo and



1998



2017

in 2013, when we were contacted by the Bosnian “Center for Ecology and Energy.” Our more than 20 years of experience in environmental protection and the promotion of peace in the Middle East were extremely useful in the process of building trust in Bosnia, which had been torn apart by civil war.

**How did you end up expanding the work of EcoPeace to an international level?**

**Bromberg:** First we concentrated on environmental protection and promoting peace between Israelis, Palestinians and Jordanians. Over the intervening years we were asked again and again to share our experience – first in Bosnia and Sri Lanka, then in India and Pakistan, and currently in Greece and Macedonia. With support from the foundation we have just launched the EcoPeace Center for Water Security in Washington, D.C. Instead of only helping those in urgent need, we are now able to work strategically and develop partnerships with local civic players around the globe in order to promote peace and environmental protection.

**How have you benefited from the foundation's support in the long term?**

**Bromberg:** The foundation enabled us to develop a sophisticated program and help other parties involved in conflict to benefit from our experience. If Israelis, Palestinians and Jordanians can work together, what is your excuse?

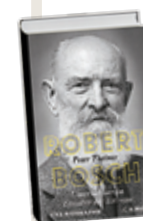
## FOUNDATION

## A change in the Board of Trustees

Dr Christof Bosch (58), grandson of the company founder Robert Bosch, assumed the chair of the board of trustees of the Robert Bosch Stiftung on 1 April 2017. He has been a member of the board since 1997 and takes the place of Dr Kurt W. Liedtke, who has left the board after reaching the age limit. Prof Renate Köcher has left the board at her own request; Prof Liselotte Højgaard and Dr Siegfried Dais have been nominated as the new members.

## FOUNDATION

## New Bosch biography



Entrepreneur and philanthropist Robert Bosch passed away 75 years ago. A new biography examines Bosch in his role as a man with the welfare of society close to his heart.

Historian Dr Peter Theiner shows Bosch in his economic, socio-political and cultural environment. He portrays the image of a dedicated democrat in whom foresight, commercial success, and a commitment to charity came together. The biography, entitled “Robert Bosch. Unternehmer im Zeitalter der Extreme” (entrepreneur in the age of extremes) is published by C.H. Beck.

Photos: privat (2), Markus Kirchgessner (1), Manuel Frauendorf (1), Leif Piechowski/ Lichtgut (1)

# #22

## PUBLISHING DETAILS

Robert Bosch Stiftung Magazine, No. 22, June 2017

The magazine is published with a circulation of 7,000. A PDF version can be downloaded from [www.bosch-stiftung.de](http://www.bosch-stiftung.de).

**Publisher:** Robert Bosch Stiftung GmbH, Heidehofstraße 31, 70184 Stuttgart, [magazin@bosch-stiftung.de](mailto:magazin@bosch-stiftung.de)

**Chief Executive Officers:** Uta-Micaela Dürig, Prof Dr Joachim Rogall

**Responsible:** Stefan Schott, Head of Communication **Editorial team:** Julia Rommel (chief editor), Philipp Nichel, Eva Wolfangel, Alexandra Wolters

**Layout and production:** C3 Creative Code and Content GmbH, Berlin **Printer:** steinkopf druck® stuttgart

Printed on FSC-certified paper.

ISSN no. 1865-0910